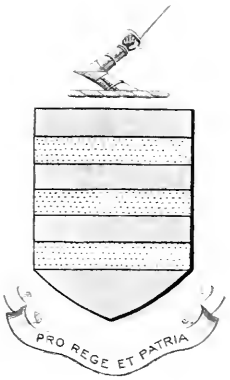


MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

MILDRED K. SMITH

ASSISTANT TO THE EDITOR

EDITORIAL STAFF

CHARLES A. CLOUTING, M.D.
CHARLES GREENE CUMSTON, M.D.
A. A. ESHNER, M.D.
EDWARD PREBLE, M.D.
R. J. E. SCOTT, M.D.
RALPH G. STILLMAN, M.D.
WESLEY G. VINCENT, M.D.

Volume 100

JULY 2, 1921—DECEMBER 31, 1921

WILLIAM WOOD AND COMPANY

1921

LIST OF CONTRIBUTORS TO VOL. C.

ABRAMS, ALBERT, San Francisco, Cal.
ABRAMS, MARC V., Brooklyn, N. Y.
ALLEN, THOMAS J., Eureka Springs, Ark.
ANDERS, J. M., Philadelphia, Pa.

BABCOCK, W. WAYNE, Philadelphia, Pa.
BAINBRIDGE, WILLIAM SEAMAN, New York.
BALLENGER, EDGAR G., Atlanta, Ga.
BARRY, JOHN H., New York.
BATES, W. H., New York.
BENNETT, H. S., Washington, D. C.
BERGHAUSEN, OSCAR, Cincinnati, Ohio.
BERKELEY, WILLIAM N., New York.
BERMAN, LOUIS, New York.
BISHOP, ERNEST S., New York.
BISHOP, LOUIS FAUGERES, New York.
BLATTEIS, S. R., Brooklyn, N. Y.
BOORSTEIN, SAMUEL W., New York.
BOUDREAU, EUGENE N., Syracuse, N. Y.
BRILL, NATHAN E., New York.
BROOKS, HARLOW, New York.
BROUN, LEROY, New York.
BROWNING, CHARLES C., Los Angeles, Cal.
BROWNING, WILLIAM, Brooklyn, N. Y.
BRUNNER, M., Brooklyn, N. Y.
BRYCE, C. A., Richmond, Va.
BULKLEY, L. DUNCAN, New York.
BURK, SAMUEL B., New York.
BYFORD, WILLIAM H., Chicago.

CADBURY, WILLIAM W., Canton, China.
CAMPICHE, PAUL, San Francisco, Cal.
CHAPIN, HENRY DWIGHT, New York.
COBURN, RAYMOND C., New York.
COLE, CARTER S., New York.
COLLINS, ASA W., San Francisco, Cal.
CULVER, GEORGE D., San Francisco, Cal.

DIEFFENBACH, WILLIAM H., New York.
DINER, JACOB, New York.
DOWD, J. HENRY, Buffalo, N. Y.
DRUECK, CHARLES J., Chicago, Ill.
DUNCAN, REX, Los Angeles, Cal.
DWORETZKY, JULIUS, Liberty, N. Y.

EARP, SAMUEL E., Indianapolis, Ind.
EASTMOND, CHARLES, Brooklyn, N. Y.
EAVES, JAMES, San Francisco, Cal.
EINHORN, MAX, New York.
ELDER, OMAR F., Atlanta, Ga.
ELLISON, EVERETT M., Washington, D. C.

FAIR, H. D., Muncie, Ind.
FARR, ROBERT EMMETT, Minneapolis, Minn.
FELDMAN, SAMUEL, New York.
FIELD, C. EVERETT, New York.
FISCHER, LOUIS, New York.
FISHER, CHARLES F., Brooklyn, N. Y.
FISHER, EDWARD D., New York.
FLOYD, ROLFE, New York.
FOSCUE, G. B., Waco, Tex.
FOX, LOUIS, New York.
FRIEDMAN, G. A., New York.
FRIEDMAN, JOSEPH, New York.

GLASSBURG, New York.
GOMPERTZ, LOUIS M., New Haven, Conn.
GRAHAM, DOUGLAS, Boston, Mass.
GREELEY, HORACE, Brooklyn, N. Y.
GREENE, JAMES SONNETT, New York.
GREENFIELD, SAMUEL D., New York.
GREENOUGH, JAMES, New York.
GRIFFIN, WALTER W., New York.
GROSZMANN, MAXIMILIAN, P. E., New York.
GROTE, L. RADCLIFFE, University of Halle, Germany.
GUTMAN, JACOB, Brooklyn, N. Y.
GWATHMEY, JAMES T., New York.

HABERMAN, J. VICTOR, New York.
HALSEY, ROBERT H., New York.
HANNAH, LOUIS, Sylvania, Ga.
HEMMETER, JOHN C., Baltimore, Md.
HERZ, LUCIUS FELIX, New York.
HEYD, CHARLES GORDON, New York.
HOAK, WARREN H., Baltimore, Md.
HOFFMANN, W. H., Havana, Cuba.
HOLMES, BAYARD, Chicago, Ill.
HOMAN, GEORGE, St. Louis.
HULETT, ALBERT GROVES, East Orange, N. J.
HUHNER, MAX, New York.
HUNT, EDWARD LIVINGSTON, New York.
HURD, LEE M., New York.

JACKSON, FREDERICK E., Indianapolis, Ind.
JACKSON, J. ALLEN, Danville, Pa.
JACOBS, WILLIAM F., Buffalo, N. Y.

KAHN, ALFRED, New York.
KAHN, ISADOR W., New York.
KATZ, JOSEPH, New York.
KENNA, WILLIAM M., Washington, D. C.
KERLEY, CHARLES GILMORE, New York.
KILDUFFE, ROBERT A., Pittsburgh, Pa.
KOHANE, MAX, Vienna.
KOHN, L. WINFIELD, New York.
KNOPF, S. ADOLPHUS, New York.

LAIRD, DONALD A., Iowa City, Ia.
LANDSMAN, ARTHUR A., New York.
LEMCHEN, B., Chicago.
LEVEN, G., Paris, France.
LEVIN, ISAAC, New York.
LEWIS, NOLAN, D. C., Washington.
LISSNER, HENRY H., Los Angeles, Cal.
LITTLE, SEELYE W., Rochester, N. Y.
LOSEE, J. R., New York.
LYDING, H. W., New York.

MACLEOD, JAMES A., Buffalo, N. Y.
MCCREADY, E. BOSWORTH, Pittsburgh, Pa.
MCCREADY, J. W., New York.
MCNUTT, Sarah, New York.
MALLORY, WILLIAM J., Washington, D. C.
MANHEIMER, WALLACE A., New York.

MAYO, CHAS. H., Rochester, Minn.
MEHL, WILLIAM, Buffalo, N. Y.
MITCHELL, J. W., Morristown, N. Y.
MONTGOMERY, DOUGLAS W., San Francisco, Cal.
MORRIS, ROBERT L., New York.
MORROW, J. FLOYD, Morgantown, W. Va.
MORSMAN, CHARLES FRANK, Spokane, Wash.

NAMMACK, CHARLES H., New York.
NEMSER, MAXMILIAN M., New York.
NIXON, JAMES W., Jr., San Antonio, Tex.

O'REILLY, JOHN J. A., Brooklyn, N. Y.

PAGET, OWEN, Perth, West Australia.
PALIER, E., New York.
PEARSON, C. B., Catonsville, Md.
PELOUZE, P. S., Philadelphia.
PENNINGTON, J. RAWSON, Chicago, Ill.
PERKINS, CHARLES E., New York.
PILCHER, JAMES T., Brooklyn, N. Y.
POTTENGER, F. M., Monrovia, Cal.
PRENTISS, ELLIOTT C., El Paso, Tex.

REDFIELD, CASPER L., Chicago, Ill.
REILLY, THOMAS F., New York.
RICE, EDWARD, Kelseyville, Cal.
RUHRÄH, JOHN, Baltimore, Md.

SAJOUS, CHARLES E. DE M., Philadelphia, Pa.
SALZMAN, S. R., Toledo, Ohio.
SATTERTHWAITE, THOMAS E., New York.
SAVAGE, A. BARKER, New York.
SAYER, ARTHUR, New York.
SCHEFFEL, CARL, Brookline, Mass.
SCHEPPEGRELL, WILLIAM, New Orleans, La.
SCHOLZ, MOSES, Los Angeles, Cal.
SELINGER, JEROME, New York.
SHARPE, WILLIAM, New York.
SMITH, ETHAN H., San Francisco, Cal.
SNOW, MARY L. H. ARNOLD, New York.
SOMMER, HENRY O., Washington, D. C.
SORESI, A. L., New York.
SPOONER, LESLEY H., Boston, Mass.
STERN, SAMUEL, Atlantic City, N. J.
STEWART, DOUGLAS H., New York.
STEWART, HARRY EATON, New Haven, Conn.
STOCKTON, CHARLES G., Buffalo, N. Y.
STONE, CHESTER TILTON, Brooklyn, N. Y.
STONER, A. P., Des Moines, Iowa.
SYMONDS, BRANDRETH, New York.

TALMEY, B. S., New York.
TAYLOR, J. MADISON, Philadelphia, Pa.
THOREK, MAX, Chicago, Ill.
TOMPKINS, ERNEST, Pasadena, Cal.
TRACY, JAMES L., Toledo, Ohio.
TROSTLER, I. S., Chicago, Ill.
TRUESDALE, P. E., Fall River, Mass.
TUCKER, BEVERLY R., Richmond, Va.
TURCK, FENTON B., New York.
TWEDDELL, F., Great Neck, N. Y.

VAN BAGGEN, N. J. POOCK, San Francisco, Cal.
VAN HOOK, WELLER, Chicago, Ill.
VORHAUS, MARTIN G., New York.

WALSH, JAMES J., New York.
WALTERS, WALTMAN, Rochester, Minn.
WARBRICK, JOHN C., Chicago, Ill.
WARD, E. H. P., White Plains, N. Y.
WATKINS, F. E., La Romana, Santo Domingo.
WECHSLER, I. S., New York.
WIENER, ALFRED, New York.
WILCOX, REYNOLD WEBB, New York.
WILLIAMS, CHARLES MALLORY, New York.
WILLIAMS, EDWARD HUNTINGTON, Los Angeles, Cal.
WILLIAMS, HENRY SMITH, New York.
WILLIAMS, TOM A., Washington, D. C.
WILLIS, GEORGE STUART, New York.
WRIGHT, JONATHAN, Pleasantville, N. Y.

YARBROUGH, J. F., Columbia, Ala.

Societies of Which Reports Have Been Published.

AMERICAN GYNECOLOGICAL SOCIETY.
AMERICAN LARYNGOLOGICAL ASSOCIATION.
AMERICAN MEDICAL ASSOCIATION.
  Section on Pediatrics.
AMERICAN PEDIATRIC SOCIETY.
AMERICAN THERAPEUTIC SOCIETY.
ASSOCIATION OF AMERICAN PHYSICIANS.
BRITISH CONGRESS OF OBSTETRICS AND GYNECOLOGY.
BRITISH MEDICAL ASSOCIATION.
INFANT WELFARE CONFERENCE.
MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.
MEDICAL SOCIETY OF THE STATE OF NEW JERSEY.
MEDICAL SOCIETY OF THE STATE OF NEW YORK.
  First District Branch.
NEW YORK ACADEMY OF MEDICINE.
  Section on Medicine.
  Section on Obstetrics and Gynecology.
  Section on Pediatrics.
  Section on Surgery.
PHILADELPHIA COUNTY MEDICAL SOCIETY.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 1.
Whole No. 2643.

NEW YORK, JULY 2, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

THE BIOLOGICAL CAUSE OF METABOLISM AND METABOLIC DISEASES.*

EFFORT SYNDROME—CAUSE AND TREATMENT OF FATIGUE, ARTHRITIS, NEURITIS, ARTERIAL SCLEROSIS AND OTHER METABOLIC DISORDERS.

BY FENTON B. TURCK, M.D.,

NEW YORK.

THE most extraordinary biological discovery within the last twenty-five years of research work, is that cell multiplication and metabolism is specifically excited by tissue extract. Another development of this fundamental biological principle, is that when these tissue extracts were liberated in excess of the biological requirements, disease and death were the inevitable result. So far our experiments show that the phenomena of life, health and disease, are based on these two fundamental laws. Whether this active cellular body was liberated from the cell by chemical, mechanical, or physical methods, the tissue extract always produced the same biological phenomena.

The writer demonstrated in 1896 that the liberation of this specific cell body was accomplished by fractional coagulation and filtration of the tissue substance through a Pasteur filter, and later by incineration to an ash. The "active principle" liberated, was found to act the same by whatever means were used in the extraction. The action in the organism only differed with the degree of concentration of the "tissue extract" when injected into animals or liberated in the tissues. It was found that mustard oil when introduced into the stomach, liberated from the tissue cells *in situ* this specific cellular substance always caused increased mytosis and metabolism. The metabolic activity of the cells was also increased by the liberation of tissue extract by use of nitrate of silver, weak solutions of chromic acid, tannic acid, and many other chemical agents. Especially was the reaction of increased mytosis noted when those tissues were involved that arise from the endodermic layer in the embryo such as the stomach.

The stomach and duodenum were the favorite sites of my earlier studies because of the prompt reaction that always occurs in the splanchnic zone, and I could readily remove from the gastric mucosa, material for examination from time to time by a simple instrument I invented in 1893 called the "gyromele." Material from the duodenum was also taken in the same manner as from the stomach, by passing the gyromele tube through the stomach into the duodenum (1894). Also specimens were taken from the deeper tissues by "nippers" and these fragments of tissue were fixed for histological study. When these tissue extracts were injected into animals, it resulted in violent reaction which occurred primarily in the splanchnic area and caused death. In the acute abrupt reaction, I called the phenomena "toxic shock" and because of the substance which produced the reaction "shock by toxin" (1894).

Many years ago I pointed out that the inner cylinder in the embryo, formed from the endodermic layer, was more responsive or sensitive than the outer cylinder which accounted for the reactions occurring always in the splanchnic area—the upper alimentary tract, including the embryological offshoots, the liver and lungs. These cells are the chief cells involved in all the biological reactions. It is this fundamental embryological factor that shows by vital statistics, the mortality of man.

Cytost and Anticytost in Metabolism.—To separate the metabolism of the cell from cell division and growth, is practically impossible. That which excites cell division must also include the taking up of pabulum and oxygen from the surrounding media or reserve supply and the liberation of energy. Every cell whether it be a complete organism, as the protozoa, or whether it be one of the coordinated multitude constituting the multi-cellular animals, has the power of growth through cell division.

In studying the life of the cell in the attempt to discover what is the activator of cell metabolism and division, we find (1) that injury of the cell, whether by *x*-ray penetration of the nuclear substance, or by penetration of the membrane by ice crystals, or by stirring up the protoplasm, results in a great outburst of chemical activity, literally an explosion of the disarranged components of the cell with resultant destruction of the cell. We find (2) that less violent stimulation, mechanical, physical or chemical, applied to the cell will liberate a loosely combined substance within the cell which sets the cell particles in motion and excites the cell to metabolism and division. This activating substance which can be isolated is found in the protozoa, in cell cultures of the higher animals, and in vegetable organisms. It can be easily extracted from any living or dead tissue of plant or animal by means of water, alcohol, or other agents, and by incineration which causes no loss of its specific effect. In laboratory experiments to distinguish this element which thus initiates cell

*Presented with demonstrations before the Academy of Medicine, Section on Nervous Diseases, Oct. 12, 1920, and in Symposium on Metabolic Diseases, Meeting of Medical Union, Cornell Club, April 26, 1921.

division and metabolism, we have named it *Cytost* (Cytos—a cell). The element which causes division and metabolism of the cell I have named *Cytost*.

Laboratory experiments further explain our findings. Tissue cultures supplied with uncoagulated blood plasma and placed in the incubator will not of themselves take up the pabulum from the blood and oxygen, and consequently will not grow. The addition of more blood, or stimulation by electricity or by acids or alkalies, or application of a greater degree of heat, all have perfectly negative results. The cultures still refuse nourishment. But the addition of a fraction of a drop of cytost (or rather of cytost in physiological proportions for the culture) immediately starts metabolism and cell division. Thus, in 34 tissue cultures, there were 384 transplants; in 308 of the transplants, homologous cytost was added to the cultures with the result that they continued to thrive; whereas, the other 76 transplants without the addition of cytost perished from lack of the required cell activation. Thus we may say that tissue cultures refuse to grow and metabolize until the extract of the cell is brought into contact with the living.

Cell Injection of Tissue.—Both young and adult animal metabolism is dependent upon this activator (cytost) and plant life requires the same stimulation.

Cytost is specific to the species; it must be extracted from animal cells of the same species as that of the tissue culture cells. Thus cytost from the cat will not activate dog tissue cells, nor will dog cytost affect human tissue; each tissue responds only to the tissue extract cytost) extracted from cells of its own species.

Injections of Varying Concentrations of Cytost.—As has been seen, the addition of physiologically suitable amounts of cytost to a tissue culture results in starting the cell particles to greater activity. When, on the contrary, a large amount of cytost (high concentration) is supplied in excess of the physiologic needs of the cell, the cell abruptly becomes viscous, the action of the particles is stopped, and the cell is dead. If a large but sublethal quantity of cytost is added to the cultures, cell activity is slackened, with eventual death from asphyxia and starvation. Similarly, injection of too high a concentration of cytost directly into the living intact animal (as dogs or cats) will bring about stasis and death. (Shock.)

The effect of cytost on the protozoa and on tissue cultures, the local tissue reaction in the living animal, and in the general organism of plants and animals as a whole, are expressions of the same law, *e.g.*, that a low concentration of cytost excites cell division and metabolism; that a higher concentration overexcites the viscosity reaction and slows the living activity; while a still higher concentration brings about such a high degree of viscosity that adsorption and death (shock) follow.

Anticytost.—The varying degree of cell reaction that follows the introduction of cytost indicates that an opposite element is present in cells to stabilize and preserve a delicate biological balance. This force resistant to cytost, its antibody, we call "anticytost." It is found normally in all blood and is created by the stimulating effect of small quantities of cytost that is liberated from the cells of the body. Our experiments have revealed that the degree of "anticytost" production in an animal is dependent on the graduated increased concentration of cytost introduced into the animal at regular stated intervals. These periodic injections render the animals relatively immune to the viscosity reaction of the higher concentrations of cytost. Hence, as in such adult vigorous animals, the plasma contains an excess formation of "anticytost," cells planted in plasma from these animals cannot metabolize and divide, owing to the inhibitory effect of the "anticytost" present. This inhibitory effect may be overcome and these same cells made to grow if an ordinarily lethal quantity of cytost be added to the blood plasma overcharged with "anticytost." Conversely, when a normal tissue culture begins to die from the viscosity reaction of an excess concentration of cytost, this reaction may be checked by the addition of "anticytost" and the culture saved. These facts prove that there is an exact balance between these two opposing substances. Likewise in the test tube, a combination of a lethal concentration of cytost with anticytost of the same species will neutralize the effect of the cytost so that no effect will be produced by the mixture (cytost-anticytost) either in tissue cultures or in injected animals. In other words, animals rendered actively immune to large or high concentrations of cytost showed in their blood serum a correspondingly high titre of antibody content which conferred immunity (passive) to other animals on injecting this immunizing antitoxin serum.

The blood of any animal may be so impregnated with anticytost (through the periodic injections of small doses of cytost) that the animal may be made so immune that he can withstand 500 times the dose of cytost that will kill a normal animal in three seconds. Thus we may understand why an old vigorous animal, made vigorous by repeated exercise, breaking down cytost, will have produced in his system more anticytost than a young weak animal. This explains why plasma from older, more vigorous animals prevent young tissue cells from growing, and why young and delicate animals must be used for obtaining the blood plasma for cultivating living tissues in vitro.

The ability to recover both of these cellular elements, cytost and anticytost, makes it possible to prove in vitro and in vivo that cytost is the only positively exciting agent that causes cell division and that its action is controlled by the negative agent, anticytost. These facts indicate that any agents whatsoever that result in cell division and metabolism must do so by first liberating cytost from the cell or within the cell.

Our ability to measure quantitatively as well as determine qualitatively the interaction of cytost and anticytost in the phenomenon of cell division and metabolism is as striking as the instantaneous death produced by cytost and the prevention of death by the administration of anticytost, or the combination of cytost and anticytost to form a neutral mixture. Between the two extremes of death and of increased normal metabolism are produced all the myriad biological expressions that are classified under the names of various pathological conditions. These facts are of such great scientific and practical application, as all our experiments have shown, that

we must conclude that we have here within our grasp a firm fundamental principle of wide application in biology. The application of this principle to the special field of therapeutics is only one phase of its general significance.

Investigations of this kind, to gain a measured knowledge of the subject, cannot be fruitfully carried out in the higher animals alone, but must depend also on the cultures of protozoa and cell cultures of higher forms, combined with physical and biochemical research. By these methods of research are furnished the most varied and conclusive evidence that bring us to the focal point of the determining factor in cell division and metabolism, in both healthy and diseased states of plant and animal life.

Liberation of Cytost in the Organism.—A. By a Deficiency Diet: Starvation and partial starvation methods were also used in metabolic studies. True autointoxication was induced by "forced feeding" with beef extract, *B. coli*, or heated fat added to the regular ration. By thus preventing normal digestion absorption and assimilation, "cytolysis and autocytolysis" occurred to supply the induced deficit. A large number of peptic ulcers in various animals were induced as an index of "auto-tissue extract" intoxication (1906, 1907, 1908, 1914) of the animals. Total starvation always resulted in autointoxication from autolyzed tissue ("Effect on Longevity of High Living," *Medical Exam. and Pract.*, August, 1907, p. 240-6, Trans. Oregon State Med. Assn., July, 1907). This intoxication was shown to be due to autolysis of the tissue by histological examination. 'The autolytic changes were evidenced by the faintness and disappearance of the nuclear staining." In both total and partial starved animals the chronic autointoxication was shown by early liver, kidney changes, later arteriosclerosis, peptic ulcers, hemorrhages and death. "Degenerative changes were found in all the organs of the body."

B. By Chemicals (1906-7): Mustard oil fed to animals caused similar phenomena, though the animals developed immunity to the effects of mustard oil emulsions (Trans. Tenn. State Med. Assn., Nashville, Tenn. (1905, p. 150)—(Experimental Gastritis, *N. Y. Med. Jour.*, October 25, 1902). The administration of chloroform, ether and alcohol for a variable length of time caused cell necrosis. The products of cell necrosis resulted in shock followed by degeneration and chronic metabolic diseases (1903). (Shock Produced by General Anesthesia, *Jour. A. M. A.*, May 2, 1903). Alcohol was found to be the sole factor indirectly. Chronic degenerative changes which produced autointoixcation long after the alcohol, was withdrawn (*North. Am. Pract.*, May, 1893, p. 227-230). Injecting chloroform, alcohol, and ether into muscle tissue (1919) and after cell necrosis, a short period when cell necrosis occurred, the tissue extract thus liberated was aspirated, injected into animals, producing acute or chronic metabolic disorders according to method of injection.

To extract the active principle cytost, we have used every organ and form of tissue from a large variety of animals. Various names have been given to this tissue extract. In the last twenty-five years of our research work on this topic it has been variously designated according to the method of extraction and the tissue or organs used. Thus, "mucous membrane bouillon" (1894), "stomach toxin" (1896), "muscle fatigue extract," "pylorum," 1903, etc. Furthermore, other names were given according to the peculiar biological reactions that occurred, especially on injecting this specific active principle into animals or liberating it from the tissues.

When shock and death was thus produced (injection or liberation of the toxin), it was called "shock toxin" (1897). When general or local fatigue, as atony or dilatation of the viscera, occurred by the injection of the same product, it was called "fatigue toxin," "waste products," or "metabolic poisons," metabolites, etc. This confusion is prevented and it becomes more clear by whatever method we use in the extraction to name the active principle "cytost" (from cytos, a cell).

Whether we extract cytost from the tissues by water, alcohol, or by incineration to an ash, cytost acts the same, depending upon the degree of concentration. The reaction that follows the liberation of cytost in the tissues, or injected subcutaneously, depends upon the degree of concentration of cytost and the anticytost present in the organism. Speed or velocity action is controlled by these two factors—cytost-anticytost reaction. This cytost-anticytost reaction which we have studied *in vitro* and *in vivo* for the last twenty-five years, makes simple and clear the whole biological trend. As Calkins laconically remarked (referring to this cytost-anticytost reaction in the cell), that here we have "a great principle, biologically unassailable, and the application of it is subject to no adverse criticism."

Experiments.—Experiments with (1) Tissue Cultures, (2) Protozoa, (3) Bacterial Cultures:

1. *Tissue Cultures.*—Cytost was extracted by autoclaving 10 grams of macerated or autolyzed tissue in 10 c.c. of water centrifuged and filtered; ignition of 10 grams of tissue to ash at or below 400° C., to which is added 1 c.c. of water for standard concentrated solution. Either of these methods gave the cytost reaction, the latter being free from "organic matter." Homologous-tissue cytost was used in all experiments except for the controls; heterogenous cytost tissue extract was added to the cultures. Three degrees of concentration was found to act each in a specific and definite manner.

Low concentration of cytost that excited cell division and metabolism is abbreviated as L. C.

Medium concentration of cytost which seemed to inhibit cell division and metabolism abbreviated as M. C.

High concentrated cytost which resulted in stopping cell division, resulting in death of the cell, abbreviated as H. C.

The exact concentration to produce these definite reactions was arrived at by the empirical results.

By conductivity experiments we are better able to make the concentrations and reactions more exact. Cytost was obtained from human tissue and from chick tissue for control in tissue cultures: 34 chick-cell cultures, 25 human-cell cultures, 384 transplants to which 308 cultures cytost L. C. was added; 76 cultures—no cytost was added and no cytost allowed to form in the cultures; 25 cultures H. C. cytost was added.

Result: The 308 cultures with L. C. cytost thrived and continued each to show active mitosis, while 76 cultures without cytost died. The 25 cultures with H. C. cytost also died the same as those cultures without L. C. cytost. Control by adding L. C. heterogenous cytost to the cultures which were negative in their action.

2. *Paramaecium Cultures.*—There has always been difficulty in obtaining pure cytost from paramaecium cultures—difficulty is in obtaining sufficient amount and free from foreign debris. On advice of Professor Calkins we grew the cultures in great numbers in small vessels for ten (10) days; gathered the slimy deposit on the surface and side of the vessels; washed and centrifuged the growths and evaporated to dryness. The residue was treated for extraction the same as ordinary tissue cells. To the tube cultures of paramaecium in hay infusion was added L. C., M. C., and H. C. of paramaecium cytost.

L. C. paramaecium cytost added to the tube cultures caused very active motility and cell division. Paramaecium cytost added to 50 tubes with L. C. cytost gave full, rich cultures. Controls in which no cytost was added, 50 per cent. less paramaecium, was noted in many of the tubes. It is difficult to prevent cytost from being liberated in these control cultures due to the death of some of the paramaecium. M. C. materially slows the activity of the paramaecium. H. C. paramaecium cytost causes entire death of the cultures within a few hours. No cultures with H. C. cytost lived twenty-four hours. The paramaecium first move in a narrow revolution, then rotate on their own axis, and finally become encysted and die. Heterogenous cytost from other animal tissue in the same concentrations used in these experiments did not produce the cell multiplication in low concentrations, nor death in high concentrations.

3. *Bacterial Cultures.*—In 1912 we grew in our laboratory on synthetic media *B. coli* in mass cultures and 80 grams of pure solid *Bacilli coli communis* was obtained.

To one gram of this solid *B. coli* was added 10 c.c. water and autoclaved, and also 1 gram incinerated at 400° C., and to the ash was added 10 c.c. of water. *B. Coli* cultures were made in the usual manner, to which were added L. C., M. C., and H. C. of *B. coli* cytost.

Considerable empirical work was done to determine the degrees of concentration of *B. coli* cytost to produce the variation and degrees of growth. On adding one-tenth dilution standard *B. coli* cytost to 10 c.c. tube cultures, the *B. coli* growth was stimulated. Dilution of one-tenth M. C. *B. coli* cytost inhibited growth, H. C. *B. coli* cytost added to the culture stopped growth of *B. coli*. L. C. *B. coli* cytost is negative in G. C., staphylococcus and streptococcus cultures. H. C. *B. coli* cytost stops all growth in 24 to 48 hours. The quantitative determinations will appear in a special communication on cell cultures.

Conclusion: In bacterial cultures high concentration of cytost inhibits growth and low concentration of the specific cytost stimulates growth. These experiments explain why "old cultures" die out. It is due to excess accumulation of the specific cytost from the dead bacteria.

Discussion on the Experiments with Cytost Added to Single Cell Cultures.—By combining experiments on single cell cultures, protozoa, and bacteria with similar experiments made on metozoa or in animal tissue, we may by these comparative studies more clearly interpret the biological reactions in all animal experiments, including man. As colonies of cells require products of their own kind, specific cytost to stimulate their growth and metabolism, it is more readily recognized why the same specific stimulation (cytost) is required for the growth and metabolism of the aggregation of cells in metozoa in all animals, including man. It also explains why excess of cytost caused a stasis or stopping of all growth, metabolism, ending in death. This brings us to the effect of specific cytost produced locally in animal tissue. This has a great practical bearing in wound healing and in the problems of overgrowth of tissue, including tumor growths.

Metabolism Experiments on Animals with Cytost Injected into the Tissues or Peritoneal Cavity.—Animals used—cats, dogs, and rats. The specific cytost was made either by direct water extraction from the tissues, using 10 grams of tissue to 10 c.c. of water, and filter. Secondly, by ignition to an ash and adding enough water for the desired concentration .25 c.c. of specific cytost to each 1,000 grams of animal was used (same concentration as tissue extract). We have selected fromour protocols ten adult cats that were injected over a period of from one to eight months. All the animals gained in weight and showed increased metabolism.

Control animals of similar weights and age and kept under similar conditions did not show the increase in general metabolic activity. Some of the animals showed an increase of nearly 50 per cent. gain.

TABLE No. 1

Number of Injections	Interval	Period	Original Weight	Weight Increased	Net Gain
10	2 weeks	2½ months	4230 grams	5355	1125
7	2 to 5 days	1 month	2880 grams	3140	260
5	2 to 3 weeks	3 months	2950 grams	3650	700
21	2 to 5 days	4 months	2180 grams	3090	910
5	2 to 3 weeks	2 months	2840 grams	3260	420
13	2 to 3 weeks	6 months	2830 grams	3780	950
15	2 to 4 weeks	8 months	3000 grams	4020	1020
12	2 to 4 weeks	6 months	3500 grams	4520	1020
14	2 to 4 weeks	6 months	3020 grams	4010	990
13	2 to 4 weeks	7 months	4250 grams	5030	780

These are all aged cats that had reached maturity. There are males, females, and castrates. These animals have a general appearance equaled by very few if any that have not been immunized. There is a firmness of muscle, sleekness of coat, absence of fat (noticeable particularly in the castrates, which *always* become heavy with adipose). Playfulness, which is quite uncommon in old cats, as well as unusual courage. Their wounds healed without suppuration, even though they are kept in the same pen and no attention given to them. Used as controls in wound healing, lung insufflation, and shock experiments, they have demonstrated their immunity to disease and injury. Seven of these cats after two years are in the laboratory, healthy and vigorous.

This table shows the effect of more frequent injections of specific cytost, which is similar in effect to

the injection of high concentration as shown in Table No. 3. These frequent injections (either daily or in two or three day intervals) caused progressive decline in weight and general metabolism, and finally ends in death of all the animals.

TABLE No. 2

Amount Injured	Interval	Period	Orig. Wgt.	Wgt. at death	Loss	Disease Resulting
			Grams			
Subcutan. 1 and 2 c.c.	2-5 days	6 months	2970*	1420*	1550	Arterial Sclerosis
1 c.c. Subc. and Intraperitoneal	Daily	2 months	2335	1180	1155	Arterial Sclerosis
2 c.c. Intratracheal	2-3 weeks	1 year	3960	2550	1410	Arterial Sclerosis
2 c.c.	1 inj.	3 months	2920	1775	1145	Lobar Pneumonia Chronic Form. died in epileptic convulsion
Subcutan. 2 c.c.	2 days	2 months	3980	3090	890	Chronic Lobar Pneumonia, Ulcers and Nephritis
1 and 2 c.c.	4 days	1 month	3130	1950	1180	Pneumonitis, Hepatitis, Nephritis Duod. Ulcer
Insufflation 2 c.c.		13 days	2680	1750	930	Pneumonitis
2 c.c.	"	26 days	2260	1460	800	Chronic Lobar Pneumonia, Hepatitis, Nephritis

Summary of Experiments of Table No. 2.—Instead of a gain of approximately 50 per cent. in weight as occurred in some of the animals in Table No. 1 injected with low concentration at wide intervals, we have the direct opposite effect of 50 per cent. loss in weight by more frequent injections, or as shown in Table No. 4, high concentration effect. The progressive character of the metabolic decline ending in arterial sclerosis, nephritis, peptic ulcer, shows, as in the writer's earlier experiments, that products of tissue breakdown are the cause of these diseases. When the injections of cytost were made directly into the trachea, the cytost came in direct contact with the endodermal tissue cells derived from the endodermal layer of the embryo, there resulted at once rapid decline with chronic lobar pneumonia ending in death.

Intravenous injections of L. C. cytost act as high concentration because they come in direct contact with the endodermal cells of the splanchnic area as in the intratracheal injections.

TABLE No. 3

Number of Injured	Interval	Period	Orig. Wgt.	Wgt. at Death	Death in
High 3 Intravenous	5 days	15 days	2980*	2000*	5 weeks
1	.....	...	.	....	2 minutes
High 1	...		3180	2340	1 week
1	"		2755	1470	3½ weeks
Intravenous 1	"		.	...	3 minutes
High 1	"		2022	1885	11 days
1	"		2020	1770	12 days
1	"		2015	1330	29 days
1			2360	1680	24 days
Intravenous 1				..	40 seconds

*Grams.

The intravenous injections of cytost bring the active agent in immediate contact with the endodermal cells derived from the endodermal layer of the embryo. As these cells form the original alimentary tube from which spring the lungs, liver, and pancreas, it explains the intense primary reaction that takes place in the splanchnic zone. This seems also to determine the metabolic changes in the organism. The progressive loss in weight, and finally death, shows, as in the writer's earlier experiments in "shock," and similar phenomena (1893-1900), that the splanchnic area shows the primary "effect" of cytost, or what was formerly called by the writer "shock toxin."

To determine the effect of cytost liberated in the tissues in excess of the biological requirements, agents were injected that principally liberated cytost from the tissues. Chloroform, alcohol, and ether are very prompt in liberating cytost when injected into the tissues of the animal. The ferments trypsin and erepsin have a slower but similar effect. Death occurred in all the cases as shown in Table No. 4. "Very small doses," as was shown in the writer's previous work (1919), caused increased metabolism and eventual immunity.

TABLE No. 4

Agent Injected	Number and Intervals	Interval	Death in
Chloroform	2	6 days	13 days
Chloroform	1		2 days
Chloroform	24 small	2 and 3 days	95 days
Alcohol	3	1 and 2 weeks	28 days
Alcohol	3	4 days	1 month
Ether	1 Intra muscular		13 days
Ether	1 Intra muscular		34 days
Ferments	1		6 days
Ferments	1		62 days
Ferments	22 small doses	in 97 days	
	3 small doses	in 14 days	111 days

Experiments on the Local Effect of Injecting Cytost Into the Tissues of Animals (Metazoa).—Cytost was extracted in a similar manner, 10 c.c. water to 10 grams of tissue, and 10 grams of tissue ignited to an ash to which was added 1 c.c. of water.

Two methods in these studies were used: (1) Injection of homologous cytost directly into the muscle tissue. The galvanoelectric reaction that followed was observed and in 36 hours tissue was removed and sections made for histological examination. This was compared with the opposite side in which heterogenous cytost was injected, and in others in which no injection was made. The second method was the formation of a clean cut wound on the side of the animal, and into one side the injection of homologous cytost.

A third procedure was the study of animals rendered both actively and passively immune by methods described in the writer's earlier literature 1903) (1919).

Direct injection of homologous cytost causes within a few hours increased mitosis in the tissue. This was also noted if homologous cytost was liberated in the tissue by agents such as mustard oil (1894) (1903), chloroform (1903), etc. It usually required 24 hours before active mitosis by the latter method (1894) (1903) was manifested, and this occurs some distance from the site of the injection. The time required for liberation of cytost from the tissues and the specific reaction, mitosis, is about 24 hours.

Direct homologous cytost injections caused mitosis within 6 hours. The high millivoltmeter range shows marked increase in metabolic activity after the injection of homologous cytost into the tissues.

The comparisons made with heterogenous cytost must be reserved for special presentation with the exact readings.

Wound Healing.—In the study of wound healing we used for standard size a triangular wound 4 cm. base and 3 cm. each angle, made on the neck between the pole (occipital tuberosity) and whithers. The cat was usually used, though dogs and rabbits and rats were also used with corresponding size of wound. The rate of healing, as well as the character and time of healing, was noted.

Group 1—Ordinarily normal for control.

Group 2—Injection of homologous cytost L. C. into margin of the wound to stimulate cell division and cell metabolism.

Group 3—Active immune animals by repeated injection of "biological" cytost concentrations to create anticytost.

Group 4—Animals rendered passively immune with immune serum (anticytost).

This immune serum was produced by injecting cytost such as cat cytost into a goat. For detailed methods see author's literature.

SIZE OF WOUND

Grp.	First Week	Second Week	Third Week	Fourth Week	Fifth Week	Sixth Week
1	3x3x4	3x2 5x4	2 5x2x3	1 75x1 5x2	5x 75x1	Healed
2	2 75x2 75x3 75	2x2 5x3	3x2x2 5	1x1x1 5	Healed	
3	3 5x3x4 5	2 75x2 5x3	2x2x2 5	1x1x1 5	Healed	
4	3x3x4	2 74x3x3 5	2 5x2x2 5	1x1x1	Healed	

These experiments in wound healing represent the average of a large repeated line of experiments for many years by the writer, and indicates clearly that homologous cytost is the normal stimulant in wound healing, depending upon anticytost reaction in the organism. Only those agents that liberate cytost will excite wound healing. The cytost must be specific to the species. These facts explain why normal wounds heal and why cauterization liberates cytost and stimulates the sluggish wound to heal.

General Discussion.—It is clear that in all our experiments we have a specific active substance that is within the cell which, when liberated in low concentration, stimulates cell division and metabolism. Medium concentration or that above biological requirements slows or stops cell division and metabolism, while high concentration stops all cell activity, ending in death. This brings us to the studies in general cell division, growth and metabolism in the animal.

General and Special Pathological Findings.—In all of the examinations no infection resulted in any of the animals here reported. Where secondary invasion has taken place we have excluded them from this report. In chronic pneumonia a few of the animals showed bacterial invasion. Other animals that showed negative findings on postmortem examination showed the same pathological conditions. All our experiments indicate that bacteria were not responsible for the metabolic breakdown nor the death that followed.

Zone of Attack of Cytost.—The liver and lungs show primary reaction in the capillary area, and the endothelial cells in contact with the endodermal cells of the lungs, liver and upper alimentary tract. Later the kidney becomes involved, finally all tissues throughout the organism, through the capillary endothelial cells in close cellular contact. The brain is the least vulnerable next to muscle tissue, including heart tissue, but the endodermal layer that furnishes what we term the splanchnic area shows prompt response. The special and general pathology of most diseases find their beginning in this zone, *e.g.* cells that spring from the endoderm of the embryo.

Intraspinal Experiments with Cytost.—The brain and spinal cord are the most vulnerable and can only be secondarily affected to capillary reaction that result in asphyxia and starvation of the cells.

Direct injection of cytost into the cord produces local reaction and paralysis of the area supplied from the point of injection. In this group of experiments the most delicate index of the specific character of cytost is shown. The immediate response of paralysis by the injection into the cord of homologous cytost and the absolutely negative results of injecting heterogenous cytost into the cords demonstrates the remarkable specificity of cytost in the animal. Thus, as will be seen in the table, that cat cytost always caused paralysis, while dog, human, horse, etc., cytost, even in very high concentration were negative. Lion tissue cytost that belong to the same tribe was negative in cats.

Cytost was prepared from both homologous and heterogenous tissues by igniting 10 grams to an ash and adding 1 c.c. of water. This concentration being called M. C., higher concentrations H. C., and lower concentrations L. C. Only the supernatent solution of ash was used for injection after autoclaving.

Two methods of studies were used in these experiments:

1. Homologous cytost, injected in $^1/_4$ c.c. doses (M. C.) all along the dorsal and lumbar region. That is, each homologous animal was injected with $^1/_4$ c.c. cytost either at the first lumbar space, the second, etc. In each case the animal was anesthetized, the site of injection clipped, shaved and disinfected. The sterile needle inserted and the entrance into the spinal cord was determined by the clear spinal fluid. In a similar manner experiments with H. C. and L. C. were made.

2. Heterogenous cytost (lion, horse, dog, rat, chicken, human, pig) was prepared in the same manner and in the same concentrations as the homologous cytost and also injected in control animals with the same technique.

Homologous cytost (M. C.) using the above dosage produces the immediate paralysis of the posterior limbs, bladder, etc., if injected into the lumbar region, and paralysis of the anterior limbs if injected into the dorsal region, always attended with the following symptoms: drawing up of limbs, arch back, followed by delirium, biting of affected part, etc., then coma (shock), and gradual recovery with complete paralysis. These symptoms last respectively from 5 to 15 minutes; second, from 5 to 20 minutes; third, from 15 minutes to 12 hours. The animals invariably die in two days to two weeks, giving always a typical postmortem picture. In all cases smears and transplants showing negative results to bacterial invasion.

H. C. homologous cytost produces a shock death from a few seconds to 2 to 3 hours.

L. C. cytost produces the same type of symptoms, the period of delirium and clonic convulsions being of longer duration, due to motor stimulation. The animal may show incoordination for two or three days, but he will eventually recover.

Heterogenous cytost (H. C., M. C., or L. C.) in almost every case produces a tremendous motor stimulation for convulsions clonic in character on the onset, and becoming tonic toward the termination. There is no first phase as in the homologous cytost, the second phase (excitement) lasting from 20 minutes to an hour, the period of coma (shock) lasting only a few minutes. The animals invariably recover, with no paralysis.

On the second or third injection of heterogenous cytost (H. C. and M. C.) in these recovered animals, paralysis results, although not as well marked as in the homologous cytost experiments. This remarkable phenomena is no doubt due to the liberation in these sensitized animals of homologous cytost by the first injection of the heterogenous cytost.

Remarks and Conclusion.—To determine with exactness and precision the immediate specific effects of high and low concentration in animals we have thus used the spinal canal at different levels for the cytost injection. The results show, as seen in the protocols, that we have here a most delicate indicator of the highly specific character of cytost which is specific only to the species. It shows that animals of the same tribe as lions, injected into cat, produces negative results. Animals may be rendered artificially anaphylactic to foreign cytost, but this depends on the liberation in the animal of homologous cytost combining with the foreign cytost previously entering the organism. The reaction on the injection of the foreign cytost in sensitized animals appears to be due to the action of the liberated homologous cytost.

As was clearly outlined with reference to the writer's previous experimental work in the introduction of this article, we have demonstrated an important biological principle, that low concentrations of tissue extract (cytost) stimulate cell division and metabolism and that high concentration produces disease and death.

We have shown by the experimental research covering a period of twenty-five years a new biological principle that a cell extract we have named "cytost" excites cell division and metabolism in biological concentration and in high concentration produces disease and death.

Conclusion on Cytost: Low concentration of cytost—Physiological. Medium concentration of cytost—Pathological. High concentration of cytost—Lethal.

Immunity: Active immunity—Cytost injected in animal. Passive immunity—Homologous cytost injected in alien animal.

AUTHOR'S LITERATURE.

The following is a list of the writer's literature bearing on the points referred to in this study:

1. "The Primary Cause of Shock—Additional Experiments Induced by the War," MEDICAL RECORD, June 1, 1918.

2. "The Etiology of Pneumonia and Its Serum Treatent," MEDICAL RECORD, May 3, 1919.

3. "Wound and Shell Shock and Their Care," *New York Medical Journal*, November 23, 1918.

4. "The Rôle of Cell Necrosis and Bacterial Invasion in Surgery," MEDICAL RECORD, March 22, 1919.

5. "Surgical Shock," *Journal A. M. A.*, 1897, pp. 1160.

6. "The Care of Patients During Surgical Operations with Some Methods of Preventing Shock and Infection," *Int. Med. Cong.*, Paris, 1900. MEDICAL RECORD, August 11, 1900.

7. "Shock Produced in General Anesthesia," *Journ. A. M. A.*, May 2, 1903.

8. "Eine Neue Methode der Diagnose und Therapie gewisser Magenkrankeiten und bakteriologische Studien bei denselben," *Wiener med. Wochenschrift*, Nos. 1 and 2, 1895.

9. "Improved Methods of Details in the Care of Patients during Surgical Operations," *Chicago Medical Recorder*, 1903, xxv, pp. 222-227.

10. "A Study of Fatigue in Gastric Muscle," *Med. Standard*, December, 1903.

11. "The Diagnosis and Treatment of Diseases of the Duodenum by Direct Method." *Journ. A. M. A.*, 1898, xxxi, pp. 223-225.

12. "Intestinal Venous Stasis," *Boston Med. and Surgical Journ.*, May 10, 1917, Vol. clxxvi, No. 19, pp. 663-669 (pp. 7 and 8).

13. *Proc. Chicago Path. Soc.*, 1908; *Ill. State Med. Jour.*, xiii, No. 6, 1908, pp. 631-634 and 684.

14. "Experiments and Clinical Observations of Erosions of the Stomach," *Fort Wayne Med. Journ. May.*, Jan., 1897.

15. "Experimental Study of the Splanchnic Circulation and Its Relation to the Stomach and Intestines," *Trans. Amer. Gastroenterological Assn.*, May, 1900; *Amer. Therapist*, 1900.

16. "A Study of Fatigue in Gastric Muscle," *Trans. Amer. Gastroenterological Assn.*, Washington, May, 1903. *Medical Standard*, Chicago, December, 1903 pp. 627.

17. "New Double Tube with Stomach Bag: Methods of Internal Treatment with Hot Water Bag Introduced into Stomach, Use of Same with Cold Water and Electric Light (High Candle Power)," *Journ. A. M. A.*, January 11, 1898.

18. "Alimentary Dilatation, with Special Regard to Lilatatio and Atony. Experimental Data. Tissue Changes Involved," *Medical and Surgical Faculty of Maryland*, December, 1916, No. 6.

19. "The Effect of the Injection of Gastric Contents Into Animals. Effects Shown in Periportal Circulation Comparisons Made with Diphtheria Toxins," *Trans. Chicago Patho. Soc.*, 1903, pp. 263-4.

20. "Ulcer of the Stomach, Pathogenesis and Pathology. Experiments in Producing Artificial Gastric Ulcer, and Genuine Induced Peptic Ulcer." *Trans. Inter. Med. Cong.*, Lisbon, 1906. Sev. 5, 2me Fasc. 428, p. 461.

21. *Zeit. f. Exp. Path. u. Therap.*, Bd. 7, 1910.

22. International Clinics, Vol. II, Series 21.

23. "Etiology and Pathology of Gastric and Duodenal Round Ulcer." Sec. 3, Internat. Med. Cong., 1909.

24. Proceedings Chicago Academy of Medicine, *Med. Recorder*, xxv, 1903, p. 222.

25. "Effect on Longevity of High Living," *Medical Exam. and Pract.*, August, 1907, p. 240-6.

26. *Trans. Oregon State Med. Assn.*, July, 1907.

27. *North Am. Pract.*, May, 1893, pp. 227-230.

28. *Trans. Tenn. State Med. Assn.*, Nashville, Tenn., 1905, p. 150.

29. "Experimental Gastritis," *N. Y. Med. Jour.*, October 25, 1902.

30. "Toxins of the Stomach." *N. Y. Med. Jour.*, February 22, 1896.

31. Immediate and Remote Causes of Death in Operations on the Stomach. Treatment Before, During and After Operation." *Chicago Medical Recorder*, May, 1902, p. 450-451.

Newborn Babies as Diphtheria Carriers.—During an epidemic of diphtheria in a lying-in institution, the newborn were tested for the presence of diphtheria bacilli. Forty-three were found to be carriers, and of this number ten developed the disease and six died. However, but one of the six died of diphtheria outright, as sepsis was the actual cause of death of four, although diphtheria was doubtless a contributory cause. —*Zeitschr. f. Kinderheilkunde.*

SOME MOUTH AND JAW CONDITIONS RESPONSIBLE FOR DEFECTS IN SPEECH.*

BY JAMES SONNETT GREENE, M.D.,

NEW YORK

DIRECTOR OF THE NATIONAL HOSPITAL FOR SPEECH DISORDERS

BEFORE taking up some of the mouth and jaw conditions that cause defective speech, I would like to say a few words about normal speech.

Speech is the faculty that more than any other distinguishes man from the brute creation. Man alone has sufficient intelligence to create within himself this particular vernacular or means of expression. Thought has been called the motive power of the world, and speech is the natural vehicle of thought.

It even forms an essential part of all abstract thinking, and thus a tool of the mind in precisely the same way as the instrument is the tool of the surgeon; and it is quite as important to our mental processes as instruments are to surgical work. Good speech, therefore, or that which is unhampered by even minor defects, is requisite to the highest mental and physical development.

Man being primarily a social animal, it is to speech that he resorts in every phase of his association with his fellows. Herein is the expression of his personality, and from that standpoint alone the importance of speech is inestimable.

Human happiness is an expression of mental and physical health, and where there is no happiness we find repression, and with it lack of health and contentment; and as conditions are to-day, we find even in our educated element, abnormalities of speech which indeed need not be.

Speech is the faculty of uttering articulate sounds or words. Speech is made up of a limited number of sounds produced by definite positions of the vocal organs. Words, though each be unit, are made up of combinations of a limited number of sounds.

There are a number of theories advanced as to how articulate language came into existence. The work of anthropologists and linguists, especially the former, supports the progressive evolution theory, which briefly stated is—that articulate language is the result of an elaboration in the long procession of ages in which there occurred three stages—the cry, vocalization, and articulation. The cry is the primordial pure animal language; it is a simple vocal inspiration without articulation; it is either a reflex expressing needs and emotions, or a higher stage, intentional (to call, warn, menace, etc.). Vocalization, emission of vowels, is a natural production of the vocal instrument and does not in itself contain the essential elements of speech. Many animals are capable of vocalization, and in the child the utterance of vowel sounds is the next stage after the cry.

The conditions necessary to the production of speech arose with articulation and it is intelligence that has converted the vocal instruments. For whereas correct intonation depends upon the innate ear, which is able to control and regulate the tensions of the minute muscles acting upon the vocal cords, it is intelligence which alters and changes the form of the resonator by means of movement of the lips, tongue, and jaw in the production of articulate speech.

The simple musical instrument in the production of phonation is bilaterally represented in the brain, but as a speaking instrument it is unilaterally represented in right-handed individuals in the left hemisphere of the brain and in left-handed individuals in the right hemisphere.

Recent statistics show that in New York City out of 650,000 children in the public schools, 30 per cent. at least were two grades behind that which they should have attained. Almost all of these pupils are suffering from some defect of eye, nose, mouth, or throat. This does not include statistics as to the number of children, aside from adults, who suffer from some defect of speech, for until recently it has never been considered of enough importance to take this condition into consideration.

Also there are no statistics as to the number who suffer from mouth or jaw conditions in conjunction with their defect in speech. The percentage is appalling and the reason for our lack of knowledge is the lack of co-operation between those who treat mouth conditions and those who treat speech conditions. In the near future there will be a more complete understanding and association between these two specialties—defective speech and dentistry.

Looking into the dentist's field from the anatomical point of view, I find that dentistry plays a very important role in speech. Let us commence with a troublesome member, one that every dentist has to contend with—the tongue. It has always been considered to be the most valuable and important instrument for normal speech; nevertheless, it has been demonstrated many times that defects of the tongue very often produce only minor defects of speech. Even with a total loss of the tongue it has been shown that one can speak fairly well, though some of the sounds are missing.

The result has been accomplished by the substitution of the other parts of the mouth for tongue motion. Thus, for example, in the sounds of *k* and *g*, where the action is based upon the existence of the back part of the tongue coming in contact with the back part of the palate, there may be produced instead of this tongue action, a glottal catch far down in the throat, or more definitely, above the exit of the larynx, simulating the sounds of *k* and *g*.

Though seemingly incomprehensible, the consonants *t*, *d*, *n*, *l*, which depend mainly on the contact of the tip of the tongue with the hard palate, can also be produced where a tongue defect exists, by the substitution of lip action for tongue action. If one retracts the lower lip and presses it against the alveolar margin of the upper jaw, the glottal catch is made the same as if the tongue were used, the lip not even completely retracted, but its "mucous membrane" is used for a catch about one-sixteenth of an inch below the edge of the lip.

The *s* sounds, although not formed as exact and sharp as when the tongue is used, can be made sufficiently clear by the correct approximation of the upper and lower teeth.

Even the sound of *l* can be heard fairly well when there is a complete loss of the tongue, as remain-

*Read before the section on Oral Surgery—First District Dental Society, at the New York Academy of Medicine, on January 5, 1921.

ders of the genioglossus are always able to lift the bottom of the mouth, thus forming an impediment in the center of the emanating sounding air column, since it is not absolutely necessary to have a complete parting of the air current in order to produce this sound.

The sound of *r* very often produces difficulties but can be readily substituted by a labial or a laryngeal *r*. The labials *b*, *p*, *m*, *v*, *w* can be naturally produced because the tongue is not used at all in the production of these sounds; the *b*, *p*, *m*, *w*, being formed by the lips only, and the *f* and *v* by the lips and teeth.

From these examples one can readily deduct that although the tongue may be completely extirpated, one does not necessarily lose the power of speech, that is, it proves that the tongue is not the essential factor for the production of speech; however, I might add that the tongue is an important factor in determining the form of the lower jaw.

Defects of the lips cause disturbances of speech only when greatly affected.

The relation or connection between the palate and teeth is so close that therapy of the palate without therapy of the teeth, or vice versa, cannot be thought of. But speaking of the teeth alone in their significance for speech I must say that in most cases they have no direct causal effect upon the production of speech sounds because almost all sounds can be formed after a fashion without the use of the teeth, except the hissing sounds of *s* and *z*, where the position of the teeth is of importance.

The existence or non-existence of teeth is not so important for good speech as the shape and roof of the mouth, which acts as the sounding board and upon which normal speech greatly depends.

Now let us see why there is such an intimate relationship between the teeth and the palate. We distinguish anomalies of the shape, number, and position, besides structure of the teeth. The most important to us are the anomalies of the position of the teeth on account of their interference with the normal biting ability.

We point out the protruding or direct bite, otherwise called the under-bite; usually the lower jaw is too large or it is pressed a little forward out of its regular articulatory position. Quite often this is caused by habit or from imitating the speech of others. It is particularly noticeable in many people whose whole articulation seems to depend upon the lower jaw being pushed forward, thereby altering the whole tone or timbre of the speech.

Another abnormality is the projection of the upper row of teeth, the so-called overbite.

Again, there is the sliding bite produced by wrong positions of the teeth; and the open bite, which is caused by the alveolar process of the molars being too big. The front open bite is well known to all of us. Less consideration has been given to the side open bite which has frequently been found in certain speech disturbances.

Besides the effects of such faulty positions, a dislocation of a faulty tooth may hinder the proper coordination necessary for speech. For instance, a front tooth pressed backward out of its alignment may hinder the laying of the tongue on the alveolar margin and produce a hissing sound where there should be a closed or stopped sound.

It is well to realize the fact that speech plays an important role in producing a normal condition of the alveolar process and position of the teeth; for before the cutting of the permanent teeth, the teeth have but a shifting position in the alveoli.

We can compare them to the growing of weeds—just where there is a space a weed grows, and just where there is a space a permanent tooth develops. Even the cutting is arbitrary, for sometimes some teeth appear curved, others the reverse, but we see that after some time they regulate themselves and take their normal places.

We can also state that the regulation of the teeth is aided through speech, by the concerted action of the lips and tongue, the lips pressing on the teeth from one side and the tongue pressing the teeth from the other side. This is contrary to the general idea that the teeth have influence on speech instead of the speech having the influence on the teeth.

This process is similar to what occurs in the formation of the head, the form of the skull depending on the growth of the brain, and not the growth of the brain depending on the form of the skull.

We realize that the position and regulation of the teeth are influenced by the motion produced when chewing, by the articulation, and by speech. It is probable that the misformation of the position of the teeth frequently seen in idiots is influenced by the lack of one or more of these performances, of course this not being the only cause. We notice that in an idiot the lower jaw hangs down, the tongue does not lie tightly on the roof of the mouth, therefore the palate does not take on its V-shaped angle, and the teeth do not grow and stand apart.

In the low grade idiot the mouth is always hanging open and the speech is entirely lost. If we disregard the phenomena of the idiots, the most frequent cause of the anomalies of the positions and cross positions of the teeth is the lack of space. The alveolar process is too small for the teeth, and therefore it has been often suggested to extract the first lasting premolar in order to give room for the other teeth.

We can readily see the direct relation of the teeth and palate from the changes that take place in the palate through the anomalies of tooth position. In the relation of the teeth to speech the form of the hard palate must always be taken into consideration.

If we consider that the lack of space is the most important cause of the anomalies of the positions of the teeth, then this lack of space can produce the following effects: It can produce a pushing apart of single teeth from the row; and it can produce a curving position of the teeth in a horizontal or in a vertical curve.

The pushing of a tooth from the row may produce defects of articulation which are of minor importance.

The arch positions are of greater importance. Observing the teeth of the upper jaw from below one notices that they are placed in a more or less oval half circle, or in other words, in a horizontal arch. If for some reason the teeth of the upper arch do not properly articulate with the teeth of the lower arch, lateral gaps are formed. These gaps prevent the tongue from correct approach and cause faulty noises when speaking.

The relations are more obvious with the vertical

curves. The vertical curve as we observe in the open bite from the front, hinders the natural tight closing of the teeth necessary for enunciating *s* and *z*, etc., causing a *th* sound in place of an *s* sound. If these vertical curves in the open bite occur on the side they cause a very disagreeable lateral lisp, which I shall refer to later.

We will now turn our attention to the question, "Which speech sounds are connected with the teeth?"

The first to be considered are the sounds of *f* and *v*, known as the labiodental sounds.

Variations occur at the overbite as well as at the underbite. When there is a prominent overbite, as where the incisor teeth of the upper jaw protrude very much and the upper teeth rest upon the lower lip almost constantly, the patient looks as if always pronouncing the letter *f*. It is naturally very difficult and rather uncomfortable for him to coaptate his lips.

When it is difficult for the patient to coaptate his lips it is almost impossible for him to make the labial sounds, *b*, *p*, *m*.

Another point is that the upper lip, not used any longer for closing, leaves the upper row of teeth uncovered and always visible to the eye, thus making the person look very unattractive.

In a very pronounced underbite *f* is often formed between the lower row of teeth and the upper lip. We get such an *f* formation in children having a double harelip whose upper jaw is generally retarded in growth and the lower jaw protrudes. The retraction of the upper jaw depends upon the tight scar of the double harelip.

Also, the underbite can be so pronounced that the articulation between the lower row of the teeth and upper lip is even applied to the labials, *b*, *p*, *m*. When this is the case the lower lip protrudes so far that it seems to be hanging free in the air, giving to the face, especially in profile, a very awkward appearance.

The next sounds of importance to be considered are the hissing sounds of *s* and *z*.

We will note how abnormalities of the teeth, loss of alignment, articulatory disturbances, affect the production of the sound *s*.

Defects of the *s* sound are classified as Sigmatism. The term Sigmatism is applied to a dental form of Dyslalia which interferes with the correct formation of the friction sounds—*s*, *ss*, *sh*, *z*, *zh*, and also of the combination—*ps*, *ts*, *z*, *ms*, *ns*.

Sigmatism is always attributable to a wrong position of the tongue, which is occasioned, as pointed out, by anomalies of dentition and maxillary articulation. The defect occasionally originates at the period of second dentition. Sigmatism develops preferably when the upper or the lower incisors are missing.

Young children very often have this defect, if eruption of the incisors is delayed. This defect may be permanent, but if due to second dentition, is usually transitory providing that the eight incisors are completely formed.

There are various forms of sigmatism. The interdental when the patient says "tshop" for "stop," on account of his open dentition; the addental form where the patient says "thoap" for "soap," depending upon the protrusion of the upper or lower maxilla; lateral sigmatism due to an unilateral or bilateral inward or outward displacement of the jaw causing an excess escape of air.

We thus see that when teeth are out of their alignment they generally impede the motion and formation of the tongue, especially where a high palate exists. The sounds of the second and third articulation sphere are more or less strongly impeded, the *s* more so than the other sounds.

An interesting difficulty is very often encountered when a dentist repairs the teeth and these repairs produce great difficulty in speaking. The patient has to become used to the new proportions of space for his tongue until he again speaks as usual; but it sometimes happens that in cases of this kind the speech difficulties become permanent speech disturbances.

As for example, let us presume that the tongue is so near to the alveolar margin of the upper jaw that with the color experiment only a very narrow groove appears and that in such a case a bridge for the upper incisor teeth makes the space for the tongue still smaller, then the air current will not be able to pass through the groove needed for the *s* formation; the tongue will lie too tight to the foreign body and a lisp more or less distinguishable will be heard.

I have had several just such patients under treatment. These cases were very annoying to the dentist because he was blamed for the condition, but of course, blame is out of the question unless a full guarantee against speech disturbance has been given; but one must admit that the occurrence is rather unpleasant. In cases under contention the remedy is simple enough. The patient is reeducated in the proper adjustment of his tongue for the defect and the speech disturbance disappears.

The next sounds to be considered are *t* and *d*. When *t* and *d* are spoken, unnecessary disturbing hissing noises are very often heard. This is usually due to the speaker's teeth being out of alignment. I have had cases where a side incisor tooth, being pushed back out of the row, hindered the tight approach of the tongue to the alveolar margin of the upper jaw in the act of forming a *t*, thereby causing an *s* sound to be produced every time a *t* or *d* was spoken.

This occasionally was the cause for rather amusing and complicated statements, for when the patient wanted to say, for instance, "Do not tell anyone," he would say, "Do not sell anyone," and instead of saying, "I want my dinner," he would say, "I want my sinner."

Defective enunciation can also be produced by the arches, especially the side arches. In 92 per cent. of all cases having a lateral lisp we find that the larger arch is always on the lisping side. That is taken to indicate that a certain relationship exists between the side arch and lateral sigmatism.

Attention has been called to this fact and it has been recommended to eliminate the arch and make room for the other teeth by the extraction of a tooth. This has been done, but the lateral sigmatism was not affected. We therefore see that the arch is not always the necessary cause of the lateral lisp.

A word about the relationship between the position of the teeth, the roof of the mouth, the tone of the voice, and the quality of speech. Without doubt

the roof of the mouth has a very great acoustic influence upon the tone of the voice and the quality of speech. The general clearness of the vowels and consonants is influenced by the roof of the mouth.

The height of the palate depends on the perfect or imperfect development of the nasopharynx. Every case of high palate demonstrates a certain amount of respiratory incapacity and local infection, and this in turn always has influence on voice and speech.

The question of voice and speech in cases of cleft palate is a matter of vast importance.

In the first place, before operation, the voice is seriously impaired by the malformation of the mouth and nasal resonators. In addition there is a nonexistence of the soft palate whose function is to check the air passing into the nasal cavities and to work in contact with the tongue in the production of the *k* and *g* sounds.

Where the hard palate is cleft, *consonants* depending on the contact of the tongue and hard palate, such as *t, d, n, r, l,* are mutilated. No doubt when treating patients having congenital clefts of the palate, when making various kinds of plates, you have noticed that the speech of those patients was more or less affected; but what I wish to point out is that proportionately the speech or voice defect does not coincide with the size of the palatal defect; for there are small defects, small openings which one sometimes sees at the junction of the hard and soft palate produced by syphilis which greatly interfere with the production of speech, while in some large defects of the palate, even with harelip on both sides, one will find tolerably good speech without even resorting to the use of mechanical interferences.

If one will carefully test cases of this kind there is usually found some existing conditions of the nose or throat responsible for this anomaly. An enlargement of the nose and its parts; or adenoid vegetation in the nasopharynx is sufficient to produce this condition by acting as a substituting medium for the function of the missing palate, and thus making possible for the formation of speech sounds.

Operations for repair, with the details of which you are already familiar, give as near a normal condition as is possible to obtain under existing circumstances.

The question—whether the closure of the cleft remedies the defective articulation—can be emphatically answered in the negative; but I might add that the resonance of the voice becomes more normal simply through the improved anatomical status. In nearly every case speech training is not only advisable but is absolutely necessary.

Following the operation the cleft palate the patient usually presents one or all of the following defects of speech.

1. During the production of many of the consonants the familiar nasal resonance and nasal snort are heard. This is due to the lack of elasticity and mobility of the soft palate. The levator muscles cannot raise the palate with sufficient power. The soft palate ordinarily would have regulated the exit of the air through the anterior nares, but on account of its inefficiency the alæ of the nose come into play and become compressed, resulting in more or less severe facial distortion. This condition is the most difficult to overcome.

2. The nonexistence of the consonants *k* and *g*. Through lack of contact between the back of the tongue and the soft palate, on account of the inelasticity of the soft palate, following operation.

3. The nonexistence or indefiniteness of the consonants *l, t, d,* on account of insufficient contact between the front of the tongue, the hard palate, and the alveolar margin behind the front upper teeth, due to insufficient surface being presented to the tongue. Faulty dentition also aggravates this condition.

4. Where there is a harelip, difficulty in the production of the consonants *b, p, m, w,* due to the tensed upper lip not being able to come in close contact with the lower lip.

5. The production of the consonant *s* is nearly always accompanied by a very unpleasant nasal sound on account of the soft palate working inefficiently. Following an operation it occasionally happens that the soft palate is too short to reach close to the posterior pharyngeal wall, consequently, most cleft palate patients possess to a more or less degree a permanent rhinolalia-aperta voice, a nasal voice, even after everything possible has been done both by operative and speech training measures.

The difficulties of the speech of these patients are nearly always increased by abnormal positions of the teeth and of the alveolar processes in relation to the bodies of the bones to which they are attached. Their correction must be taken care of before the best results in speech can be attained.

Speaking about voice and speech results in these cases, I wish to call to your attention a special phase which these patients present, the condition—amusia. All cleft palate cases suffer from amusia, that is, a disturbance in the musical faculty. They all demonstrate one definite form of amusia, that of tone-deafness. Defects in the musical and speech faculties may coexist or exist independently of each other. The independent occurrence of disturbances in the musical faculty points to the existence of a separate center presiding over the musical memory.

No progress can be made in the elimination of nasality of cleft palate cases until the patient's musical sense has been developed to such a degree that he or she realizes the difference between nonnasal and nasal intonation. As soon as this takes place the patient strives for purer intonation and gradually the nasality diminishes until it is to all intents and purposes completely lost. In other words, he has lost his tone-deafness and of course does not suffer from amusia any longer.

For some years past I have had experience in the speech training of patients operated upon by Dr. MacKenty. Those patients presented good palate surface and a minimum amount of scar tissue. I presume the result of his particular style of operation, in comparison with other styles of operation seen in other patients who have come to me from various parts of the country and present a great deal of scar tissue, thus making the palate nonpliable and inelastic. This, of course, makes the production of a normal voice and speech more difficult.

In the consideration which I have put before you I have but given a brief survey of the subject, but I hope I have succeeded in making clear the im-

portance of the cooperation of the two specialties—dentistry and defective speech.

Every dentist or dental surgeon should have general working knowledge of the physiology of speech and some of the speech anomalies due to mouth conditions; and I hope that in the future we will do here as in the dental colleges abroad, that is, the education of dental students will include a course in the physiology of speech and phonetics.

Through cooperation we may reasonably feel that we can look forward to the general betterment of mouth, voice, and speech.

113 East Thirty-seventh Street

SEA BATHING AND THE EAR.

By ALEXANDER ROVINSKY, M.D.,

NEW YORK.

The incidence of various ear affections during the sea bathing season has so far attracted comparatively little attention from either the general practitioner or the otologist. This is rather puzzling, inasmuch as the number of ear cases in special ear clinics, as well as under the care of every more or less busy aurist in private practice, point to an undoubted increase in ear troubles that can be directly traced to bathing in the sea, especially in the months of July, August, and September, and the variety of affections runs the whole gamut of pathological ear conditions, from a comparatively innocent circumscribed furunculosis of the external ear up to an involvement of the mastoid with all its possible consequences. The subject deserves special interest, the more so as proper instruction of our patients and a little pains on the part of the medical man in becoming familiar with the harmful possibilities of improper sea bathing may prevent many an acute ear disease, as well as dangerous exacerbations of chronic dormant conditions. Elementary as it may seem, it must nevertheless be observed, *en passant*, that the entrance of the sea water with its contaminating contents into the middle ear is not effected through the external meatus (assuming the drum to be intact), but by way of the Eustachian canal, which is directed downward, inward, and forward, and whose pharyngeal opening is somewhat deeper than the opening into the tympanic cavity. It is assumed that the walls of the canal approximate each other in its middle portion, but open up during the act of swallowing. We have all of us experienced while diving or when submerged by an oncoming wave the irritating effect of the sea water entering through the mouth or nose into the posterior pharynx, as evidenced by a sense of choking and by uncontrollable coughing, and an impulse to swallow, thus forcing the water into the middle ear. To be sure, a defective drum or one absent altogether, presents an even more direct avenue to the entrance of the sea water. I doubt if the presence of a little sea water in a healthy external auditory canal, with no break or abrasion in the continuity of its tissue and with an intact drum, can do any harm, although I have seen several cases of both circumscribed and diffuse hyperemia of an otherwise sound external canal after rather prolonged bathing and diving; for want of a better explanation I ascribed this condition to a possible desiccating effect of the salt water on a peculiarly predisposed mucous lining. This trifling condition is at times excruciatingly painful, but fortunately easily controlled either by an application of a strong (from 20 to 50 per cent.) solution of silver nitrate, or by the insertion of an alcoholic plug, as I will explain later.

A patient who has thus forced some water into the middle ear will complain of stuffiness, somewhat impaired hearing, occasionally slight tinnitus, but usually no pain. All these symptoms point to a mild degree of irritation of the Eustachian canal due to obstruction, which in its turn disturbs the normal equalization of the air pressure between the external air and the middle ear space; the ventilation of the tympanic cavity is thus interfered with and sound transmission is affected. In a recent case and one of normal Eustachian and middle ear, careful catheterization of the canal, possibly repeated within twelve or twenty-four hours, will usually be sufficient to empty the tympanic cavity of the few drops of the sea water and bring it back to its normal condition. When of longer duration it may cause an Eustachian catarrh which may spread to the middle ear. It may not be amiss to note here that the introduction of the Eustachian catheter is greatly helped, even in experienced hands, by a preliminary cocainization of the respective nasal fossa, as well as the pharyngeal opening of the tube.

Otitis externa, whether circumscribed or diffuse, when brought on by sea bathing, does not differ clinically from that induced by other etiological factors, although as a general rule I have found them, with a few exceptions, of a milder type. A day or two after bathing the patient will complain of discomfort or even slight pain, possibly itching in the ear; this latter impels him to scratch the respective spot either with the bare finger, or, if deeper situated, with a pencil point, match, toothpick, or what not. As a result the condition is aggravated and the pain becomes more and more marked. It is to be observed that the nearer the inflammation, whether a mere hyperemia, infiltration, or a fully developed matured abscess, to the meatus of the external auditory canal, the slighter the pain, though as a general rule the tenderness is very pronounced, no matter how slight the affection. Anatomically, the soft structures situated more externally yield more readily to stretching by infiltration as compared with the deeper portion of the canal with its unyielding osseous framework. In pronounced cases the pain is not limited to the ear alone, but may be felt diffused all over the side of the head, and even down the neck, and is considerably aggravated by the process of mastication—a very characteristic symptom which is frequently of great assistance in differentiating this condition from an acute middle ear disease. Hearing is usually not affected, except in those rather severe cases where the swelling is so extensive as to cause by its very size occlusion of the canal, and thus interfere mechanically with the transmission of sounds. We often find considerable swelling behind the ear, so much so as to push the lobe forward, thus simulating a possible mastoiditis. In severe cases attended by fever, headache, general malaise, and an obstructed canal that prevents the inspection of the drum, there may arise some difficulty as to the differential diagnosis between a severe external otitis and an im-

pending mastoid. The onset, the previous history, pain on drawing up the auricle, a very characteristic symptom present in external otitis, pain on moving the jaw, and so on, will assist in differentiating between the two conditions. I have met but very few cases of severe external otitis that could be directly ascribed to surf bathing.

As regards treatment I have for several years past resorted to the simple expedient, in cases of hyperemia or even when there is some infiltration, of inserting a plug of sterile gauze saturated with alcohol. The inflamed area is first painted with a solution of silver nitrate, and the plug should be inserted to fit in snugly, but not so tight as to feel uncomfortable. The first two or three minutes the patient may complain of increased pain, but this soon gives way to a sense of diffused warmth attended by considerable relief; the patient is instructed to keep the dressing moist by saturating it every hour or two. I have found in a great many cases gratifying relief from this simple application within 24 or 36 hours. In more advanced cases when the infiltration of the tissues is considerable, or where pointing calls for incision and curettage, as in deeply situated furuncles, this dressing keeps the wound clean, and is continued for a time until the healing is started. The alcohol evidently acts as an astringent and desiccating agent which is at the same time somewhat anesthetic and slightly antiseptic; while the plug acts mechanically by keeping the walls of the canal separated, thus preventing autoinfection. A point to remember in cases that require incision is that the latter should be deep enough to reach the bone or the cartilage; this would in many cases require a general anesthetic, as local anesthesia is not quite satisfactory.

I have devoted some space to the description of the above condition for the reason that it can be recognized with comparative ease, and is quite accessible to treatment by the general practitioner. For the elucidation of symptoms and treatment of other conditions of the ear that may be brought on by sea bathing, such as acute catarrh of the Eustachian canal, acute myringitis, acute otitis media, exacerbation of a previously existing chronic otitis, and so on, I would refer the reader to any standard textbook on Otology, for they do not as a rule differ from similar pathological states brought on by other pathological factors. And here I cannot forego the opportunity of urging, and this can never be too strongly done, the necessity, when indicated, of a timely paracenthesis as a sure preventive of serious trouble. The comparative harmlessness when properly performed of this little operation should be impressed on the mind of the public; nor should there be any hesistancy on the part of the attendant to repeat the incision in a few days so as to be sure of unhampered drainage.

Among the dormant conditions that seem to be called into activity by sea bathing we find mostly cases of purulent, and also sometimes catarrhal, middle-ear disease. I have heard it repeated by patients in an almost stereotyped way: "I felt tolerably well until I took a dip," and I recall a few cases, one of which, taken as a type of this class, was very striking, in which the "dip" was followed by very serious consequences. This was in a man of thirty who has had a purulent middle ear for some ten years with an extensive central perforation in the drum, and whom I had under my care for several months for a recurring discharge. Twenty-four hours after bathing he showed unmistakable signs of active exacerbation, and notwithstanding all my efforts to control the condition he developed within a few days the classical symptoms of mastoiditis.

I am not prepared to say in what way sea bathing, and possibly also river bathing, exerts its deleterious effect upon the structures of the ear: whether it be the irritation caused by the constituent salts of the sea water, the trauma induced by the impact of the never ceasing ebb and flow, a peculiar sensitiveness of the organ of hearing to these influences, or what not, singly or combined. The mere presence of any aqueous solution, whether salt or medicated, when driven with sufficient force into the middle ear may alone be sufficient to start up an Eustachian catarrh or even a middle-ear inflammation. The practice of snuffing up into the nose salt water from one's palm as indulged in by laymen and even recommended by some physicians, has been held justly responsible for many an attack of otitis media; the same may be said to a limited extent of forcible atomization. It is a good rule to instruct the patient when using an atomizer to keep the head turned to the side opposite to the one that is being atomized, and have the mouth open, thus precluding the possibility of swallowing.

It should be remembered that sea as well as river water, and especially near the shore that contains outlets or discharges for sewers, contains a great many disease-producing organisms; in fact, at some seashores one actually bathes in diluted sewage, and while the high tide may carry it away into the ocean, the low tide maintains it there with all the flotsam and jetsam of the sea. Our system of sewage disposal, even in the large seacoast towns, is far from ideal, and the bather is very often apt to swallow the germ-laden sea water, which on being forced into the middle ear is sufficient to excite an inflammatory condition *de novo*, or call into life a long dormant chronic affection.

As to indications and contraindications for sea bathing so far as the ear patient is concerned, it would be not only cruel but decidedly tactless to advise every sufferer from any ear disease to abstain from bathing. And what is more, the advice will not be followed by the majority of patients. It stands to reason that no sufferer from any acute middle-ear disease should be permitted to bathe; the very sojourn at the shore may be harmful to such. In fact, among the older writers there was a prevalent opinion that no sufferer from any ear affection should be allowed to sojourn at the seashore, and this claim has been substantiated, in their opinion, by the presumed deafness or hard hearing so frequently found among those living constantly at or near seashore towns. According to others, the pearl fishermen or sponge divers are subject to accentuated auditory troubles which, however, should be ascribed to the frequently changing abnormal pressure in the tympanum induced by their occupation.

On the other hand, sojourn at the sea and carefully supervised bathing has been claimed to be of great benefit to the poorly developed and anemic of any age, and especially in a certain class of children of syphilitic or tuberculous tendencies. And in

these latter subjects in whom the ear affection is apt to begin rather insidiously, blooming forth as chronic from its very incipiency, a great deal of good can be accomplished, to be sure, before extensive destruction of the tissues has set in, by sojourn at the seashore, as well as bathing, in addition to local treatment. The effects of sea bathing are not to be ascribed to the constituency of the seawater contents, but to other conditions that in their total aggregate tend to exert a powerful psychic and physical stimulus on the metabolism of the system, and cause a heightened activity in every organ of the body. There is first of all the change of the environment, the psychic effect of carefree sporting life, an element of enjoyment of great importance, exposure to sunshine, running and romping on the beach; all of these result in a number of peripheral stimuli with a consequent series of reactions. The overstimulated and overwrought city dweller is beneficially affected by the very aspect of the seaview, which induces a restful mental state. The effects of immersion in the water are due to the variability in the temperature of the sea and the air; as the body is wholly or partly immersed in the water, this variability is increased by the motion of the air, the winds, and the water, thus constantly stimulating the peripheral nervous system; then there is the impact of the waves against the body, the movements of the body in wading, diving, swimming, etc. The humid, pure air of the seashore is under greatest atmospheric pressure, and consequently is rich in oxygen. It is thus evident that sea bathing exerts a very pronounced effect on the nervous system as well as on nutrition in general. This latter effect is often very marked, and with the stimulated metabolism there is an undoubted tendency toward a diminution of chronic discharge, and absorption of exudates, as found in both purulent and catarrhal chronic otitis media; and provided no great destructive changes have occurred in the organ of hearing, improvement may be expected in certain selected cases.

Conclusions.—In a general way people who suffer from any defect that interferes with normal breathing, such as marked deflection of the septum, hypertrophied turbinates, especially the posterior tips, tonsils, adenoids, or any other retropharyngeal growth, should be warned against the possibility of ear affections during the sea bathing season, and the least appearance of inconvenience or pain in the ear calls for immediate consultation with the family physician.

Those predisposed to the formation of cerumen in the ear should be instructed to clear the ears of the same before bathing, as the sea water is apt, instead of disintegrating the ceruminous mass, to cause it to swell by absorption, and thus cause trouble.

Those suffering from acute middle ear disease or active chronic purulent affection should be prohibited from sea and river bathing altogether; this applies with even greater force to sufferers from any labyrinthine affection.

Patients with chronic catarrhal ear disease, while permitted to indulge in bathing, should be warned against too long continued stay in the water, and against too strenuous swimming and especially diving: instead of diving they may be advised to duck with the nostrils and ears obstructed with their thumbs and index fingers of the respective side. Those suffering with latent or periodic purulent otitis should have their ear or ears stuffed with plugs of absorbent cotton dipped in albolene or olive oil, and wear a closely fitting rubber cap over their ears, avoid diving or ducking, and always keep above water; immediately after bathing remove plugs and dry canal. Any appearance of pus or the least pain calls for immediate cessation of bathing and for medical advice. Those predisposed to furunculosis of the external canal should protect the canal with some borated vaseline or zinc oxide salve.

A danger which, though it may appear far fetched is nevertheless within the domain of the possible, is injury to the drum when the bather exposes his side to the onrushing wave, and the ear is thus struck sideways with considerable force. It is a well known fact that in a certain class of patients syringing of the ear, even with warm water (as it should properly be done), not to speak of cold, is apt to produce dizziness and even fainting, no matter how mild the force of the injected stream. It stands to reason that when a volume of cold water strikes the drum with sufficient force it is apt to produce dizziness and even unconsciousness, which may be followed by drowning.

1340 Madison Avenue.

FOOD COMBINATION.

By THOMAS J. ALLEN, M.D.,

EUREKA SPRINGS, ARK.

"Ninety per cent. of all human ailments, apart from disorders incident to old age and acute infections, are due to wrong combination and foolish food selection," says Dr. William H. Porter, Professor Emeritus of Medicine and Pathology in New York Post-Graduate Medical School and Hospital, in a recently published book, a conclusion based upon long experience in the treatment of chronic ailments.

"Certain foods, good in themselves, play havoc with the driving parts of the human machine when mixed," says C. K. Curtis, head of America's largest periodical publishing house, in an interview telling how he keeps fit for a big job.

A few years ago, a member of the Philadelphia County Medical Society, reported that he had discovered, in an investigation of the digestive ailments of children, that beef and milk are incompatible, as reported in the Medical Record at the time.

In a boarding school near Belfast, where I was pupil and teacher for eight years and where I made such progress in the study of physiology and the rudiments of medicine that I was able to secure a teacher's certificate in physiology, of South Kensington, London, before the age when such studies are usually begun, my interest in diet was stimulated by a copy-book headline which said that "Diet cures more than the doctor." I found that during the four years in which I had been fed the extremely simple ration of the pupil, there had not been a single death among nearly a hundred and practically no attention from the physician, whereas when I was promoted to the officers' table where the

forty-seven varieties were served, I suffered frequently from tonsillitis, and when we were visited by typhoid—which was promptly stopped by changing the water supply—myself, the assistant steward, who had recently left the ranks, and a girl who worked in the dining room and thus had access to the varieties, were the victims.

When the time came, rather late in life, as the custom goes, to feed a boy and a girl of my own, I had arrived at the conclusion that most diseases, chronic and acute, are fundamentally due to "wrong food combination and foolish food selection," as Dr. Porter, above quoted, put it; so I started them, after they had finished their scientific infant feeding, on a ration that allowed of no "foolish combination." After four years of this régime I am perfectly satisfied with the results. The photograph of the elder child has been published in a medical journal, reported by a professional friend as "simply perfect," both children were reported in the Federal inspection, "much above the average in physical and mental development"; and their photographs were shown in the September, 1920, issue of the *National Magazine* as members of "The Best Fed Family in America."

While connected with a Chicago medical school, in 1907, I conducted a series of experiments, laboratory and clinical, to determine the principles of compatibility of foods, which I had been studying for ten years. From this study the hypothesis of variation as the fundamental physical factor in cancer originated, to which I shall briefly refer again.

I mention these views and experiences by way of introduction to a subject not set down in the books. At the time my systemic study of compatibility began, I could find nothing on the subject in any published work, and only within the past year has my position been supported by a competent investigator.

Nearly ten years ago, the manual of instruction issued by the State Board of Health of Illinois on Tuberculosis advised that the sufferer from that disease, "Eat at a meal foods that digest in about the same length of time" (I quote from memory). This suggests the first rule for compatibility. Some foods, we know, are ready to pass out of the stomach in about an hour after ingestion while others require to remain for four or five hours ordinarily. An eminent English authority on diet, Sir Lauder Brunton, has carried this so far that, in a recently published work, he advises that, in certain cases, the yolk and white of egg be fed separately, the two requiring so very different systems of digestion.

As a rule, high protein foods (flesh, fish, beans, cheese) require much longer treatment in the stomach than the low protein class (rice, bread, fruits, vegetables). Accordingly, these should be, as far as possible, eaten separately. It has been generally understood that the potato forms a good combination with beef or other flesh food; because the potato is deficient in protein while rich in carbohydrate, which the other lacks; but, their modes of digestion are so different that they are quite incompatible, as Dr. Porter has determined. When I was engaged in sanatorium work, we had mutton or beef with bread on one day in the week, fish with bread on Fridays, but never potatoes with either; baked potato being furnished only with bread. Under this rule, milk is incompatible with flesh foods, contrary to the view of Dr. Porter, whose ideal meal is beef, bread, and milk. If it is well to reduce the intake of flesh in kidney ailments, in pregnancy, and in arteriosclerosis, it should be well to reduce it under any conditions almost. My objection to flesh foods is not that of the vegetarian but because of its extreme incompatibility with fruits, milk, potatoes, and green vegetables, with which it is commonly eaten indiscriminately. Although I have not eaten a pound of flesh food in fifteen years, I should unhesitatingly choose to live on bread and meat in preference to the average vegetarian's ration. The poor class of Ireland live well on potatoes and milk, with a much lower cancer rate than that of the Ulster counties where the diet differs little from ours. (The rate for Kerry county is 4, for Armagh, a prosperous Ulster manufacturing district, 13.)

Pavlov discovered that each food requires for its proper digestion its own special secretion. This suggests the rule for combination that, foods eaten at a given meal should be of a class. With few exceptions, animals are classified according to their feeding — carnivora, herbivora, frugivora, etc. True, then ultimate nutrients of all foods are the same, yet the lion would not fare well on grass nor the ox on flesh. The anthropoids, to which class man belongs, feed upon fruit exclusively (including nuts), their "canine" teeth being more prominent than those of man, in whom the original purpose of the prominent, sharp fangs, was defense. Inquiring at the Zoological Gardens in London and at the Bronx Park, New York, where several chimpanzees are usually kept, I secured the information that our nearest relative is scientifically fed upon bread and milk in winter and fruits in summer.

Fruits, for example, differ so much from flesh in their mode of digestion that they should under no circumstances be eaten at the same meal, as Dr. Porter suggests, they are best eaten exclusively for breakfast. Although there is considerable difference in the mode of digestion of cereals and milk, yet the fact that cereal has been found the best modifier for the infant's milk suggests that bread and milk are as nearly compatible as any two classes of foods, and experience confirms this. Nearly all of Metchnikoff's cases of extreme longevity had lived for the greater part of their lives on bread and milk.

Starch can digest only in an alkaline medium. Hence starches and acids are incompatible, tending to fermentation. Buttermilk is more easily digested than sweet milk, so I tried using freshly made buttermilk with brown bread for our children, but the combination caused so much fermentation that we had to give it up.

If these conclusions are correct—and ample laboratory and clinical investigation proves them to be correct—the results of the indiscriminate mixing of the great variety of foods commonly used even by the poorest to-day must be fraught with serious consequences. Careful examination of the statistics of cancer in all countries where reliable records are obtained, compared with the habits of eating of the respective peoples led to the adoption of the hypothesis that variation in feeding is the fundamental physical factor in cancer. This has been

established, well supported by the following consideration, briefly stated:

The cancer rate of Irish, German, and Scandinavian immigrants to America is more than doubled, while that of Italians, Greeks, Bohemians, Russians, and others who retain their former habits of eating, shows little change. Correspondingly, the rate of negroes in many northern cities is three times greater than that of the southern negro. This cannot be due to change in climate, clothing or any other habit except eating. .

The highest rates for occupations, in England and America (World's Statistics of Cancer, Hoffman), are, commercial traveler, inn keeper, hotel servant, midwife, schoolteacher, nurse, excluding, of course, chimney sweep. These are the classes who are most subjected to variation in feeding. Hoffman mentions that the rate in institutions for the infirm is much lower than the average, although he offers no reason, but suggests that we should naturally expect it to be otherwise. The ration in such institutions is much more uniform than the average.

The highest rates for cities are those of a few manufacturing suburbs in the eastern States and the larger cities of California. With fruit and vegetables constantly, fish and other flesh food more available, the greatest variation is possible in California.

Williams and other investigators have found that the rate of vegetarians is lower than that of those who live on a mixed diet; while the Eskimo, cannibals and the primitive Indians, living upon flesh exclusively, are immune. Flesh foods are more incompatible with other foods than all others within themselves.

Fish are more subject to cancer than any other animals, the trout (Bashford), the most voracious and various in food, being most so.

Bertillon reported to the French Government, on survey of the statistics of cancer, "Something in the diet."

Dr. William Mayo, as president of the American Medical Association, said, "bad food preparation," the body of the Association concurring, at San Francisco meeting. Food preparation is, essentially, food compounding, the primitive custom being, largely, the eating of one food at a time—monodiet.

The outstanding feature of cancer is premature senility which is also marked, commonly, by arterioclerosis. Bishop has found the single protein diet treatment to be effective in this.

Burbank tells me that he has concluded that cancer in plants is essentially the same as cancer in animals; and, he says, in his "Human Plant," "When a plant is fed a varying ration it is quickly attacked by fungoid diseases. On a wooded tract adjoining our city limits, on an Ozark hill, I have more than twenty cancers on trees under observation. I have never seen one on a pine, which grows only in a particular kind of soil, while they are most frequent on oaks, and most extensive on those growing on steep hillsides. Smith found daisies most subject among small plants. The daisy grows most commonly in meadows covered with manure. Oaks grow anywhere.

Experiments have proved that mice fed on whole rice develop cancer rarely, while those fed on a mixed ration develop implanted cancer readily and recover with difficulty.

In a recently published work, Dr. L. Duncan Bulkley, of the New York Cancer Hospital, perhaps our ablest practical authority on cancer, says: "The advance of transportation and facilities for cold storage have brought from far and near an innumerable number and variety of articles of food and drink . . . which bear no relation to the few simple articles formerly consumed . . . making the greatest departure from the simple life of aborigines, who are free from cancer."

Darwin says (Origin of Species, p. 43), that variation in feeding is the chief cause of variation in the lower forms, quoting Walsh, a distinguished American naturalist, to the same effect. Abrams quotes Von Leyden as saying that *Ochneria dispar*, which naturally feeds on oak leaves, produces albino progeny, when fed on other leaves, but returns to normal when its natural food is supplied.

Cancer is a reversion in cell growth, its inception stimulated, locally, by chronic irritation, when a precancerous condition of the blood is favorable to its development. Exactly what this condition is requires an immense amount of investigation, but beyond reasonable doubt variation in feeding is the largest factor in establishing it.

AUTOMATIC GRAVITY ANESTHETIZER.

By A. L. SORESI, M.D.,
NEW YORK.
VISITING SURGEON, GREENPOINT HOSPITAL.

THE automatic gravity anesthetizer, as its name indicates, delivers the anesthetic to the mask by gravity in any amount and combination desired, that can vary from a continuous abundant stream, to one or more drops per minute. The amount can be increased or decreased at will, or can be kept stationary for any length of time or stopped completely by simply turning a small knob. The apparatus will functionate with perfect satisfaction under all circumstances; climate, temperature, altitude, position of the patient, will not hamper the perfect work of the apparatus, because its construction is so simple that there is nothing to get out of order. It can be clamped to any table or bed, put at any height, and—by means of a ball-and-socket arrangement of its support—bent to any angle; so that the anesthetic is carried to the mask by the force of gravity which naturally, is absolutely constant under all circumstances.

The apparatus is very compact, solid, practically unbreakable, takes up so little space, that it could be carried in one's pocket. It consists of a metal cylinder lined with glass of about 250 c.c. capacity containing the anesthetic (Fig. 1 *C*); a little chamber through which the anesthetic drops (*C*); a tube (*T*) that carries the anesthetic to the mask (*M*); the whole apparatus is attached to the operating table or bed by a support (*s*) which can be raised or lowered and bent to any desired angle.

The *modus operandi* is extremely simple and easy; clamp apparatus to operating table or head of bed (Fig. 1 and 3); close valve (V) (Fig. 2, A and B) by turning handle (2) (Fig. 1 and 2)

toward (*O*) (Fig. 2, *D*); fill cylinder by unscrewing knob (1) (Fig. 2, A and B) and pouring the anesthetic on the top of the cylinder, which top has several holes, Fig. 2 and 3, and is made funnel-like in order to facilitate the filling of the cylinder

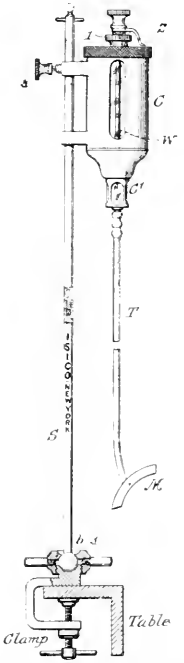


FIG. 1.—Complete automatic gravity anesthetizer. *C*, Container holding about 250 c.c.; *C'*, glass chamber through which dropping of anesthetic can be watched; *1*, knob opening holes that will allow filling of container *C*; *2*, handle that regulates opening of pin valve; *T*, tube to carry anesthetic to mask; *M*; *b.s.*, ball and socket joint allowing tilting of the apparatus when table is, for instance, in the Trendelenburg position; *S*, support holding apparatus, which can be lowered at will secured by screw.

and at the top has a small hole acting as a vent; this hole is covered with a small spring which is pushed aside when filling the container; foreign bodies such as pieces of cork, tin, etc., are prevented from entering the cylinder by a wire net (Fig. 2, A and B) put under the cover; when the cylinder is filled screw on knob (1) in order to prevent unnecessary evaporation of the anesthetic. The anesthetic is delivered to the mask by turning the handle (2) toward N, 1, 2, 3, etc. The turning the handle opens the pin valve (*V*) and allows the dropping of the anesthetic into the glass chamber (C') (Fig. 2, A); thence through the rubber tube to the mask. The amount of the anesthetic delivered to the mask can be watched and controlled by looking through the small glass chamber (C'). In all cases after the patient is well under, the flow of the anesthetic can be regulated, so that a certain amount is delivered to the mask and that amount is kept constant through the whole anesthesia, even if the cylinder should be refilled, because knobs (1) and (2) (Fig. 2, A and B) are independent of each other, so that the cylinder can be refilled without interruption, or changing the flow of the anesthetic to the mask.

When the surgeon wishes to give a mixture of ether and chloroform, for instance, this can be done in an ideal manner by using two of our containers (Fig. 2 E) one filled with ether, the other filled with chloroform, the two connected by a Y-tube, the two upper branches of the Y-tube being fitted one to each cylinder, and the lower branch carrying the mixture to the mask (Fig. 4); the amount of ether and chloroform is regulated with handle (*B*) of each cylinder, and will naturally be constant during the whole operation if so desired, or modified according to circumstances.

We have found most convenient to use a mask somewhat modified (Fig. 4); in the center of the mask there is a metal disc and a metal tube; the metal tube which is attached to the rubber tube coming from the apparatus is perforated all around its attachment to the metal disc; this arrangement

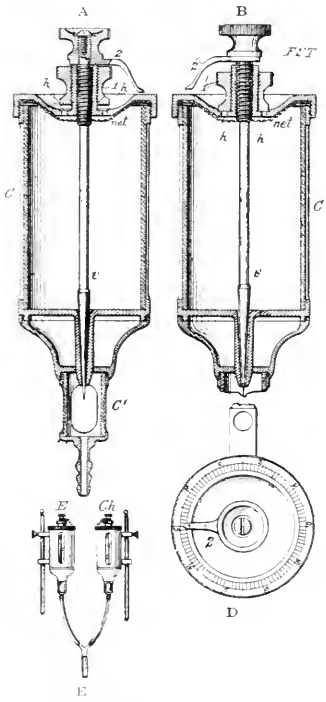


FIG. 2, A and B.—Sectional view of apparatus. *1*, Knob, raised in A to allow the filling of container, *C*, through holes, *h.h.*, closed in B to prevent useless evaporation; *F.S.T.*, funnel-shaped top allowing easy filling of container, *C*; *net*, wire net that prevents entrance of foreign bodies in container, *C*; *V*, pin valve regulated by handle, *2*, and opened in A, closed in B; *C*, container holding about 250 c.c.; *C'*, glass chamber; *D*, view of funnel-shaped top surrounded by numbers indicating the various openings of the valve, *2*, or closing of the same; *E*, two containers for the simultaneous administration of ether and chloroform; *E*, ether; *Ch*, chloroform, both flowing to the mask independently through Y-tube

allows a more even and expanded distribution of the anesthetic all over the gauze on the mask, instead of having the anesthetic drop always on the same one spot on the gauze. On the side of the mask there is also a small female screw; to this is

screwed the end of the tube containing ethyl-chloride, so that the anesthesia can be started with ethyl-chloride and continued with ether.

The advantages which the apparatus offers are; The administration of the anesthetic is even, continuous, requires a minimum of anesthetic—which for large hospitals means a great saving.

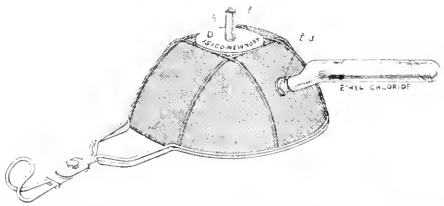


FIG. 4.—Mask that allows administration of ethyl chloride anesthesia, by screwing tube containing ethyl chloride to the mask, *t s*, and distributes the ether well over the mask by means of the holes, *h*, made in tube, *t*, that spread the ether over metal disk, *D*

The anesthetist is perfectly free, has no anesthetic bottle to hold nor valves to switch continuously, so that he can devote all his attention to the patient.

The anesthesia is so easy and smooth that the anesthetist does not get tired easily, and this is important, when there are many anesthesias to be administered in succession.

A smooth anesthesia is possible, even when the anethetist is not very competent, because once the flow of the anesthetic is regulated it will be constant for any length of time.

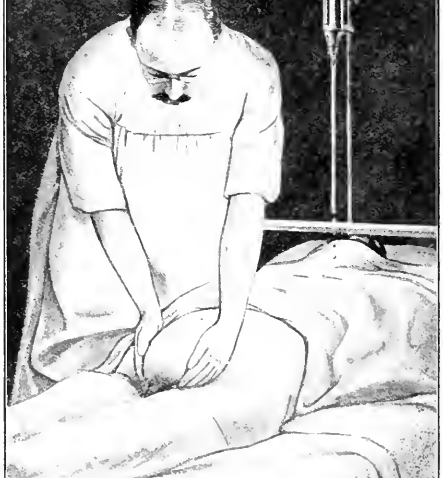


FIG. 3.—Apparatus attached to bed, for urgent obstetrical or other cases.

In emergency cases, such as obstetrical ones (Fig. 6), when the surgeon cannot get a competent anethetist immediately, as it happens in villages and small towns or at night and in emergencies, the surgeon can start the anesthesia and proceed with the operation all alone, or with the help of anybody who can, according to orders, turn the little handle that regulates the opening of the valve.

The same apparatus is equally efficient for both chloroform and ether, is compact, small, practically unbreakable, not expensive, and always ready to be used under all conditions and circumstances.

20 WEST 59TH STREET.

LARGE DOSES OF BACTERIAL VACCINE IN GONORRHEAL ARTHRITIS.

BY H. W. LYDING, M.D.,
NEW YORK

THE case herewith reported is of interest because the persistent and continued use of a combined vaccine was able to effect complete cure of a severe gonorrheal arthritis and because the patient was able to tolerate, without serious constitutional effect, doses which were very much larger than those ordinarily given. It was necessary to raise the dosage in order to eradicate the infection.

W. S. G., male, thirty-two years old. Gonorrhea of two years' standing. Had received specific treatment immediately after infection, but the condition nevertheless became chronic and did not respond to the usual measures employed. Gonorrheal discharge continued and was present September 10, 1920, when the patient came under the writer's care. He complained of intense pains throughout the lumbar regions, the perineum, the thighs, and the testicles. He received an injection into the gluteal muscles of one mil of the following bacterial vaccine: gonococci, 2,000,000,000; streptococci, 100,000,000; pneumococci, 100,000,000; colon bacillus, 200,000,000; pseudodiphtheria bacilli, 300,000,000; white staphylococci, 1,000,000,000. September 15 another intramuscular injection of one mil; September 22, two mils; October 1, two mils; October 15, three mils; November 15, three mils; November 22, five mils; December 15, four mils.

The arthritis appeared to improve after the first few injections, so that the patient did not return to the office for two weeks after October 1. He then came back and asked for resumption of vaccine therapy because of renewed pains. There was an interval of one month before he again came for treatment. He was then given five mils of this vaccine, whereupon the urethral discharge completely stopped and has not returned since. The final dose on December 15 was followed by cessation of the pains, which up to this date (April 1, 1921), have not returned.

The only systemic reaction which the patient felt was, after the injection of five mils, a moderate chill lasting about thirty minutes. The other injections caused no unpleasant effects whatever. On the basis of this and other experiences I have no hesitancy in using very much larger doses of bacterial vaccines than those recommended by manufacturers In acute cases it is my practice to begin immediately with heavy doses. My rule is: The higher the temperature the larger the dose, since experience has shown that injections of vaccines have a remarkable anti-febrile effect, if they are given early. As to the theory that bacterial vaccines in acute infections may do harm by adding toxic materials to an already intoxicated system, it does not hold good in practice, since injections under these conditions are followed by a drop of temperature rather than by a rise. The fact seems to be that it is not the bacteria which are so toxic, but rather the products of their life activity, so that killed bacteria can be injected in large quantities

without fear of toxicity. In very old chronic infections in which the system has apparently become tolerant to the bacteria, I often find it necessary to work up gradually to what appears to be very large doses, in order to arouse a sufficient immunizing reaction on the part of the system to effect a complete cure.

As to the objection that the use of a combined vaccine, undoubtedly containing bacteria which are not represented in the infection, is unscientific, I am quite in accord with the recent view expressed by Almroth E. Wright (*The Lancet*, March 29, 1919), that "there may exist a useful sphere of application for collateral immunization; and that such sphere may, perhaps, be found in those cases where the infection is of very long standing, and where the patient has become very sensitive to, and has probably come very near the end of his tether in the matter of immunizing response to the particular species or strain of microbe with which he is infected."

236 WEST 15TH STREET.

Medicolegal Notes.

Privileged Communications to Physicians Not Admitted in Action on Accident Policy.—An insured under an accident policy, on the day following his moving a heavy ice box on a neighbor's premises, was attacked by a pain in the side and shortly afterward was attended by physicians, was taken to a hospital and there operated upon. In an action on the policy after his death, some time later, the medical testimony showed that prior to being sent to the hospital the diagnosis of some of the physicians was that there was an infection of the gall bladder. The operation disclosed, however, that a part of the omentum had become gangrenous to an extent about the size of a man's palm. This portion was removed, but subsequently there developed a paralysis of the muscles in the walls of the intestines, and a secondary operation was performed. The distension of the bowels caused by this paralysis increased, and he died as a result thereof six days after the first operation. The testimony indicated that this condition of the membrane was probably produced by a twisting as the result of some violent physical strain on or of the patient's body. Under the testimony received by the court under its first ruling there was evidence that the deceased had at several times, but more than two days after the accident, stated to the attending physicians who were then treating him professionally, that he had twisted himself at the time he was moving the ice box, and that he attributed the subsequent pain to such twisting. The physicians further testified that considering what was disclosed at the operations and the autopsy, taken in connection with the statements that the deceased made to them as to the moving of the ice box, they ascribed the cause of his death as being traceable to such injury. A motion was made by the defendant to strike out the testimony of the physicians, which was granted, and thereupon the defendant moved for a directed verdict in its favor, which the trial court granted "solely upon the ground that the only evidence of the accident, which is claimed was the proximate cause of the deceased's death, is the statements of the physicians and surgeons who were called to treat him and to operate upon him, and, the court being of opinion that such testimony was incompetent because of the privilege under section 4075 of our (the Wisconsin) statutes, there is no evidence to sustain the claim of the plaintiff to the effect that there was an accident within the meaning of the terms of the policy." In affirming this judgment, the Wisconsin Supreme Court holds that, while the patient may waive this privilege, there was no express waiver by him in this instance, and it cannot be waived by the administrators, executors or personal representatives of the deceased, nor by any person standing in the position toward deceased as did the plaintiff beneficiary in this case (the widow of deceased). It was unsuccessfully urged by the plaintiff largely from the standpoint of the probable injustice that would otherwise result in this instance, as well as in similar situations, that under the facts in this case there was intended by the insured that there should be a waiver of such privilege from his taking out such an accident policy, in that the very nature of the contract implied that it was anticipated that in case of accident the testimony of physicians or surgeons would be required in order to establish a right to recover, either for the insured himself in case of an injury not resulting in his death, or for the designated beneficiary in case such injury resulted in death, and that the contract of insurance, expressly providing for the furnishing of proofs of death necessarily required the statements or evidence of physicians. It was held that the trial court was right in ruling that the information obtained by the medical witnesses while attending, prescribing for and operating upon the patient, were excluded by the statute. Another ground of exclusion was stated by the court. The testimony of the physicians in this case on all the other points on which it was offered would, the court said, have been of no avail and weight, unless there could have been connected with such testimony the declarations of the deceased made some days subsequent to the accident to these same physicians that he did injure himself by the moving of the ice box. Such declarations were held no part of the res gestæ, were hearsay and inadmissible.

Recitals of past events made by an interested person are no more admissible because made to physicians or surgeons, even when necessarily so made for the purpose of proper treatment by such, than if made to other persons. Justices Owen and Liebecker dissented on the ground that by the very act of applying and paying for an insurance policy of this nature the insured thereby waives the privilege of the statute just as effectually as does the testator who calls upon his attorney to witness his will; and that there was ample evidence from which the bodily injuries might be inferred without reliance upon statements made to the physician by the deceased.—Maine v. Maryland Casualty Co., Wisconsin Supreme Court, 178 N. W. 749.

Negligence in Diagnosis and Treatment and Cause of Death Held for Jury.—The Minnesota Supreme Court holds that a physician does not insure either correct diagnosis or correct treatment, but he is required to possess the skill and learning which is possessed by the average member of his school of the profession in good standing in his locality and to apply that skill and learning with reasonable care. If he fails in this, he is negligent and may be held liable for injury resulting therefrom. Defendant diagnosed a case of diphtheria as quinsy, and on two occasions lanced the patient's throat. The patient died soon thereafter. It was held (two judges dissenting) that under the evidence the question of the defendant's negligence in diagnosis and treatment and the question whether such negligence caused the death should have been submitted to the jury, and a judgment on a directed verdict for the defendant was reversed.—Clark v. George (Minn.), 180 N. W. 1011.

Evidence as to Physician's Attendance Under Indemnity Policy.—In a claim under an accident and sickness policy providing for a payment for total disability should the insured be confined within his house by disease and "therein regularly attended by a qualified physician," the evidence was conclusive as to the disease, but uncertain as to the necessary confinement to the house. As to the requirement of attendance by a physician therein the evidence showed that during the period claimed for, the plaintiff was never attended at the place of confinement by a qualified physician, but merely communicated through members of his family with his physician over a telephone, and that subsequent to a period of two weeks, during which he testified he was confined to his house, he visited his physician on an average of twice a week during the term of his disability. The Appellate Division holds that this evidence failed to establish one of the necessary requirements to recover under the policy, namely, that he was regularly attended by a qualified physician during his illness.—Campana v. Ridgely Protective Assn., 186 N. Y. Supp. 82.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, July 2, 1921.

SIMULTANEOUS DISLOCATION OF BOTH CLAVICLES.

STRANGE as it may appear at first sight, simultaneous dislocation of both clavicles has not a bad prognosis. It must be recalled that reduction cannot always be obtained; sometimes the displacement can be corrected, but it is impossible to maintain the reduction. Finally it is often a difficult matter to effect a cure without deformity. Therefore the patient should be warned at the onset of treatment that he will recover with some deformity and thus a future malpractice suit will be avoided. In one reported case the clavicles rested on the edge of the sternum, behind the sternal insertion of the sternomastoid muscle; in most all the other reported cases the deformity was marked, although in many the final functional results left nothing to be desired. The resulting deformity, although not inconvenient for males, is very distressing for women from the esthetic viewpoint.

From the viewpoint of function, what is the prognosis of simultaneous dislocation of both clavicles? The importance of this question can readily be conceived, especially at the present time when legislation on liability brings up constantly important medical questions. In a general way it is known that the functional prognosis of dislocation of the clavicle is regarded as good, but in this respect there is, nevertheless, no absolute and fixed rule. As to simultaneous dislocation of both clavicles, the relatively small number of reported cases does not permit one to formulate strict conclusions, but it appears to us, however, that the prognosis can, in a general way, be regarded as favorable. Certain reserve should be maintained in certain circumstances, and although some severe double dislocations have been recovered from nicely, so far as function is concerned, there are other instances in which the return of strength in the parts has been far from complete. In a recently reported case of simultaneous dislocation of the clavicles in all four of their joints a functional impotency resulted, which, for a laborer, was a serious infirmity.

A positive diagnosis is usually made without difficulty, but it may happen that one of the dislocations is overlooked. In the case of acromioclavicular dislocation the diagnosis is based upon the projection of the external end of the clavicle, the deformity of the stump of the shoulder, the existing acromioclavicular depression and abnormal mobility of the clavicle. In sternoclavicular dislocation, the deformity and abnormal mobility are the two important diagnostic signs, and should any doubt exist in either case the *x*-rays would settle the question. The differential diagnosis in simultaneous dislocation of the clavicles must evidently be made in each kind of dislocation. In cases of acromioclavicular dislocation it will usually be enough to seize the clavicle at its middle and detect its mobility. To differentiate this lesion with a dislocated shoulder, the movements of the arm are preserved in the former and the tumefaction over the shoulder is formed by this external end of the clavicle resting on the acromion. Fracture of the acromion causes the acromial apophysis to project, or there is a depression over the line of fracture. It must be recalled that fracture of the acromion has been known to occur at the same time as acromioclavicular dislocation. Dislocation of the outer end of the clavicle may be mistaken for a fracture of this bone, but in the former lesion the pain will be found to be seated directly over the acromioclavicular joint, while in fracture the pain is just to the inner side of the joint. In dislocation, reduction is usually easy, while in fracture the outer end of the clavicle is often only incompletely reduced. A differential diagnosis of sternoclavicular dislocation may perhaps have to be made with exostosis, which requires no comment, while in cases of fracture of the bone the deformity will be seated at a notable distance from the midline of the sternum and crepitation will be distinct. Finally, ecchymosis is almost invariably present in fracture and is often wanting in dislocation.

RHEUMATISMAL CONJUNCTIVITIS.

THIS ocular manifestation of acute and chronic articular rheumatism in most instances assumes the aspect of simple conjunctivitis with edema. The lids are swollen, the eye red and injected, with lacrymation, characterized by a flow of clear, transparent fluid containing a few filaments of mucus. Occasionally the secretion may be mucopurulent. The patient complains of a pricking sensation as if sand were under the lids, but in some cases the pain may be so sharp that it is compared to pain in the joints. Examination shows the palpebral and bulbar conjunctivæ are very red, the vessels are dilated and flexuous, while the submucous edema is sometimes very pronounced, producing an intense chemosis encroaching on the cornea, giving the latter an unpolished appearance. In the vast majority of cases the conjunctivitis of acute articular rheumatism certainly resembles the catarrhal type of the process.

The conjunctivitis and the joint manifestations may alternate or coincide, undergoing the same evolution and the same clinical variations. Some observers have described other types of rheumatismal ocular inflammatory processes, as for example, a follicular or dry catarrhal conjunctivitis characterized by a slight redness of the lids which appear to be heavy, and close in spite of the patient when he works with artificial light. He will complain of a pricking sensation and impeded movement of the lids, as well as a sensation of sand between the bulbar and palpebral conjunctivæ. The lids are stuck together in the morning. Examination shows the palpebral conjunctiva dull, injected, red, uneven, and puffed on account of hypertrophy of the papillary bodies. The bulbar conjunctiva is only slightly injected, the cornea is intact. The lacrymal and conjunctival secretions are slight. An eczematous rheumatismal conjunctivitis has likewise been described, as well as a form closely resembling the gonococcal variety, but the rheumatismal origin of the latter is more than questionable. As to the follicular variety it is rather an attenuated form of rheumatic catarrhal conjunctivitis, while the so-called eczematous variety depends upon the lesions of eczema, that will at the same time be found on other parts of the skin, rather than on the rheumatism itself.

To make a differential diagnosis of this ocular localization of rheumatism the personal and hereditary antecedents of the patient should be taken as a basis. But this is not enough, because a subject with rheumatism may develop an ordinary acute catarrhal conjunctivitis, so that in order to make a sure diagnosis the patient must have recently presented or be actually suffering from rheumatismal manifestations. The patient will have suffered from some joint pains and these having passed off a conjunctivitis develops, or the two morbid phenomena coexist. Therefore the alternation or coincidence of the conjunctivitis with the joint manifestation should lead to the correct diagnosis. The manner of the onset of the affection, its evolution, duration, and the effect of treatment are likewise to be taken into consideration. Pain, often severe, occurs in rheumatic conjunctivitis and is almost absent in ordinary catarrhal conjunctivitis. The rheumatic form of the affection presents an astonishing mobility, it frequently recurs, and its duration is sometimes long, far more so than acute catarrhal conjunctivitis. Occasionally, however, complications in other membranes of the eye may ensue, such as exudative iritis, but these cases are uncommon and usually the process undergoes its evolution without complications, and recovery ultimately takes place.

Treatment for the rheumatism itself will usually bring about an amelioration and cure of the ocular process, but with the general treatment with large doses of the salicylate some local treatment should be adopted, avoiding any irritating drug. Warm boiled water or a warm boric acid solution applied on compresses will usually suffice, if necessary combined with instillations of a cocaine solution; or a very mild solution of zinc sulphate, one grain to the ounce, may hasten the cure.

BACTERIOLYTIC VIRUS.

In 1917 Herelle made the discovery that a filtrate from the stools of dysenteric patients, especially during convalescence, could kill and dissolve suspensions of dysentery bacilli. Of much interest *per se* this phenomenon also opened up other fields of research. This property could be made to pass indefinitely from one suspension of bacilli to another. In other words, an invisible filtrable virus was found to be able to reproduce itself, and it was proved later that this property was not restricted to dysentery bacilli. From stools of typhoid fever patients similar bacteriolytic filtrates could be obtained, and this proved also to be the case with fowls attacked with so-called fowl typhus. Bacteriolytic bodies have also been shown to exist in normal stools. That a living organism was responsible for this property was not necessarily implied, for the presence of an enzymic catalysator might also explain the behavior. However, with the progress of the investigation, the majority of observers, including Herelle himself, adhered to the belief in a living cause of the phenomenon in question. It was found that the intestine is not necessary for the production of the phenomenon, for an injection of colon bacilli into the peritoneal cavity will give rise to a filtrable bacteriolytic substance. This Bordet phenomenon may not, of course, be identical throughout with the Herelle discovery. The assumption is that the bacilli contain the active substance preformed or that it is formed by a lytic process, although an explanation of this sort does not seem to explain the power of the bacteriolytic substance to perpetuate itself.

Professor Bail of the Hygienic Institute of Prague University takes up this subject in the *Wiener klinische Wochenschrift* for May 19, 1921, xxxiv, 20. He imagines that the defensive forces of the body may be able to break the bacteria into fragments so small that some of them can go through the Chamberland filter. The fragments constitute living organisms which have become greatly altered biologically. Their ability to proliferate explains the perpetuation of the unknown virus. The author compares the formation of this new generation with the ordinary process of sporulation. To a certain extent the new individuals must resemble spores, but we do not know yet that the fragments of the bacilli can develop, like spores, to mature individuals. That they share this property, however, seems quite likely, although under conditions which are evidently absent in the phenomena discovered by Herelle. For further advances along this line of study we must await the success of attempts to culture the new

individuals. Comparison with the results of studies by Weil and Felix on mutations of the Proteus throws some new light on the subject. The fragmented bacilli do not seem able to proliferate in the body to the degree seen in the filtrates. Thus far there is indicated the possibility that the Herelle discovery may throw light on the causation of certain diseases, as typhus, scarlatina, and swine plague, through the operation of mutants of known germs.

Passage of the Anti-Beer Bill.

The House of Representatives in Washington has passed by a vote of 250 to 93 the Willis-Campbell bill absolutely prohibiting the therapeutic use of beer, and probably before this issue of the Medical Record is printed the Senate also will have passed the same measure. If the bill only prohibited the medicinal use of beer, most men, physicians and laymen, would shrug their shoulders over this one further step in the Prussianizing of a once free country and let it go at that. But it is no doubt merely an emergency measure intended to head off the brewers from putting out any beer until the new and more drastic Volstead bill, known as H. R. 6752, can be passed. According to this bill, as pointed out by the Committee on Industrial Alcohol of the American Chemical Society, any chemical or other manufacturing industry, using or depending upon alcohol could be shut down within thirty days. And no appeal could be made to the courts. Another section of the proposed new law would require the posting of permits for twenty days, before this basic chemical for many industries could be secured. Power is also given to compel the posting of a copy of the application upon the factory or business house. Then any one of a group of local, State, or national officials may file a protest to it. By the time the red tape involved was unsnarled, any reputable concern might be in the hands of the sheriff or the federal courts in a bankruptcy proceeding. We are very glad the father of this bill was simple enough to introduce it, for it has awakened the chemical industries to a realization of the danger to which the country is exposed by this fanatical legislation. So long as it was only the practice of medicine that was assailed the chemists and others took no interest in the measure, agreeing with the Committee on Industrial Alcohol of the American Chemical Society that "no substantial objection could be offered against it." But Mr. Volstead was unwise enough to touch the pocket nerve and the reaction is prompt and more or less violent. We hope he will go on in his attempt to cripple other industries; then perhaps the reaction will be so violent as to help even the practice of medicine.

Why Practice When Commissions Are So Good?

In the course of a long and varied medical career one receives much graft in the way of samples of drugs, foods, and apparatus, not to mention deeds of burial plots, certificates entitling the bearer to free cremation, and the like; but cash offers are few, hence our readers may be interested to learn of opportunities in that line. The following are extracts from a couple of circulars sent not long since to a number of practitioners in this city. The first one reads: "Inclosed find circular of our place. I would like to have you send patients here who are recuperating and also who are on diets, for I give the best care to any order given them by you. We have had many patients from other doctors and they were very much pleased with the place. We take special care of diabetic cases. I am sure your patients will like it here, as I'll give them every attention needed. . . . I will mail you a check for $5 for every patient sent, and you are welcome to come and see the place at any time without charge." The second offer is much more generous. The enterprising director of the institution writes: "We can increase your practice $2,000 a year in a perfectly ethical way and without any investment. Frequently, when a doctor fails to promptly benefit a patient suffering from neurasthenia, obesity, arterial hypertension, etc., they drift away and go the rounds of various systems, spending large sums and, as a rule, obtaining little or no relief. If you will permit us, we will explain how we propose to help you retain such patients. . . . You may have, in the rush of work, neglected to consider how grateful, in many instances, your patients would have been to you for supplying them promptly with special treatment of this kind. . . . In order to insure their faithful and regular attendance, which is generally difficult for the physician to obtain, all patients referred by you for treatment here are required to pay in advance for a course of one month or more, according to their needs and your advice. *We forward to you at once* $40 *to* $60 *for each patient*, in consideration of your advice and guidance in the treatment of the case. Patients are referred to you at stated intervals for medical examinations. Doctor, the ——— depends for its continued success and for the patronage of physicians upon its ability to produce successful results in treatment and upon its conscientious cooperation with physicians. It's worth investigating!" We should say so.

News of the Week.

Disease Spreading in Russia.—A *Central News* despatch from Helsingfors reports that Health Commissioner Samasjko announced before the Pan-Russian Health Congress in Moscow, on June 21, that cholera was raging in the southern and middle provinces of Russia, and that there was hardly a port of Russia free from malaria. The spread of these diseases is believed to be due, in part at least, to enormous swarms of gnats and flies.

League of Nations Faces Health Work Dilemma.—According to a report by the *Associated Press* the Council of the League of Nations, in session in Geneva, is struggling to solve a complication brought about by the abstention of the United States from participation in the health organization of the league. This problem is how to avoid duplication of the league's international work in hygiene with the work of the International Health Office, in which the United States is represented. The idea of the assembly is that international health work should be brought entirely under the

direction of one organization. A new provisional committee has been appointed which is to endeavor to secure unofficial representation in the International Health Office so that at least a working arrangement with the league can be effected.

Medical School Closes Doors.—Upon the one hundred and sixteenth commencement day of Bowdoin College, the Bowdoin Medical School closed its doors after an existence of more than one hundred years. This is because the college officials feel that they are able no longer to maintain the medical school in Class A with the financial support available. The degree of Doctor of Medicine was conferred upon only eight students.

Illinois Doctors Protest Against Dry Law.—Following the passage by the Illinois House of Representatives of the Anti-Saloon League's dry bill, which is much more drastic than the Volstead law, and would abolish medicinal beer, light wines, and other intoxicants, and permit the prescription of whiskey only, protests from Illinois physicians are pouring in requesting Governor Small to veto the bill. One thousand letters opposing the bill have been received in answer to a query sent out to ascertain the feeling of doctors in regard to the bill, and it is said that there are 4,000 additional protests in Chicago. It is reported that there is a movement on foot to form a union of Illinois physicians who object to the restriction on prescription privileges as contained in the prohibition bill.

The Willis-Campbell Bill Passes the House.—The "Anti-beer measure," carrying more stringent restrictions than the present Volstead law, passed the House of Representatives on June 27, by a vote of 250 to 93. This measure absolutely prohibits the prescription of beer as medicine, which Attorney-General Palmer ruled was permissible under the Volstead law. In addition to prohibiting medicinal beer, it gives the prohibition commissioner power to limit whiskey prescriptions to 100 every ninety days, and to stop the importation of any intoxicating liquors until the supply in this country held under Government supervision for non-beverage uses is exhausted. Representative Gallivan of Massachusetts, who vigorously opposed the measure, compared it to legislation in the time of Rameses I, when physicians were regulated by laws that compelled them to prescribe according to statute. If they adopted any treatment of their own they were put to death. As a result of this type of medical practice act, Representative Gallivan pointed to the one conspicuous relic of medical skill in Egypt, the mummy.

Doctors Consider Reduction of Fees.—In addressing the graduating class of the Detroit College of Medicine and Surgery on June 17, Dr. J. B. Kennedy announced that Detroit and Michigan physicians were planning to come to an agreement on easier fees for the sick. A committee has been appointed to study the question and to submit a report in a short time.

Pennsylvania Denies License to Minnesota Doctor.—Judge William M. Hargest of the Dauphin County Court, Harrisburg, has refused a writ of mandamus to compel the State Bureau of Medical Education to issue to Dr. Samuel S. Houlton a license to practise medicine in Pennsylvania, on the ground that being licensed by Maryland and Minnesota he should receive the same privilege for Pennsylvania under reciprocal relations.

The Right to Practice Surgery in a Hospital.—The Circuit Court for Talbot County, Md., has overruled the demurrer of the authorities of the Emergency Hospital of Easton growing out of the institution's action in having barred Dr. James A. Stevens from surgical practice in the hospital. The opinion, signed by Judges Hopper and Wickes, holds that under the by-laws of the institution the complainant "would have the management of his private patients and the right to perform surgical operations, subject in the latter instance to the consent of the active staff; that consent signifying that the operation was necessary or advisable, and not requiring the staff's consent to the surgeon selected by the patient to perform the operation. The office of the staff in this respect is specifically confined to deciding whether there should or should not be an operation. The resolution under question states who should compose the surgical staff of the hospital and places the complainant on the medical staff, thereby eliminating him from the surgical practice in the hospital. This the staff could not do, so far as the complainant's private patients were concerned, because the constitution and by-laws confer no such authority."

Work for Zionist Medical College Begun.—The American Jewish physicians have opened offices at 1225 Broadway, New York City, to begin the fulfillment of the promise made to Dr. Albert Einstein on his recent visit to this country, that the Medical Profession of the United States would contribute a fully equipped medical college to Palestine. This central committee will have charge of organizing sub-committees all over the country.

Annual Meeting of the Medical Library Association.—The twenty-fourth annual meeting of the Medical Library Association, whose membership includes all of the larger medical libraries of the country, and a large number of individual members, consisting of those interested in furthering medical library work, was held in Boston June 6, 7, and 8, 1921. The business meetings of the Association were held in the Boston Medical Library. In addition to the address of the president the program contained the report of a committee on standard Classification, and the system used in the Boston Medical Library, and this as explained by the chairman, Mr. James F. Ballard, was adopted, as being the most practical solution for meeting the perplexing problems of classification. This was followed by a discussion on reference aids, which was opened by Mrs. Grace W. Myers of the Treadwell Library of the Massachusetts General Hospital. An evening meeting, which was largely attended, was addressed by the president, Dr. John W. Farlow of the Boston Medical Library. This was followed by an interesting paper, illustrated by lantern slides, by Dr. George S. Huntington of New York City, entitled "Some historical facts concerning the catoptron of Johannes Remmelinus, and the superimposed anatomical plates during the early part of the 17th century." Following this Dr. Malcolm Storer of Boston, read a paper entitled "Interesting medical medals." In addition to the regular program visits were made to the various libraries in Boston. In each case the members of the Association were shown over the buildings and the

various points of interest were explained. Visits were made to the Harvard Medical School Library, Boston Public Library, Harvard College Library, Treadwell Library, and the Boston Anthenæum Library. Of particular interest was an exhibit of rare medical items from the library of Dr. Edward C. Streeter of Boston, spread in the exhibition room of the Boston Public Library. The exhibit was specifically epidemiological, the essential literature on fevers from Hippocrates to Lancisi, with a few sections such as Pleague, Syphilis, Venesection superadded. The permanent headquarters of the Medical Library Association are in the Medical and Chirurgical Faculty Building, 1211 Cathedral Street, Baltimore, Maryland.

Hospitals for Soldiers Approved.—Seven hospital projects recommended by the Board of Consultants on Hospitalization, for the treatment of former soldiers, have been approved by Secretary of the Treasury Mellon. They involve the expenditure of $3,101,000, which will be taken from the special appropriation of $18,000,000 for this purpose. An expenditure of $850,000 has been authorized for the addition of 250 beds and the improvement of existing facilities at the United States Public Health Service Hospital at Fort Bayard, N. M. The United States Public Health Hospital at Perryville, Md., is to be the site of a new hospital. A great deal of construction was done at this point during the war and additions will be made to accommodate 300 neuropsychiatric patients, at a cost of $500,000. At Ft. Logan A. Roots, Little Rock, Ark., provision will be made for a hospital for the treatment of 300 neuropsychiatric patients, at an estimated cost of $250,000. The tuberculosis unit at Lake City, Fla., the general hospitals at Fort Walla Walla, Whipple Barracks, Prescott, Ariz., and Alexandria, La., are also included in the list of hospitals to be expanded and improved.

Municipal Hospitals in Class A.—According to the report of Commissioner Bird S. Coler of the Department of Public Welfare recently submitted to the Mayor, the municipal hospitals of New York City have been increased in efficiency until they have all been rated in Class A by the American College of Surgeons. The report asserts that the higher standards were brought about by a program which brought all the hospitals of the department under the supervision of a general medical superintendent and by a policy of monthly conferences of the attending physicians of the several hospitals. To facilitate these conferences the methods of keeping records have been greatly improved. Commissioner Coler also claims credit for having improved the conditions surrounding the nursing service in these hospitals so that they have been enabled to attract more young women to take up nursing as a profession.

Hospital for Speech Defects.—The New York Clinic for Speech Defects, started three years ago, has obtained authority from Albany to change its name to the National Hospital for Speech Disorders. This was a preliminary to a campaign to raise $1,000,000 as a building and endowment fund for a hospital which is to be national in scope. The plan is to make the new hospital a training center for specialists in this field as well as a thoroughly equipped hospital for the treatment of all speech disorders. The hospital is to be a combination of school, clinic, hospital, and social center, combining reeducation and social service with medical and psychological treatment. It is the only institution of its kind in this country.

Cancer Hospital Plans Expansion.—The Memorial Hospital, New York, has prepared a definite program for enlarging its accommodations which is contingent upon the raising of a fund of $2,000,000. In initiating a campaign to raise this sum the hospital authorities point out that at present not more than one-sixth of the patients applying for treatment can be accommodated and that the teaching function of the hospital is also much restricted because of lack of room to care for the many patients applying for admission.

Broad Street Hospital to Be Enlarged.—A movement is under way looking to the organization of the Downtown Hospital Organization which will have for its object the development of the Broad Street Hospital into an institution with as wide a scope as any hospital in the world. A meeting is to be held on June 28 in the Chamber of Commerce, at which time officers will be elected and committees appointed. Steps will be taken immediately to enlarge the capacity of the hospital from 100 to 180 beds and to provide quarters for nurses in training.

Rhode Island Medical Society Receives Donation.—At the annual meeting of the Rhode Island Medical Society held in Providence on June 2, Dr. Edward M. Harris of Providence turned over a check for $5,000 to the society. This fund is to be divided, $3,000 going toward an endowment fund and $2,000 toward the printing expenses of the society.

The New York Diagnostic Society announces the following Prize Essay awards for the 1920 contest; Subject; "Group Diagnosis": 1st Prize, $300 to Dr. F. Thompson Leys; 2nd Prize, $150 to Dr Clinton Lake Potter; 3rd Prize, $50 to Dr. Homer E. Smith. Sixty-one essays were submitted.

Dr. Livingston Farrand, chairman of the Central Committee of the American Red Cross, has been elected president of Cornell University to succeed Dr. Jacob Gould Schurman who has resigned after a service of twenty-eight years. Dr. Farrand was for a number of years executive secretary of the National Association for the Study and Prevention of Tuberculosis.

Dr. George M. Piersol has resigned the professorship of anatomy at the University of Pennsylvania which he has held for thirty years.

Dr. Alonzo E. Taylor has resigned from the faculty of the University of Pennsylvania to go to the University of California to conduct special research work on the subject of nutrition.

Dr. A. F. Thomas has been appointed city physician of Newburyport, Mass., to succeed the late Dr. George D. McGauran.

Dr. Harold Gifford of Omaha has been given the honorary degree of Doctor of Laws by the University of Nebraska. This is the first time this degree has been conferred upon a member of the medical profession by the university.

Vacancy for Pathologist.—The Civil Service Commission of the State of New York announces an examination for the position of pathologist, first assistant grade, State Hospitals for the Insane, at

a salary of $2,700 to $3,300. Candidates must be licensed physicians who have had at least four years of experience in an approved pathological laboratory, two years of which must have been spent in the laboratory of a State Hospital or institution. The examination is open to non-residents. Application forms will not be sent out by mail after July 5 and may not be accepted after July 7. Application forms may be had by addressing the State Civil Service Commission, Albany, N. Y.

Society Elections.—THE AMERICAN PEDIATRIC SOCIETY, at its thirty-third annual meeting held at Swampscott, Mass., June 2-4, 1921, elected the following officers for the ensuing year: *President*, Dr. Maynard Ladd, Boston; *Vice-President*, Dr. Percival J. Eaton, Pittsburgh, Pa.; *Secretary and Treasurer*, Dr. Howard C. Carpenter, Philadelphia, Pa.; *Editor and Recorder*, Dr. Joseph Brennemann, Chicago.

THE AMERICAN MEDICAL EDITORS' ASSOCIATION, at its fifty-second annual meeting held in Boston May 6 and 7, 1921, the following officers were elected for the ensuing year: *President*, Dr. Frank C. Lewis, New York; *Vice-Presidents*, Dr. F. H. McMechan, Avon Lake, Ohio; Dr. D. S. Fairchild, Clinton, Ia.; *Secretary and Treasurer*, Dr. Joseph J. MacDonald, Jr.; *Executive Committee*, Dr. H. E. Lewis, Dr. H. S. Baketel, and Dr. T. L. Stedman, New York, and Dr C. C. Taylor, Philadelphia.

THE ILLINOIS STATE MEDICAL SOCIETY, at its seventy-first annual meeting held in Springfield, May 19, 1921, elected the following officers for the ensuing year: *President*, Dr. E. P. Sloan of Bloomington; *First Vice-President*, Dr. Archie W. Barker, Springfield; *Second Vice-President*, Dr. Henry J. Way, Chicago; *Secretary*, Dr. Wilbur H. Gilmore, Mt. Vernon; *Treasurer*, Dr. Andrew J. Markley, Belvedere.

THE NEW HAMPSHIRE STATE MEDICAL SOCIETY, at its one hundred and thirtieth convention held in Concord, May 25, 1921, elected the following officers for the ensuing year: *President*, Dr. Charles F. Walker, Keene; *Vice-President*, Dr. H. L. Smith, Nashua; *Secretary and Treasurer*, Dr. D. E. Sullivan, Concord.

THE MICHIGAN STATE MEDICAL SOCIETY, at its annual meeting held in Bay City, May 26, 1921, elected the following officers for the ensuing year: *President*, Dr. W. J. Kay, Lapeer; *First Vice-President*, Dr. J. W. Hauxhurst; *Second Vice-President*, Dr. Dent E. Sawbridge, Stephenson; *Third Vice-President*, Dr. Harlan McCullen, Manistee; *Fourth Vice-President*, Dr. H. A. Hafford, Albion; *Secretary-Treasurer*, Dr. F. C. Warnshuis, Grand Rapids.

THE ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, at its second annual meeting held in Bay City, Mich., May 25, 1921, elected the following officers for the ensuing year: *President*, Frank C. Warnshuis, Grand Rapids; *Vice-President*, Dr. Guy L. Kiefer, Detroit; *Secretary and Treasurer*, Dr. G. C. Pemberthy, Detroit.

THE EAST TENNESSEE MEDICAL ASSOCIATION, at its regular meeting held in Maryville, May 20, 1921, elected the following officers for the ensuing year: *President*, Dr. E. C. Anderson, Chattanooga; *Vice-President for Upper East Tennessee*, Dr. J. W. Wallace of Johnson City; *Vice-President for Lower East Tennessee*, Dr. E. E. Kimbrough, Madisonville; *Secretary-Treasurer*, Dr. G. Victor Williams, Chattanooga.

THE WISCONSIN ECLECTIC MEDICAL ASSOCIATION at its annual meeting held in Milwaukee, June 3, 1921, elected the following officers for the ensuing year: *President*, Dr. R. S. Rodeker, Holcombe; *First Vice-President*, Dr. J. H. Alexander, Belmont; *Second Vice-President*, Dr. F. J. Thompson, Madison; *Corresponding Secretary*, Dr. F. C. Haney, Watertown; *Treasurer*, Dr. A. A. Duclos, Milbourn.

THE PENNSYLVANIA ECLECTIC MEDICAL ASSOCIATION, at its annual meeting held in Harrisburg, June 1, 1921, elected the following officers for the ensuing year: *President*, Dr. F. J. Livingston, Johnstown; *First Vice-President*, Dr. W. J. Rouse, Ambler; *Second Vice-President*, Dr. H. E. Heacock, Bethlehem; *Secretary*, Dr. M. V. Hazen, Harrisburg; *Treasurer*, Dr. N. M. Glann, State College.

THE WEST VIRGINIA MEDICAL ASSOCIATION at its annual meeting held in Charleston May 25, 1921, elected the following officers for the ensuing year: *President*, Dr. George A. McQueen, Charleston; *Secretary*, Dr. Robert A. Ashworth, Moundsville; *Treasurer*, Dr. Hugh G. Nicholson, Charleston.

THE MISSOURI STATE MEDICAL ASSOCIATION, at its annual meeting held in St. Joseph, May 26, 1921, elected the following officers for the ensuing year: *President*, Dr. A. H. Hamel, St. Louis; *First Vice-President*, Dr. B. W. Hays, Jackson; *Second Vice-President*, Dr. A. C. W. Russell, Springfield; *Third Vice-President*, Dr. Thornton E. Moore, Trenton; *Fourth Vice-President*, Dr. C. O. Cuppaidge, Moberly; *Fifth Vice-President*, Dr. Horace W. Carle, St. Joseph; *Secretary and Treasurer*, Dr. J. E. Goodwin, St. Louis.

THE MISSOURI STATE ROENTGEN SOCIETY, at its annual meeting held in St. Joseph, May 26, 1921, elected the following officers for the ensuing year: *President*, Dr. H. J. Ravold, St. Joseph; *Vice-President*, Dr. O. W. Swope, Kansas City; *Secretary and Treasurer*, Dr. Edwin C. Ernst, St. Louis.

THE OHIO STATE ECLECTIC MEDICAL ASSOCIATION, at its annual meeting held in Columbus May 19, 1921, elected the following officers for the ensuing year: *President*, Dr. B. H. Nellans, Cincinnati; *Vice-Presidents*, Dr. W. H. Carey, Belfontaine, and Dr. W. L. Werner, Akron; *Secretary*, Dr. S. J. Wuist, Dayton; *Treasurer*, Dr. J. S. Futter, Lima.

THE PERRY COUNTY (PENN.) MEDICAL SOCIETY, at its monthly meeting held in Blain, May 31, 1921, elected the following officers for the ensuing year: *President*, Dr. Harvey W. Woods, Balin; *Secretary*, Dr. M. I. Stine, New Bloomfield; *Treasurer*, Dr. C. E. Delancey, New Port.

THE MEDICAL WOMEN'S CLUB OF CHICAGO, at its annual election held at the Chicago College Club, June 1, 1921, elected the following officers for the ensuing year: *President*, Dr. Katherine Richt; *First Vice-President*, Dr. Nora Roger; *Second Vice-President*, Dr. Mary E. Hanks; *Secretary*, Dr. Blanche Burgner; *Treasurer*, Dr. Margaret Riley.

Obituary Notes.—Dr. WILLIAM T. JENKINS of this city, died after a long illness on June 25. He was born in Holly Springs, Miss., in 1855 and was graduated from the medical school of the Univer-

sity of Virginia in 1879. In 1887 he began practice in this city. He was health officer of the Port of New York in 1892 when the country was threatened with a cholera epidemic and by stern measure of quarantine prevented its introduction into this city. After his term as health officer of the port expired he was appointed in 1898 health commissioner of New York City, and later was made a member of the State Health Department.

Dr. YANCEY BLALOCK of Walla Walla, Wash., a graduate of Jefferson Medical College, Philadelphia, in 1884, died of pneumonia on May 12, at the age of sixty-one years.

Dr. FREDERICK MARSHALL DAVENPORT of Scranton, Pa., died in a local hospital on May 15, at the age of fifty years. He was graduated from Jefferson Medical College in 1905.

Dr. SAMUEL ANDREW JOHNSTON of Indianapolis died from cerebral hemorrhage on May 20, at the age of forty-four years. He was graduated from the Medical College of Indiana, Indianapolis, in 1902. He was a member of the American Medical Association and an associate in rhinology, laryngology, and otology in the Indiana University, Bloomington.

Dr. MARTIN J. NEVINGER, a graduate of Hahnemann Medical College, Philadelphia, in 1898, and a member of the staff of the Women's Hospital, Philadelphia, died, on May 26, following an operation, at the age of forty-four years.

Dr. RIVES ANDREW MANKER of Memphis, Tenn., a graduate of Memphis (Tenn.) Hospital Medical College in 1908, died from heart disease, on May 19, at the age of thirty-eight years.

Dr. FRANCIS NELSON PILCHER of Columbus, Ohio, a graduate of the Columbus (Ohio) Medical College in 1891, died on May 18, at the age of fifty-three years.

Dr. JAMES P. DICE of Xenia, Ohio, died from pnuemonia on May 18, at the age of seventy-nine years. He was graduated from the Eclectic Medical Institute, Cincinnati, in 1869.

Dr. GIDEON V. BACHELLE of Chicago, a graduate of Rush Medical College in 1867, died on May 23, at the age of seventy-five years. He was a veteran of the Civil War.

Dr. SOLOMON HENRY DESSAU, formerly of New York City, died of arteriosclerosis at his home in New Rochelle, N. Y., on June 11, at the age of seventy-three years. He was a graduate of Jefferson Medical College in 1868, and formerly pediatrist at the New York School of Clinical Medicine. He was a member of the New York Academy of Medicine and at one time vice-president of the Medical Society of the County of New York.

Dr. CLINTON STUART KERR of Emlenton, Pa., a graduate of the Cincinnati College of Medicine and Surgery in 1876, died on May 20, at the age of seventy-two years.

Dr. JESSE P. REX of Richmond, Va., a graduate of the Medical College of Virginia, Richmond, in 1903, died on May 21, at the age of forty-two years.

Dr. FRED C. VOGEL of Cincinnati, Ohio, a graduate of the Ohio Medical College, Cincinnati, in 1900, died on May 18, at the age of forty-five years.

Dr. WILLIAM K. LOUGHRIDGE of Omaha, Neb., a graduate of the Lincoln Medical College in 1894, died on May 19, at the age of forty-eight years.

Correspondence.

REMOVING STAINS OF PICRIC ACID.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: One drawback to the use of picric acid in the preparation of the skin previous to operation is the long lasting yellow stain. We find that turpentine removes it very rapidly, whether applied shortly after the operation or much later.

G. K. DICKINSON, M. D.

280 MONTGOMERY STREET,
JERSEY CITY.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, June 3, 1921.

Coal Fires and Impure Air.—London has long been notorious for its excessively dirty fogs, due as is well known to the immense consumption of soft coal, both in private houses and in factories. It is also a matter of common knowledge that this grimy atmosphere is unhealthy and the direct and indirect cause of a good deal of disease. Although this state of affairs can be remedied, nothing really practical has been done in this direction up to the present time. The recent improvement of the atmospheric conditions in London, Manchester, Glasgow, and other industrial cities in which much soft coal is burned, rightly attributed to the shortage of coal fires, is an outward and visible sign to the public of the way in which under normal conditions the air is polluted by smoke. In 1914 Sir Herbert Samuel, then president of the Local Government Board, appointed a committee to inquire into the question. The work was necessarily suspended during the war, but last year the committee was reconstituted with Lord Newton as chairman. Investigations have been made, both in London and the chief commercial centers, but at the moment they are more or less in a state of suspense owing to the existing industrial situation. In an interim report published recently, however, the committee recommend various smokeless methods available for supplying heat to dwelling houses; it may be mentioned that at least half the smoke in London is due to domestic fires. Moreover, the Ministry of Health issued a short time ago a special memorandum drawing the attention of the local authorities to the recommendation. It is understood that Sir Alfred Mond, the new Minister of Health, attaches great importance to the work of the committee from the health point of view.

Proposed National Conference for the Suppression of Vermin.—Although a law has been passed making it a penal offence not to destroy rats and other vermin, so far efforts to exterminate these disease-carrying destructive pests have been unsuccessful. This is largely due to apathy and a lack of coordinated methods. An extraordinary lethargy is manifested on all sides with regard to the destruction of vermin, although it is well known that the damage done by rats amounts to many millions of pounds a year. That rats are a menace to the human race because they carry certain diseases, a very deadly one in particular, is not well understood by the community. Edu-

cational propaganda is needed on this point. However, it is absolutely true that without coordinated efforts it is hopeless to imagine that rats can be exterminated or that their numbers can be even appreciably lessened. There is no more cunning and wily animal than the rat. He seems to be endowed with an intelligence almost human. In order to have any success a campaign against rats must be waged not only with coordinated vigor but well-planned in every detail. The conference called for should have the result of awakening public concern in the rat peril and from its discussions should be evolved a campaign war on these vermin conducted strategically and with due regard to the rat's intelligence. The matter is a serious one and should be considered seriously.

Treatment of Manifest Concomitant Strabismus.—At the recent Annual Congress of the Ophthalmological Society of the United Kingdom a discussion was held on the treatment of manifest concomitant strabismus which was opened by Mr. Claud Worth. Perhaps the most valuable contribution to the discussion was by Mr. A. J. Ballantyne, who thought that the first step in the treatment of concomitant convergent squint should be an estimation of the refraction, and the prescription of suitable glasses to be worn constantly. In many cases the wearing of these with training, if necessary, sufficed. His patients were all quite young children. The largest degree of squint corrected with 40° in a patient 18 months old, whose squint had lasted two weeks. In most of his cases the angle was 15° or less. In some the eye was already amblyopic. In the majority of cases he was of the opinion that the amblyopia was the result of the squint, hence there was all the more encouragement to attempt to restore vision in the squinty eye. He applied atropine more or less continuously to the sound eye. He was now inclined to operate at an earlier age than formerly. Advancement alone in many cases would bring about an approximately straight position of the eyes; he had never seen over-correction caused by advancement or muscle folding, therefore he would not hesitate to operate at any age. He preferred muscle folding in the youngest children. He rarely did tenotomy of the internal rectus, and never as the sole means of correcting the squint. In children it was wise to do too little, rather than too much; and if tenotomy was performed, it should be as a last resort. Cases in young children often suggested the existence of a state of excitability and instability of the accommodation and convergence centers, and in these cases the operative treatment of the strabismus was apt to be very disappointing. Failure in these cases was not due to slipping of the stitches, but to looking for a remedy of a mechanical kind for what was really a functional error. His results from training of fusion had been disappointing. We were apparently born with a certain racially-acquired degree of binocular equilibrium, but the finer coordination of the eyes necessary for binocular vision required to be learned, like the act of walking, by each individual, and the most useful line of inquiry would be along the evolution of binocular vision in the young child. Mr. E. E. Maddox referred to the numerous cases of squint in which the child was unable to fix its attention. Attention had a great effect, especially on the fusion faculty, and the defect in many children was not the absence of the fusion faculty, but the lack of stimulus to action. To correct hypermetropia some occupation on near objects should be provided. Squinting children should be kept from reading early, and their parents should let them use large objects. Moreover, they should be encouraged to look upward, as that produced a less tendency to divergence. He considered that the amblyoscope was very valuable in diagnosis.

State Aid for Hospitals.—It is understood that the long expected report of Lord Cave's Committeen on Hospitals will be published in about a week's time. It is expected that the recommendations will not interfere with the voluntary principle of management and that grants of money from the public exchequer will be made to them. It is suggested, it is said, that the country shall be divided into hospital areas, and that arrangements shall be made for a closer coordination of the work under associations. While it is not recommended that the Government, in virtue of grants, should interfere in control and management, it is probable that periodical inspection and representation on boards of management will be required. Some arrangements for the financial support by approved societies and business firms are expected to accrue also as a result of these recommendations. In my next letter, if by the time it is written the report of Lord Cave's committee has been published, I will deal with the question at length.

The North European Congress on Venereal Disease.—The British Red Cross Society nominated the following three delegates to the North European Conference on Venereal Diseases, which met recently in Copenhagen, Colonel L. W. Harrison, Dr. F. N. Kay Menzies, and Mrs. C. Neville Rolfe, organizing secretary of the National Council for Combating Venereal Disease. The Society for the Prevention of Venereal Disease was ignored completely. Mr. H. Wansey Bayly, the honorable secretary of the Society, was informed by the British Red Cross, in whose hands the appointment of delegates was placed, when he communicated with this body requesting that his society might be represented at the conference, that it was impossible because delegates, members of the National Council, had been elected already. The *Medical Press and Circular*, May 25 last, referring to the question editorially, expressed surprise that the League of Red Cross Societies in Geneva should have decided to adopt the National Council for Combating Venereal Disease as the recognized channel in Great Britain for communication on these subjects. It is regarded in this editorial as an impolitic position to have taken up, and not least on account of the strong opposition which exists against the policy pursued by that body. It is contended that the Society for the Prevention of Venereal Disease have established their case for self-disinfection, which the National Council cannot dispute, and yet, despite this, the society is refused a hearing, and the Red Cross

Conference will make it appear that the National Council represents an uncontested opinion upon this subject in England.

London's Water Supply.—Giving evidence before the Committee of the House of Commons, which is considering the Metropolitan Water Board Bill, by which the Board seeks power to raise some £10,000,000 to extend the Littleton reservoir, and lay down additional mains, Mr. H. E. Stilgoe, chief engineer to the Board, stated that baths accounted for a very considerable proportion of the water used. Twenty gallons were sufficient for a bath, but most people were not satisfied with that. In many of the best houses in London up to a few years ago there was not even a bath room; but now every house that was put up had a bath; in fact, the bath habit was growing to such an extent that the prevention of waste would not give the water necessary to meet the increased demand. Unless this scheme were carried through the health of the community would be menaced.

LETTER FROM BELGIUM.

(From Our Own Correspondent.)

LIÈGE, June 10, 1921.

The University Foundation, established through the generosity of the "American Commission for Relief in Belgium," has just completed its first undertaking. It has already proved its utility by numerous benefactions, particularly appreciated at this time when the intellectual classes, both scientists and students, are struggling with many difficulties caused by the high cost of living. It has granted more than three hundred study loans to students in our universities and high schools; it has sent twenty-four bursar students to the United States; it has granted subsidies for the publication of journals and books; it has decided to defray the cost of publication of a number of scientific works, thereby rendering an immense service to those who have been prevented from publishing valuable works by the high cost of printing, and it is also establishing bursaries to enable certain of our students to take courses in some of the European universities.

A New Medical School in Brussels.—The Rockefeller Foundation announces officially that it will contribute 43 million francs in a total of 100 million needed for the establishment of a school of medicine in the Free University of Brussels.

Scientific Reciprocity.—The ministers, in whose hands it lies, of France and Belgium are about to sign an agreement, long urged by scientific men of both countries, providing for mutual recognition of diplomas and exchange of professors in the higher and the technical schools. A permanent Franco-Belgian academic commission will also be established.

Practical Guide to Tropical Hygiene.—This is the title of a work recently written by Dr. O. Devalkeneer and published by the Union Coloniale Belge of Brussels. In all colonization, the author declares, the health of the colonists and the betterment of the natives are the most important factors which must never be neglected. After the indispensable anatomical and physiological introduction he treats of his subject in five sections. In the first he considers the qualification necessary to fit us for the life of a "colonial"; in the second he sets forth the difficulties to be surmounted; hygiene in relation to the individual diseases encountered in the tropics is studied in the third part; the fourth is a treatise in tropical first aid, and in the fifth the author discusses the social reforms in their relation to health in the tropics. An appendix is devoted to the venereal diseases. In brief, this is a work to be used by all contemplating a journey to Africa and to be studied carefully by those who have decided to take up their life on that continent.

The "Anvers Médical."—This local medical journal of the city of Antwerp is about to make its reappearance, notwithstanding the difficulties in the way of such an undertaking at the present time. The editorial staff is composed of Drs. P. François, Hensotay, Dokx, Watry, Brandès, Fonteyne, Dineur, J. François, and Delbeke.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 16, 1921, clxxxiv, 24.

1. The Treatment of Cancer. Frederick Bryant.
2. The Treatment of Tumors by X-Rays and Radium. Robert B. Greenough.
3. Visceroptosis as a Cause of "Stomach Trouble." William D. Reid.
3. The Essential Factors of Cancer Causation. James W. Shannon.
4. Two Cases of Acaraphobia. Abraham Myerson.
5. Recent Progress in Proctology. T. Chittenden Hill.

3. Visceroptosis as a Cause of "Stomach Trouble."—T. Chittenden Hill reports four cases of visceroptosis presenting "stomach symptoms." A lack of good physical development and subnutrition are commonly associated with the condition. The diagnosis is based on evidence obtained in the history, physical and roentgen examinations. Organic disease should be excluded in these and by suitable laboratory tests. Treatment should be directed toward the patient's mental condition, toward the subnutrition, and toward the mechanical handicaps.

4. Two Cases of Acaraphobia.—Abraham Myerson cites two cases of acaraphobia, dermatophobia, or parasitophobia, a mental state recognized by dermatologists and loosely defined by them as an obsession, neurosis, or mania, which occurs with pruritis, and which, concisely, is the fear of insects or bugs. These two cases indicate that there is an important group of diseases theoretically which have not been studied by psychiatrists. It is desirable that the acaraphobia of the dermatologist receive the attention of psychiatry, for here are mental symptoms definitely referable to physical conditions in a manner that is at once unique and important.

New York Medical Journal.

June 15, 1921, cxiii, 16.

1. Röntgen Therapy in Superficial Malignancy. William H. Meyer.
2. The Reciprocal Influence of Influenza and Epilepsy. Alfred Gordon.
3. The Sociological Training of Epileptics. L. Pierce Clark.
4. The Nervous Patient from the Viewpoint of the Vegetative Neurologist. Edward Hiram Reede.
5. Vertigo from the Point of View of the Otologist. Walter A. Wells.
6. Visual Errors in General Practice. Louis H. Schwartz.
7. The Diagnostic Value of the Pupil in General Medicine. John H. Bailey.
8. Eye Strain in Everyday Practice. Aaron Brav.
9. The Serum Treatment of Lobar Pneumonia. Walter L. Niles.
10. The Rectal Tract as a Source of Focal Infection. Harry Goldman.
11. Hay Fever. George L. Renard.
12. The Lure of Cathartic Giving. J. Christopher O'Day.

6. Visual Errors in General Practice.—Louis H.

Schwartz cites seven cases in point, from which he holds it to be evident that, although no one would attempt to attribute the various symptoms mentioned as due to imperfect vision alone, nevertheless a great advantage is obtained by learning whether or not the eyes are emmetropic (with or without lenses). And, inasmuch as the question of normal vision can be determined, it is worth while doing in every case where there may be any suspicion or even possibility of the eyes being at fault. One might imagine that if a patient had any defect of sight he would be pretty sure to know about it. Yet the experience of every ophthalmologist is that some persons may be totally blind in one eye without even suspecting it. Not only do most physicians fail to test the vision, but patients sometimes actually complain of ocular disturbance and the doctors pay no attention to the fact, possibly just because these practitioners do not do eye work. Every man doing general work should have a Snellen test card in his office and should ascertain the visual acuity. Each eye must be tried separately.

Journal of the American Medical Association.

June 18, 1921, lxxvi, 25.

1. Disorders of the Pituitary Gland: Retrospective and Prophetic. Harvey Cushing.
2. Nerve Injuries Due to Errors in Technic in Making Intravenous Arsphenamin Injections. Dean Lewis.
3. Cinchophen, Neocinchophen and Novaspirin in Rheumatic Fever: Comparative Therapeutic Efficiency, Toxicity and Renal Functional Effects. P. J. Hanzlik and R. W. Scott, with the collaboration of C. M. Weidenthal and Joseph Fettermann.
4. A Plea for Better Understanding of Physical Diagnosis. Theodore Tieken.
5. Nonoperative Treatment of Fractures of Cervical Vertebræ with Cord Injury: The Result in Four Cases. Michael Osnato.
6. Anesthesia in the Treatment of Botulism. Jacques Bronfenbrenner and Harry Weiss.
7. Influence of Menstruation on the Food Tolerance in Diabetes Mellitus. Jacob Rosenbloom.
8. Differentiation of Type A and Type B Botulinus Toxins in Food: A Rapid and Simple Method. Robert Graham and Herman Schwarze.
9. Growth of Influenza Bacilli without Blood. T. M. Rivers.
10. Diaphragmatic Spasms in Animals Produced with a Streptococcus from Epidemic Hiccup: Preliminary Report. Edward C. Rosenow.

3. Cinchophen, Neocinchophen, and Novaspirin in Rheumatic Fever. Comparative Therapeutic Efficiency, Toxicity, and Renal Functional Effects.—Hanzlik and Scott and their collaborators formulate the following conclusions from their observations: 1. Cinchophen gave partial relief from symptoms in rheumatic fever with doses of from 3 to 6 gm., and complete relief with doses of from 10 to 13 gm. (seven patients), while neocinchophen required a somewhat higher range of dosage, namely, from 3 to 8 gm. for partial, and from 11 to 16 gm. for complete relief (three patients). 2. Novaspirin was therapeutically worthless in the treatment of rheumatic fever (three patients) not giving even partial relief from subjective symptoms. This is due to inadequate concentration of salicyl in the tissues, as indicated by the low (from 14.8 to 23.4 per cent.) excretion of salicyl in urine after large doses of the drug. 3. Large doses of cinchophen and neocinchophen, such as are necessary in the treatment of rheumatic fever, produce characteristic symptoms of salicylism ("toxicity") which, however, are less pronounced than those caused by corresponding doses of salicylate. Cinchophen differs from salicylate by causing epigastric pain owing, presumably, to local irritation by the drug. Pain in the epigastrium was absent after large doses of neocinchopen, presumably because of its relatively low solubility in water and weak alkalis, possibly also because it is an ester. 4. Large doses of cinchophen were found to slow the pulse rate of both febrile and afebrile individuals, and the same occurred after neocinchophen in febrile patients. Therefore, the cardiac slowing produced by cinchophen is due to a direct depressant action on the circulation. 5. Cinchophen is injurious to the kidney, as indicated by the occurrence of albuminuria, and sometimes casts and white blood corpuscles, in the majority of seven individuals that were observed, and a diminution in the excretion of phenolsulphonephthalein in the five individuals that were studied. Neocinchophen is variable, albuminuria and a diminution in the excretion of phenolsulphonephthalein occurring in about one-half of the nine individuals that were observed. 6. As compared with salicylate, cinchophen appears to be about equally efficient, while neocinchophen is somewhat less efficient, as judged by the dosage necessary for therapeutic relief in rheumatic fever. The symptoms of "toxicity" are about the same and renal injury somewhat less after cinchophen, and both the "toxicity" and the renal injury are less pronounced after neocinchophen than after salicylate in corresponding doses. 7. Further observations on the therapeutic use of cinchophen and neocinchophen in rheumatic fever, and a study of their pharmacologic actions, are desirable.

7. Influence of Menstruation on the Food Tolerance in Diabetes Mellitus.—Jacob Rosenbloom reports the study of two cases of diabetes mellitus in which the patients lost all their food tolerance with the onset of their menstrual period. It is well known that before or during menstruation there is present an increased function of the chromaffin tissue as shown by the facts that: 1. In the premenstrual period the glycosuric action of epinephrin is increased. 2. There occurs a swelling of the thyroid gland in the premenstrual period. 3. The suprarenal cortex increases in size. 4. The interstitial glands increase in size. 5. The pituitary gland increases in size. On account of these fats the writer believes that the explanation of the loss of food tolerance in the two cases described is due to some temporary alteration in the function of the gonads, either an increased secretion or a lack of correlation with other of the endocrine organs.

The Lancet.

May 28, 1921, cc, 22.

1. An Address on Asthma. Arthur F. Hurst.
2. A Lecture on Mitral Stenosis. Basil Parsons-Smith.
3. The Diagnosis of Dysentery by the Sigmoidoscope. Philip Manson-Bahr and A. L. Gregg.
4. A Method of Operation for the Treatment of Ectopia Vesicæ. Charles Roberts.
5. Observations on the Urea Concentration Tests in the Psychoses. J. Walker.
6. A Case of Osteitis Fibrosa, Treated by Resection of Four Inches of Humerus and Insertions of Boiled Beef-Bone Graft. C. W. Gordon Bryan.
7. A Note on External Dislocation of the Patella. Russell F. Maddren.
8. Some Effects of Altitude on the Human Body. A. Reeve Heber.
9. The Available Remedies in Immune Therapy. Sir Thomas Horder.

1. An Address on Asthma.—Arthur F. Hurst, after discussing the etiological factors concerned in asthma, considers the treatment under three heads: (1) The irritable bronchial center; (2) the chemical, reflex, and psychical stimuli which may affect the center; and (3) the attack itself. He has found that the irritability of the bronchial center can be to some extent reduced by giving between 3 and 5 grains of caffeine, with double the dose of phenazone, when the patient feels slightly asthmatic and fears that an attack will develop later, as, for instance, immediately after lunch and dinner or on going to bed. When asthmatic attacks are caused by food proteins all that is generally necessary is to exclude from the diet the food to which the patient is found to be most sensitive by the cutaneous test. A patient can often free himself from asthma by simply avoiding any animal to which he has been found to be sensitive. If avoidance of the animals, or other causative factor, is impossible, or does not relieve the asthma, desensitization should be undertaken with the specific proteins. Idiopathy to bacterial toxins can generally be overcome by vaccination in the ordinary way with organisms isolated from the patient's bronchial secretion or material obtained from other infective foci. The daily life of each patient should be investigated in minute detail in an attempt to find some special toxic idiopathy other than the familiar ones described, which may be in part responsible for the asthma. Asthma caused by a gastrobronchial reflex can be avoided by eating hardly anything for dinner, which should be as early as possible, and nothing at all on going to bed, as the reflex only comes into play as the day advances and the patient becomes more tired. The intestinal-bronchial reflex comes almost entirely from the pelvic colon and rectum, and regular habits and exercises to overcome dyschezia are generally sufficient to keep it in check. Aperients should be avoided as far as possible, but in some cases a small weekly dose of infusion of

senna is needed to prevent a fecal accumulation from forming. Psychotherapy is useful only in so far as explanation of the mechanism involved may lead an asthmatic to take a less hopeless view as to his chance of complete recovery. An attack of asthma can most readily be cut short by the subcutaneous injection of adrenalin. In many cases a single minim of 1 in 1000 adrenalin chloride is enough, more than two minims being rarely required. For slight attacks and for the feeling of dyspnea, which may persist throughout the day when severe attacks occur at night, atropine and cocaine may be used with an atomizer.

5. Observations on the Urea Concentration Tests in the Psychoses.—J. Walker gives as the primary object of this investigation the discovery of whether there is any undue prevalence of renal inefficiency in the psychoses, as determined by the urea concentration tests in the blood and urine, and, if so, with what forms of mental disorder this condition is associated. It was found that the urea concentration in the blood in the cases examined is subject to wide variations, and therefore is an unreliable guide as to the state of health of the kidneys. The urea concentration in the urine gives more reliable information. A low concentration should be regarded only as a confirmation of other evidence. Anomalous results, as regards urea concentration in both blood and urine, apart from kidney disease, are as demonstrable by available methods common in the psychoses. In dementia precox a low concentration of urea in the urine is found to coexist with polyuria and a state of acidosis.

British Medical Journal.

May 28, 1921, i. 3152.

1. A Clinical Study of Three Cases of Heart-Block. I. Wardrop Griffith.
2. A Lecture on Capillary Pressure and Œdema. Leonard Hill.
3. Dual Radiotherapy in Malignant Disease. S. Gilbert Scott.
4. Further Report on the Treatment of Sleeping Sickness. Claude H. Marshall and S. M. Vassallo.
5. The Virulence of Diphtheria-like Organisms. A Note on the Intracutaneous Test. A. J. Eagleton and E. M. Baxter.
6. The Lingual Application of Iodine as a Prophylactic in Cerebrospinal Meningitis and Influenza. J. A. Taylor.

3. Dual Radiotherapy in Malignant Disease.—S. Gilbert Scott, for some years has based his therapy on the following principles: (1) Full cell absorption; (2) production of a large number of heterogeneous rays; (3) a filter only thick enough to protect the skin and to cut out rays of little or no therapeutic value. The shortcomings of the present methods are: 1. The dose administered to the deep-seated and scattered pathological cells is too small. 2. The area treated is much too limited. The dual method advocated by the writer consists of two separate installations of which one operates a tube in front, the other a tube at the back of the patient, who is in the sitting position, both tubes running simultaneously. After the first full dose has been administered the direction is changed, so that the radiation is now from side to side, the arms being forward and raised. In this way the deepest parts of the body are subjected to radiations from the four points of the compass, and the resulting cell absorption must be very much greater than with the present methods, although the more superficial or skin dose, controlling superficial recurrences, remains the same. By this method, which may be described as a combined crossfire, the deficiencies of current methods noted are avoided. In other words, by working both tubes at the same time from both sides of the body a larger dose is administered to the deeper pathological cells, and a very large area is covered. It cannot be definitely stated how frequent the treatment should be; this must depend, to a certain extent, on the blood changes and other symptoms, the significance of which is still debatable. The writer now administers treatment weekly; anteriorly and posteriorly the first week, the second week from both sides, the total dose being 40 X through 3 mm. of aluminum in each week. Although many tolerate it, there are some who cannot stand even this dose. The secondary phenomena so far noted are of interest. Few can tolerate the full 80 X dose, nausea and vomiting, lasting from several hours to three days, appearing shortly after treatment. If, however, the dose is halved—two opposite areas only being treated instead of four—the patients may experience a feeling of well-being.

Le Progrès Médical.

March 19, 1921, xlix. 12.

Treatment of Melancholia with Heroic Doses of Strychnine.—Hartenberg, well known for his advocacy of large doses of strychnine for neurasthenia, has obtained five successes from the same resource in melancholia. He had frankly the object of saturating the organism in the aim of producing a cure. Opium he insists is only a palliative and symptomatic remedy. To obtain any action from the drug 5 centigrams must be taken within twenty-four hours. This, however, is only the minimum dose, and to cure the disease the subject must be placed in the condition of subacute strychnine poisoning. The patient is profoundly impressed, his nutrition is stimulated, and he resumes his former interest in life. It may be necessary to give along with the alkaloid one of the following sedatives: codeine, chloral, bromides, veronal, and valerian, alone or in combination. The indication for these sedatives comes from the disease and not from overaction of the strychnine. The latter is given by the mouth as a rule and by hypodermic only in cases in which buccal administration is refused. A solution is made of 1/100 and of this seven drops are given three times daily or twenty-one drops in twenty-four hours, which equals 1 centigram of the drug. On each subsequent day one drop of solution is added to each dose, making twenty-four, twenty-seven, thirty, etc., drops daily until the subject is getting his 5 daily centigrams. By this time about a month has elapsed in which no improvement has occurred or is expected. The dose is then pushed further without rule until the physiological action is obtained and the patient has improved. At this juncture one slowly diminishes the dose by three drops daily until the original dose has been reached.

Le Progrès Médical.

March 26, 1921, xlix. 13.

Isolated Vitamines in Therapeutics.—Peuret considers this subject, starting with certain postulates as follows: the rôle of vitamines in nutrition is one of potential: chemically the vitamines range themselves with the hydrolytic derivatives of nucleinic acid; in physiology the vitamines are regulators of growth and operate through other functions—those not only of internal but external (digestive) secretions: vitamines are not stored any more than they are manufactured in the body; there is but one vitamine, however much there may seem to be three, four, or more; there are not only avitaminoses, but pathological states deserving the name of dysvitaminoses. Our recent knowledge of vitamines owes much to the Italians, Lorenzini, Ganassini, and Mancini, who have isolated and worked with a definite vitamine. Vitamine-bearing foods give results in marked deficiency diseases, but have no independent therapeutic activity—for one reason because they must be given by the mouth. Isolated vitamine is given by hypodermic. In his own practice the author cites Barlow's disease as a type of avitaminasis which is readily relieved by giving fresh milk and orange juice. That is in most cases we obtain prompt enough results, although recovery may be tedious and even remain in abeyance. The Italians quoted above appear to believe that the benefit from orange juice is not entirely attributable to the vitamine content, which is not striking, but to the organic acid present. In rebellious cases in which orange juice seems inert injections of isolated vitamine give relief. The author in a case of unusual degree of anemia from Barlow's disease, which was not benefited by two months' feeding of antiscorbutics, made a prompt recovery under hypodermics of isolated vitamine. The latter should be tested in rickets and in all conditions in which the infant does not thrive.

Gazette des Hôpitaux.

March 17, 1921, xciv. 22.

Death from Ethyl Chloride Anesthesia.—Courtois-Suffit and Bourgeois relate this case in great detail in

connection with fixation of responsibility for the fatal outcome. The patient was a woman and the anesthetic was administered by a surgeon-dentist for the extraction of a tooth. Local anesthesia had been deemed unwise on account of the state of the gums. Before giving a general anesthetic the dentist had the patient examined by a physician and the latter could find no contraindication. At 6 P. M. the ethyl chloride was administered successfully by the same practitioner who had made the examination and the mask was removed to insert a gag. The tooth, which was the first lower molar, was crushed under the forceps. A minute later, the patient having shown signs of returning consciousness, a third ampoule of the chloride (kelene) was given after replacing the mask. It was then noted that the respiration was irregular. Patient was placed on the floor, oxygen administered, tongue tractions and artificial respiration practised, and ether and caffeine injected. A surgeon had also been summoned in haste. Nothing resulted after an hour's work. The husband would make no charge against the medical men, so that the State acted in the usual manner in such cases. A medical examination was ordered by the police commissioner and was performed within forty-eight hours after death. The body was that of a woman twenty-five to thirty years of age, of excellent physique, and practically free from traumatisms and disease with the exception of the bad state of the gums and mouth in general which had been the motive for general narcosis. The condition seems to have been a Vincent's stomatitis. The first molar was broken as a result of the attempted extraction. The lungs and also the trachea were congested. There could be no two opinions about the fatality, which was of the same type as death under other general anesthetics. Nothing antecedent was found which could have contraindicated general anesthesia nor was there any fault of technique. No accusation could have stood against the medical man or dentist. Nevertheless the patient died and something more must be said of responsibility. The latter has been summed up for similar cases and quite recently by Rosenberg. In passing it should be said that the choice of anesthetic could not have been criticised, for ethyl chloride is notably safe. Was too much given? The evidence is against the presumption, for the drug escapes from the body with great rapidity. Was it given with too much force or haste? Successful anesthesia demands that air be shut off for the nonce, according to Tuffier, while others would have the vapor inhaled only when admixed with air. Houzel has recently pointed out that ethyl chloride must never be administered on the suffocative plan, because after the pulmonary tree is completely filled the presence of the gas in the blood may act unfavorably on the myocardium. He even predicted that it would sooner or later cause death by cardiac syncope. His apparatus is devised to secure a gradual administration of the drug. But forced anesthesia, as stated, has its advocates. Study of individual cases has shown that there may be an element of danger in the resumption of ethyl chloride anesthesia after it has once been intermitted. Tuffier saw a death occur in a wounded soldier in this manner, and Malherbe has recently reported another. This may be much more than coincidence that three ethyl chloride deaths give the same history of a return to the anesthetic after interruption. But it may be necessary to interrupt the anesthesia so that the duty of the anesthetist is not obvious in such cases.

Schweizerische medizinische Wochenschrift.

March 31, 1921, li, 13.

Sporadic Hemophilia.—Montanus describes the following case in great detail. The single woman of 28 was attacked on a given occasion with incoercible nose bleed, which finally led to her admission to a hospital. There was no family history of bleeding, which, with the alleged great infrequency of hemophilia in the female, led to a provisional diagnosis of nonhemophilic hemorrhage. But recently the old controversy, thought finally settled, has been revived by the publication of alleged typical hemophilic bleeding in women. The case reported is therefore timely. The usual history and clinical manifestations of the bleeder were absent. There had been slight menorrhagia of late, but nothing unusual. Within a comparatively short interval some of the manifestations of bleeders had been in evidence. Thus after extraction of a couple of teeth hemorrhage persisted for two days, and soon afterward the persistent nose bleed followed without apparent exciting cause. In other words, an acquired hemorrhagic diathesis of unknown origin was present. Blood drawn from the cubital vein failed to coagulate. Most of the remaining history consists of attempts to fix the coagulation time, using normal girls as controls, and of the other usual blood tests all frequently repeated. The nose bleed had ceased on admission to the hospital. There was a residual anemia treated by arsenic and autotransfusion. There were no further hemorrhages and during the hospital sojourn the greatly delayed coagulation time became normal, as likewise the blood counts. In conclusion, here was an ordinary subject who for about three and one-half months was hemophilic. It was shown over and over that something was wrong with the blood coagulability, but outside of this interval the coagulability was normal and even more rapid than normal. The case must be regarded as a transition one between a normal subject and a congenital bleeder.

Wiener klinische Wochenschrift.

March 24, 1921, xxxiv, 12.

Variola Neonatorum.—Morawetz discusses this subject with special reference to the alleged immunity of the newborn. The sort of immunity which may be attributed to maternal variola is left out of consideration. The supposed immunity of the same infants to vaccination should be considered at the same time. Statistics which concern somewhat older children have no bearing on the newborn. In the latter, finds conflict. Wolf who vaccinated 46 infants up to the sixth day postpartum found no immunity such as has been described by others and it is evident that no absolute immunity can exist, although some authors have found as high as 36.5 per cent. for whatever reason. The question of immunity of the newborn to variola in cases where maternal transmission *in utero* can be excluded is best studied in foundling asylums and midwifery institutions. Thus on one occasion an infant was admitted with variola into a ward which contained 14 newborn children. The infant was of course sound on admission, unvaccinated and coming from a smallpox neighborhood. The 15 infants were cared for by one attendant. When the newcomer, who was 3½ months old, developed smallpox, conditions of exposure warranted the expectation that some at least of the newborn would contract the disease. Naturally no time was lost in vaccination, but some infants proved refractory. Of the 14 newborn 8 promptly developed smallpox. While called newborn the actual age at the outbreak of the disease was 2 to 5 weeks. From this we may deduct six days which intervened after the admission of the child before it developed the disease, plus the period of incubation (10 to 12 days). Vaccination was perhaps performed too late to be reckoned as a component of the immunity, though doubtless it mitigated the course of the disease. The five youngest infants had variola in a very mild form while six others did not develop it at all and in the remaining three the course was not severe.

Eserine in Persistent Tachycardia.—Lian and Velti have tested eserine sulphate, 1 to 3 mgms. as a daily dose in eleven cases of permanent tachycardia. The syndrome of sympathicotonus seems amenable to this treatment and some patients felt more or less relief subjectively, although in other cases the improvement was only noted by objective examination. If bromides and valerian give no relief, this substance may be employed. Some of the patients slept better after having taken the eserine. The latter should be carefully supervised, for the patient, if left to himself, will be apt to take too much of the drug. But one mgm. should be given at first and when necessary two, followed possibly in time by a third when the medicine is well tolerated. —*Le Bulletin Médical.*

Book Reviews.

SURGICAL THERAPEUTICS AND OPERATIVE TECHNIQUE. By E. DOYEN. English Edition Prepared by the Author in Collaboration with H. SPENCER-BROWNE, M. B. Cantab. Éleve de l'Institut Pasteur; Physician et Chef de Clinique de l'Institut Doyen. Three Volumes. Royal Octavo. Vol. I, 746 pages, with 1034 illustrations; Vol. II, 680 pages, with 982 illustrations; Vol. III, 811 pages, with 959 illustrations. New York: William Wood & Company, 1920.

DOYEN'S reputation as a diagnostician and operator was world-wide; hence we may safely say that this work was written by a master in both the diagnosis and treatment of surgical conditions. Furthermore, it was written on the basis of his own experience and his own, often original, technique, and is far from being a simple compilation of the work of other authors. This does not mean that he had his own original method for doing everything but that the technique for any individual operation, whether exactly as devised by some other surgeon or as modified or independently conceived by him, is given as he operated when the manuscript was written, thus giving what he considered the best method of handling the situation and without presenting a multitude of methods from which the reader must choose.

In Doyen's Introduction in Vol. I he gives a brief historical review of the evolution of surgical practice, then proceeds with the discussion of methods of operating and calls attention to the value of rapid and at the same time careful work. Doyen contributed much to the surgeon's armamentarium, for he was a mechanical genius and at least 40 pages are required for the description and illustration of instruments and other apparatus devised or radically modified by him. Following this introductory chapter the volume is divided into two parts.

The first part, comprising about 475 pages, is devoted to matters pertaining to general surgical technique, the pre- and postoperative care of the patient surgery of the blood vessels and nerves, autoplastic surgery, electrocoagulation treatment of malignant growths, and many other subjects. In Part II the usual operations on the head, including certain special operations on the eye and ear, are described and illustrated. The text relating to intracranial surgery is disappointing, particularly as regards indications for operation, and some of Doyen's methods seem somewhat antiquated as compared with current American practice; but on the whole this volume is very satisfying.

In Vol. II the consideration of operative conditions of the head, face, and neck is continued, then those of the thorax, upper and lower limbs. Doyen's method of covering the various conditions and outlining operative treatment is particularly terse. He usually gives a brief description of the pathology or clinical characteristics, indications or contraindications for operations, surgical anatomy when worth while, a plate showing the instruments needed, then directions for operation. For purposes of description, operations are usually divided into a number of stages, each stage from incision to closure being covered in as few words as possible without sacrificing clarity. This brevity in the text is made possible by the almost innumerable and most excellent illustrations which, with their underlying legends, not only supplement the text but sometimes almost make text unnecessary. One of the most interesting chapters is that on the surgery of the lung and pleura, in some phases of which Doyen was among the pioneers. Another important chapter is that on operations on the mediastinum. Operations on the extremities generally follow the usual well known methods; but there are some innovations and an opportunity is also afforded for the demonstration of the use of many special instruments devised or modified by Doyen.

Throughout this volume, as in the first, there are almost constant references to illustrative cases which have been met with in the author's practice, and a remarkable series of illustrations.

From the Translator's Preface to Vol. III we learn that publication of this volume was long delayed through the death of Doyen and the translator's absence on war work. However, Doyen had reviewed all but the last pages of the manuscript, hence practically the entire text may be considered to accord with his ideas. This volume deals with the surgery of the abdominal wall, peritoneum, liver and bile passages, spleen, pancreas, stomach, intestines, and retroperitoneal space, and also the genitourinary organs of both the male and female. Portions of this volume are extremely valuable and interesting; others disappointing.

There is a résumé of Doyen's researches into the physiology of the stomach and gastric digestion, and considerable space is devoted to the serodiagnosis of cancer and the treatment of visceral cancer by a vaccine composed of the dead bodies of the *Micrococcus neoformans*, this latter being very interesting even if not generally accepted as of value. It is in the section devoted to general abdominal surgery that the American surgeon will be particularly disappointed; for not only are some of the incisions recommended unnecessarily mutilating but many of the methods recommended in the treatment of lesions of the gall-bladder, stomach, and intestines have been practically obsolete in this country for many years, while many of the newer and generally employed methods are not even mentioned. It is also apparent that Doyen did not have the advantage of as expert Roentgen diagnosis of diseases of the gastrointestinal tract as we are accustomed to; for he seemed to consider it of comparatively little value in the differentiation of gastric cancer, gastric ulcer, and other upper abdominal conditions and he dismisses it in a few words. There are, however, many portions of the text, in both the section devoted to general abdominal surgery and the special sections devoted to genitourinary surgery and gynecology, which will be instructive to even the most expert surgeon of this or any other country; there are almost innumerable illustrations of marvelous exactitude, including those depicting anatomical relations after frozen sections; each volume bristles with the aggressive personality of the author; and the set will undoubtedly make a very valuable addition to any surgeon's library.

A PRACTICAL MEDICAL DICTIONARY of Words Used in Medicine With Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomical Tables of the Titles in General Use, and These Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the U. S. and British Pharmacopœias and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe, and Comprehensive Lists of Synonyms. By THOMAS LATHROP STEDMAN, A.M., M.D., Editor of "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of the "Medical Record." Sixth revised edition. Illustrated. Price, $7.00. New York: William Wood and Company, 1920.

SUFFICIENT time has elapsed since the appearance of the present edition of this now so familiar book to enable even the casual consultant to recognize the fact that the author has given a revision and not a reprint of the previous edition. Indeed, the many terms added, including war-born words and phrases, and their definitions, have necessitated the enlargement of the volume by twenty pages. There is no evidence here of the "vanishing C." for the author consistently adheres to the method adopted in the first edition, and so one finds *caryocinesia*, and a whole family of *caryos*, *catabolism*, and a whole family of *cats*, with many other *c's* of more or less common or uncommon usage. When one has applied the test of frequent reference, covering a wide range of subjects, one marvels that so many words and definitions can be found within the compass of the 1131 pages which comprise the body of this valuable dictionary. And whether one agrees or disagrees with the author in some of the forms to which the preference is given, there is no danger in any case of a negative search for a word or a definition as the result of his usage, since he gives sufficient indication under the expected prefix—for example—to guide one to the expected form.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Seventy-Second Annual Session, Held in Boston, June 6-10, 1921.

(Special Report to the MEDICAL RECORD.)

(*Concluded from vol. xcix, p. 1119.*)

Studies on Diphtheria.—Dr. JOHN HOWLAND of Baltimore presented this paper in which he said that the course of diphtheria was very deceptive. The patient might recover from the first alarming symptoms after the administration of antitoxin to fall victim to complications at some later time. There might be symptoms of cardiac and circulatory complications in the second and third week after the onset of the disease. There might also be complications involving the nervous system, particularly those characterized by peripheral neuritis, perhaps in the seventh or eighth week, as Dr. Mixsell had shown that post diphtheritic diaphragmatic paralysis occurred about the thirty-fifth to the thirty-seventh day. It had been conclusively demonstrated that the toxin of diphtheria had an extraordinary affinity for tissue cells and became so closely bound to the cells that it could be dislodged with the greatest difficulty, and after a time not at all. If two fatal doses of antitoxin were administered to an animal, it could be saved by different amounts of antitoxin depending upon the time of their administration. If the antitoxin were given within the first minute, 0.1 of a unit would save the animal; at the end of an hour it would take 30,000 units, and at the end of seventy minutes the animal could not be saved at all. Treatment was effective not because it neutralized the antitoxin that had been absorbed but because it neutralized it before it found its way into the circulation. That was why the prognosis of diphtheria depended not so much upon the extent of the membrane as upon the length of time it had existed. Clinically it was a striking and shocking experience to see a child with a severe form of diphtheria rapidly improve after the administration of antitoxin and become afebrile, and then within twenty-four to forty-eight hours suffer a change, show great pallor, aversion to food, a rapid heart rate, abdominal pain and albumin in the urine, followed by death. Many of these children died and if they did not die convalescence was slow and there was considerable loss of weight. He had long been interested in finding an explanation of this process. He had made studies on the urine in these cases many years ago in Willard Parker Hospital. They had long wished to study the output and the total nitrogen excretion in patients in nitrogenous equilibrium. But these patients did not take enough food to sustain a nitrogenous equilibrium. Dogs were therefore used. There was a preliminary period during which the dogs were kept in nitrogenous equilibrium, and measured doses of diphtheria toxin were administered. During the first two days following the administration of the toxin there was fever and an increase in the total nitrogen and creatinine output, but it did not show a significant rise. Following this for two or three days the animals seemed perfectly well. Then on the sixth or seventh day there appeared a second period of reaction. During this period the temperature of the animals increased and the total nitrogen showed negative balance. In the majority the loss of nitrogen was very striking. The same was true of the creatinine though it did not run parallel with the total nitrogen. The excretion of nitrogen was something like 50 per cent. above normal. The weight continued practically the same during the first and second febrile periods and then began to fall very sharply. This sudden excretion of nitrogen could not be regarded as a damming back of nitrogenous products and then a sudden excretion. It could only be explained as being due to a destruction of the body cells. There was also experimental evidence to show that these changes in nitrogenous excretion occurred when the toxin was injected into the myocardium. Experimental evidence also went to show that the nitrogenous excretion was due to the infection and not to the fever.

Dr. DENNETT L. RICHARDSON of Providence stated that clinical observations corresponded with this experimental work. In his experience diphtheria patients frequently died in the second stage. They died either during the acute process, or the membrane might clear up and the fever subside and the child would look quite well, then after the twelfth or fourteenth day there would be pallor, prostration, changes in the pulse, and the child would die in the second week of the disease. It had been his experience that if children with these symptoms lived fourteen or sixteen days they might survive.

Experimental Measles.—Dr. FRANCIS G. BLAKE of New York presented this paper. He stated that with the hope of ultimately developing a method of prophylactic inoculation against measles a study of experimental measles in monkeys was being conducted. Monkeys inoculated intratracheally with nasopharyngeal washings from early cases of measles reacted after an incubation period of from seven to ten days with a group of symptoms closely resembling measles in man. These symptoms were conjunctivitis, Koplik spots, exanthem, fever, and leucopenia. The experimental disease had been transmitted from monkey to monkey by blood, skin and mucous membrane emulsions, nasopharyngeal secretions and by contact infection. Monkeys that had recovered were immune to a second inoculation. The histological lesions of the skin and buccal mucosa were identical with those of human measles. The virus could be attenuated by repeated blood passage or by preservation in glycerol so that it would produce a local and not a general infection in monkeys in intracutaneous injection.

Dr. JOHN F. ANDERSON of New Brunswick said it was just nine years since they had presented their work on experimental measles. Dr. Blake and his colleagues had repeated and confirmed their work. However, there were some phases of the subject not reported upon by Dr. Blake as, for instance, the period of infectiveness of the secretions of the nose and throat. Dr. Anderson said that the period of quarantine had been revised. They had also reported that the filterable virus could be attenuated by repeated blood passages. It had been said that their evidence of having produced measles experimentally in monkeys was not conclusive because they had not mentioned the Koplik spots. It was true they had not mentioned the Koplik spots, but they had reported on the skin lesions and on the leucopenia.

Dr. CHARLES HERRMANN of New York said that although Anderson and Goldberg, Hektoen and others had already proven that the nasal discharges and the blood of patients with measles were infectious, Dr. Blake's investigations had added some new evidence and had put the subject upon a still firmer basis. Many years ago he became convinced that with their present method, the spread of measles could not be controlled, and that such a control was only possible by means of a method of immunization against the disease, applied in early infancy. In 1913 he began to immunize infants, the method being based upon the following facts. First, the infectious material was contained in an active form in the nasal mucus at the beginning of the stage of invasion, that was just before and when the eruption was beginning to appear; second, in the large cities where practically all the mothers had had measles, a relative immunity was conferred on the offspring which lasted about five months. This immunity was absolute during the first two months and gradually disappeared; third, the infectious material was usually conveyed from the nasal mucous membrane of the patient to the nasal mucous membrane of the individual infected. It was thought that if infants were inoculated between four and five months of age, when they still enjoyed a relative immunity, this temporary relative immunity could be converted into an immunity which would last for at least a few years. This would be a distinct advantage, for almost all deaths from measles occurred in children under five years of age, principally in the second year from a complicating bronchopneumonia. With these facts in mind, the nasal mucous membrane of children with measles, who were free from other diseases, at the beginning of the appearance of the eruption, was collected on small swabs, or drawn into capillary tubes

which were sealed. This mucus was applied by touching the mucous membrane of healthy infants between four and five months of age. Up to date 150 inoculations had been made. Of these 25 infants were definitely known to have been intimately exposed to infection, and of these only two had contracted the disease. When we remembered that about 97 per cent. of all infants over five months of age were susceptible to infection with measles, it seemed that the results were pretty conclusive. It might be objected that the material used was not free from other bacteria. In practice this was not found important, as no unfavorable result was found in any case. The nasal mucous membrane normally harbored a large number of microorganisms. The filtrate might be used but was not uniformly active, and could not therefore be relied upon for purposes of immunization. For universal application it was necessary that we should have a method of preserving the virus. The addition of glycerol might answer the purpose, remembering, as Dr. Blake had shown, that by such an addition the virus became somewhat attenuated.

Dr. H. F. HELMHOLZ of Minneapolis, Minn., said he was particularly interested in the last part of Dr. Blake's paper telling about the production of active immunity. In that connection he called attention to some experiments in the Foundler Clinic in Munich. At the Foundler Clinic it was shown in 173 cases that individuals, who had been exposed to measles after being injected with 5 c.c. of blood serum taken from convalescent patients seven to fourteen days after the temperature had dropped to normal, had been absolutely protected against measles. Dr. Helmholz said they were able to report that in 10 cases where a child was in a home with an infected individual this method of immunization had been tried with apparent success. This made available a method of protecting children during the period from two to four years, the period when the mortality from measles was so extremely high.

Dr. DENNETT L. RICHARDSON of Providence said they had been making similar inoculations with the serum of convalescent patients and no child inoculated in this way had developed measles. They hoped to publish this work a little later.

Dr. BLAKE, in closing the discussion, stated that they had made detailed studies as to the infectivity of the measles virus. They had never failed to transmit the disease to monkeys when the secretion was taken in the prodromal stage, and the secretion taken on the first day always produced measles and in many instances when taken on the second day. The reason for their going into the work as to the susceptibility of monkeys to measles was not because they were doubtful of the work of Anderson and Goldberg but to clear the work of any subsequent doubt. The principal thing they felt was required was the demonstration of the pathology. The pathology of measles was not accurately worked up at the time Goldberg and Anderson did their work.

Preventive Diphtheria Work in the Public Schools of New York City.—Dr. ABRAHAM ZINGHER of New York made this presentation, in which he reported that since February, 1921, more than 50,000 school children had been Schick-tested in New York City. Children found susceptible had been immunized with toxin antitoxin. Results showed great variability in susceptibility in different groups of school children. In schools attended by the children of the more well-to-do, a much higher proportion of susceptible children had been found than in schools attended by children of the poorer classes. This striking difference could be noted from the results in two different schools; 58.8 per cent. positive in one as compared with 15 per cent. positive in another, a ratio of 3.5 to one. Relative segregation of children from wealthy homes on the one hand, excessive crowding and frequent exposure to diphtheria in the poorer homes on the other hand, explained the results. Heredity seemed to be an important factor. The control test with heated toxin had been found essential in clearly identifying the pseudoreactions which were relatively frequent in children of school age.

Dr. CHARLES HERRMAN congratulated Dr. Zingher on what he had accomplished in a comparatively short time. Owing to his repeated demonstration before the larger medical societies, the majority of the physicians in New York City were familiar with the value of the use of the toxin-antitoxin mixture in the immunization against diphtheria. Dr. Zingher had demonstrated statistically that the children in crowded districts were less susceptible because they had been immunized by exposure. This principle had long been recognized in other diseases, for example, in the marked susceptibility of the Indian and Esquimau to tuverculosis infection, when he migrated to large centers of population, in the rapid and progressive course of tuberculosis in infants, in the susceptibility of recruits from rural districts to the communicable diseases of childhood. It was therefore not an unmixed blessing to protect the child against all exposure to infection. What we desired was immunity against disease, for the prevention of exposure to infection was impossible in large cities. In the control of the spread of the highly communicable diseases, and those in which the carriers played an important part, *early* and *universal* immunization were essential. The control of smallpox was due to the fact that practically *all infants* had been vaccinated. The campaign had been begun with the immunization of school children because that was an easy and controllable point of attack. After physicians and laymen were convinced of its value, there would be less difficulty in immunizing all infants. Education was required. In his private practice, Dr. Herrman said, only 10 per cent. of the mothers immediately recognized its value and were glad to have their babies immunized. In addition 10 per cent. consented after a little explanation and persuasion, but there remained a large number who preferred to wait. Some said frankly that they did not believe in vaccination but had it done because a child could not be admitted to school without a vaccination certificate. There was still a large number of believers in the various cults who were antivaccinationists, antivivisectionists and antiimmunizationists. Possibly some day a certificate of immunization against diphtheria would be necessary for admission into school, so that all the conscientious objectors would be brought into the fold.

Dr. EVERETT W. GOULD of New York said it was quite possible and even probable that in the near future the disease diphtheria would be just as fully under the control of the medical profession as smallpox was today. The medical profession accepted the contention that the Schick test gave accurate information as to susceptibility to diphtheria and that toxin antitoxin conferred immunity. Dr. Gould then related his experience with the Schick test at St. Luke's Hospital where for the past seven years they had applied the Schick test to all children who entered the medical or surgical wards of the hospital. During the time they had had but three or four cases of diphtheria, and there was good reason to believe that mistakes in technique could explain these. In severe cases of tonsillitis that resembled diphtheria it was always advisable to give antitoxin, not because one did not have faith in the Schick test, but because a slip might have been made in the technique or the reading of the reaction.

Dr. JOHN M. DODSON of Chicago observed that there was one thing that stood out conspicuously and that was the rapidity with which the efficiency of antitoxin diminished as the days went by following the onset of diphtheria, thus showing the importance of getting the cases on the first day. The parents should be educated, and the movement for a closer cooperation between educators and the medical profession should be furthered. Forty-two states now had combined committees composed of members of the state medical societies and members of the teachers' associations. That offered an army of 500 physicians and teachers who might be utilized to spread the propaganda of early diagnosis and early treatment in diphtheria.

Dr. BOWERS of the Philadelphia Board of Health related some of his experiences with the Schick test and recommended Renner's test as giving more constant and reliable results than the Schick test.

Dr. E. H. PLACE of Boston stated that his experience agreed with that of Dr. Zingher as to the value of the Schick test. He mentioned that the Schick test might also be used for diagnostic purposes in very mild cases though he hesitated to speak of it as there might be some danger involved. For instance, in a boy who had had his tonsils and adenoids removed a month previous-

ly, symptoms resembling diphtheria had appeared. The Schick test was positive showing that he did not have diphtheria.

Dr. ZINGHER, in closing the discussion, warned against the use of the toxin antitoxin as a curative agent. This was a dangerous thing to do for the toxin antitoxin did not cure diphtheria and immunity did not develop until two or three months later.

Experience in More Than One Hundred Cases of Encephalitis in Children.—Dr. JOSEPHINE B. NEAL of New York presented this paper in which she gave a brief résumé of the literature relating to epidemic encephalitis. In this series of cases there were 50 per cent. more males than females; the same was true of epidemic meningitis and poliomyelitis. The seasonal distribution showed the maximum number of cases in the first quarter of the year; meningitis was more prevalent in April, May, and June, and poliomyelitis in the summer months. In only one instance were there two cases in the same family, and these two became ill on the same day. The mortality of the cases under 15 years of age was 28.14; the mortality of those over 15 years of age was 27.54 per cent. The most prominent symptoms were fever, vomiting, headache, malaise, and symptoms referable to the nervous system. Some patients were drowsy, some were delirious. In some instances there were ocular disturbances: diplopia, blurring of the vision, strabismus, nystagmus, convulsive movements of the eyeball, etc. The cranial nerves were most often affected. Catatonia was not infrequent. Kernig's sign was not common unless associated with spasticity. Prolonged cases were less common in children than in adults. Pneumonia was the most dangerous complication. The spinal fluid findings were practically the same as those in poliomyelitis. The cell counts might be normal but usually were from 100 to 150. In one case in this series they ran to 1500. There might be a slight increase in albumin and globulin. At the present time we must feel that the etiological factor had not been definitely established. The most common conditions from which it must be differentiated were tuberculous meningitis, brain abscess, brain tumor, and poliomyelitis of the encephalic type. The most common sequelæ were weakness and paralyses. In this series there were sequelæ in 8 adults and in 4 children. Changes in the speech and in mentality were observed in 3 adults and in 10 children.

Paralysis in Children Due to the Bite of Wood Ticks.—Dr. PETER D. MCCORMACK of Spokane, Wash., read this paper in which he said that the bite of the wood-tick, usually the Dermacentor, was occasionally followed by paralysis. The paralysis might be so extensive as to involve the whole body. It was usually progressive in type, unless the tick were removed. In fatal cases death resulted from respiratory paralysis. Removal of the tick was followed by rapid and complete recovery. With but one exception all the reported cases in humans had occurred in children. Paralysis had been constantly produced in animals by the bites of the Dermacentor venustus. The writer reported several cases and reviewed the available literature.

Third Day—Friday, June 10.

Visualizing the Child's Physical Condition: A Method Especially Adapted to Preventive Work.—CHARLES E. CARTER of Los Angeles made this presentation, which consisted in a method of charting the physical findings comparable to a roentgen ray picture as a basis for corrective work. The charts provided for a periodical health picture which constituted an index of the progress attained. The examination of only the sick child was antiquated and tended toward physical deterioration. This visualizing method was productive of practical results and permitted of any elaboration or adaptation desired. Some such system was very essential for intelligent inspection of the socalled well child. The cards contained the following headings on the left-hand margin with sufficient space allowed to tabulate the findings under each: Nutrition, teeth, adenoids, tonsils, chest, abdomen, posture, liver, extremities, appearance, symptoms, rating. Six charts were exhibited demonstrating the graphic interrelation of etiology and symptomatology in rickets, scoliosis, focal infection, nutritional unbalance, and illustrating the method of charting the first and subsequent examinations. In the course of his talk Dr. Carter stated that he understood that a hemoglobin index of 80 per cent. was considered normal in the Eastern cities; in California this was not the case, the normal there being from 90 to 100 per cent.

Dr. C. L. LOWRNAN of Los Angeles said that if an orthopedist might be permitted to speak he would like to say that he had cooperated with Dr. Carter and would like to emphasize what had been said, namely, that many children who came to them supposedly well were not well from the developmental standpoint. They might be perfectly fine, healthy looking children, but might have some orthopedic defect which potentially was fraught with great evil, as the child shown in the picture, who looked perfectly healthy, but whose ankles were slightly turned in. When he examined that child he had an *x*-ray picture of the wrist taken according to Rotch, in order to study the development of the bones in the wrist. This showed that the child was six months behind the normal child in respect to the development of his bony skeleton. He sent that child to Dr. Carter, who found that the boy was not getting proper diet; his chubbiness simply represented an unhealthy amount of fat.

Dr. FRITZ B. TALBOT of Boston considered the charts very interesting, and said they emphasized the importance which was becoming more and more apparent of studying the child and finding defects if they were present before any real harm was done. He thought it was an advantage to have before the eyes of the examiner all the points that were to be taken into consideration, though the careful man was accustomed to examine the child in reference to all those points; however, even the most careful man might occasionally overlook some point and with such a chart one could be sure that the records were complete. All were familiar with the advantage of having complete records for reference in subsequent visits that would call attention to the part of the body that was at fault. He had not had the opportunity to study the charts in detail, but in any such mechanical aid it was well to remember that the general impression of the investigator should hold a prominent place in the records. He thought there was danger in putting down individual data or forgetting that one must consider the child as a whole, while he concentrated his attention on the feature which was at fault. It was equally important to have an impression of the child as a whole. There was one other thing that should be commented on, that was that today we have no normal standards. The standards of normality must be thoroughly classified before we could be sure we were all talking about the same thing. For example, any one could tell whether teeth were carious or not, but no group of pediatrists could tell whether a child was normal in respect to height and weight. There would be a great deal of discussion as to whether he was normal or not.

Dr. GEORGE E. BAXTER of Chicago congratulated the section on having had its attention called to two things. First, he spoke of the importance of the socalled normal or well child, because he believed most of those working with children as well as those doing general work had failed in that regard. The child was usually only looked upon as a sick child. In order to accomplish something for the well child it was necessary to follow up some sort of a system similar to that Dr. Carter had outlined. It was an interesting method because it had the advantage of visualizing the condition the examiner should know about. It had value in that when the child returned to the office one could see what the condition was at the previous examination. True enough, many men made careful examinations and recorded the results, but not in such an understandable form as this. He felt that these charts were a very distinct contribution to the handling of the well child.

Dr. CARTER, in closing the discussion, said that in reference to Dr. Talbot's remark that there were no normal standards at present, it was with the hope of getting something that might be helpful that he had been keeping these records for the past three years. In California children showed greater height and weight than children in the East if Bowditch's standard of twenty-five years

ago were taken as a basis for comparison. There was the danger of these charts becoming mechanical, but he thought it was thoroughly understood that they were kept in this way only for reference. Dr. Kerley's suggestion in reference to the hemoglobin was of interest. He had said that he considered a hemoglobin of 80 per cent. normal; it was not normal in California, where there were many children with a hemoglobin percentage of 90 to 100. Dr. Carter had called attention to the difference in certain standards in California as compared with those in the East, and he supposed that if some one investigated standards, say in Colorado, they would be found to be different both from those in California and those in the East.

The Food Requirements of the New-Born Infant.—Dr. HAROLD K. FABER of San Francisco, Cal., read this paper, in which he contended that the colostrum intake of the infant during the first two or three days of life was wholly insufficient to supply the needs of the child. The colostrum furnished a scant food supply in consequence of civilized conditions. The respiratory quotient in the new-born showed that the metabolic processes soon exhausted the stored food and body protein, and at this time acidosis was not uncommon. In a series of 85 new-born children complemental feeding was carried out with a suitable modification of cows' milk in quantities limited only by the infant's appetite in order to establish, if possible, standards for maximum food requirement during the early days of life. The formula employed called for certified cows' milk, 100 c.c.; Red Label karo, 120 c.c., and 1 per cent. barley water, 480 c.c. The formula gave percentage composition of 14 per cent. sugar; 1.3 per cent protein, and 0.3 to 0.6 per cent. fat. The corn syrup furnished a highly hydrolyzed sugar and had given no trouble from the high carbohydrate intake. He had measured the breast milk intake on the first day after birth and found it was about 50 c.c.; it then rose rather rapidly until the fourth day, when there was a very rapid rise, the total on the tenth day being 450 c.c. Under this method of feeding the average gain was 9 grams per kilo of body weight per day. Charts showed the weight curves of 112 infants and presented evidence that with this method of complemental feeding the new-born infants ran a practically ideal weight curve. The additional food was administered so as to avoid any danger of starving the infant, on the one hand, and of lowering the secretory activity of the mother's breast on the other hand.

Dr. FRITZ B. TALBOT of Boston emphasized one point which he said was well brought out in the paper, namely, the importance of fluid to the new-born infant. When one depended upon the breast milk alone the infant did not get enough fluid, and unless the nurse and attendants were specially trained the fluid intake of the infant was neglected. Dr. Faber had also brought out the fact that socalled inanition fever sometimes resulted from too little fluid. The loss of weight in the new-born was of two kinds; one was mechanical, as the loss of meconium and urine, and the other was because the baby was burning up part of his body tissue to keep himself warm. It was with that idea that Dr. Faber was giving the additional food during the first few days of life, and physiologically he was quite justified in doing so, but one could not give any kind of a formula to a new-born infant and especially dangerous were high fats with whole milk. With this glucose he had seen no trouble, but he had seen trouble from formulas with relatively high amounts of fat. It must be borne in mind that when one figured up the calories per unit of body weight two factors came in for consideration, one was the amount of active protoplasmic tissue which was forming the heat, and the other was the part of the body which weighed equally with the muscle and organs, that was the fat and water. Most new babies had relatively the same amount of protoplasmic tissue (at least that assumption had not been controverted), but some infants were born fat and some were born thin, and it was not fair to give the same amount of calories to both the fat and the thin baby because the fat was inert and did not form a part in the basal heat production. Fat babies could get along on fewer calories than thin babies, and some premature babies required even more calories per kilo body weight than the average new-born infant, so why should there not be this difference in new-born infants.

Dr. BERTHA VAN HOOSEN of Chicago said she had been interested in trying to supply a more adequate amount of milk during the first few days of life without lessening the secretory function of the breast. She had assembled a milking machine, which consisted of an electric pump, which could be used on both breasts at the same time. They had used it in this way. Every six hours the pump was applied to both breasts, with the idea of opening up the milk ducts. It was also a sure cure for inverted nipples. It was applied for five minutes and the baby was then put to the breast. After the first day, when the baby had nursed, the pump was applied and the breast thoroughly emptied. The mothers all had Wassermann tests. After the third day they usually had a larger supply of milk than was required for their babies—frequently 2 or 3 ounces more than the baby could take. This milk was used for other babies on the first day after birth. This was an ideal plan; since the mothers were all Wassermann-proof there was no hesitancy in using the milk for other babies. The point to be emphasized was not so much the little device for removing the milk, but the fact that with some sentiment or practicality, whichever one wished to call it, the mothers could supply more milk than their own babies required without any trouble, and in this way one could have mother's milk to distribute to babies that needed it rather than cow's milk.

Dr. HARRY LOWENBURG of Philadelphia expressed fear lest the giving of the extra milk in the early days of life might encourage the bottle habit. Even if it had a physiological basis he questioned the advisability of giving this form of nourishment. The fault lay in a lack of water, and this could be made up in the form of water or glucose without presenting the bottle. He had found that once an infant received the rubber nipple it was difficult to keep it on the breast. He thought they should be slow to adopt this method of giving extra nourishment to new-born infants. Furthermore, he did not see just why we should try to prevent the initial loss in weight, as in spite of that loss children thrived and developed normally. It would be far safer to find a different method rather than to present the bottle. After all their propaganda in favor of breast feeding, if they now advocated this method they might find themselves in a serious predicament.

Dr. LEWIS WEBB HILL of Boston agreed with Dr. Lowenburg that Dr. Faber's paper gave the impression that the Lord had made a mistake when he planned that the new-born baby should not eat. The new-born baby was not meant to take much into its body. The colostrum was a concentrated food that met the new-born infant's needs. It was high in protein and low in sugar and one was flying in the face of nature when he attempted to do differently. He did not believe the extra food was an advantage and that the reason little breast milk was furnished was because the intestine was becoming infected with the ordinary bacteria and if it was flooded with extra food a great deal of harm might be done. Czerny thought it was even inadvisable to give sugar and advised only water. Dr. Faber said his babies had been slow in recovering their birth weight. Were they fed at four hour intervals? If that was the feeding interval it might be that if they were fed oftener they would have regained their weight more quickly. Many had tried to prevent the initial loss of weight, but the only research on this subject was made by Schick who claimed to have prevented loss of weight after birth by feeding breast milk from another woman.

Dr. J. I. DURAND of Seattle, Wash., said that the Lord when he made the plan had in mind a less highly developed nervous system than they were dealing with today. The mothers underwent very much less disturbance among primitive peoples than under the conditions of civilization. He thought that Dr. Faber had answered the criticism that had been brought by the fact that his 90 babies had done so well. As to the question whether this complementary feeding would interfere with normal breast feeding, he thought the opposite would occur. The increased vitality and strength of the baby that received the additional food

would enable it to bring the breast milk up to its requirements better if it had had complementary feeding. Dr. Durand asked Dr. Faber whether he had seen inanition fever in any of these cases.

Dr. ROGER H. DENNETT of New York said he felt that they ought to be very grateful to Dr. Faber for this paper. He had always said that babies should not have even water for the first three days of life, and he had conscientiously believed it, but Dr. Faber had seen these cases and no one had repeated the work so it hardly seemed that they ought to criticize observations which they had failed to make themselves. He asked whether there was any febrile or other disturbance in these babies. He did not understand what percentage of these babies had gone on and been entirely breast-fed; he would like to know something on that point. So far as the caloric requirements were concerned there had been no question for a number of years that babies of different nutritional standards required different numbers of calories. He had believed that the average baby needed 50 to 55 calories per pound; the undernourished baby needed from 60 to 65 calories per pound, and the fat baby required from 40 to 45 calories per pound.

Dr. FABER, in closing the discussion, said his purpose in presenting the paper was not to advocate a particular method of feeding but to report the results in this series of cases. It was perfectly true that the weight standard of feeding was faulty and so was the method of feeding by body surface. The food demand arose from the amount of activity of the active protoplasm and of that we knew the measure. He believed the only standard by which one could adequately feed a child was by appetite, and that was the method nature used. Dr. Lowenburg claimed that the fluids were enough; in his experience the fluids were not enough. In a long series of cases when given all the water they would take the babies did not do so well. The religious arguments he acknowledged were difficult to answer, but he could say that man as a civilized animal had a certain number of maladaptations and these maladaptations occurred in nature. Of this inguinal hernia was a sample; that occurred when man assumed the erect pocture and nature had not provided proper mechanical support. We could say that nature certainly had not provided enough fluids. They had lost no babies in this series except one that died of birth injuries. With regard to breast feeding after the babies left the hospital; they had not been able to hold 100 per cent. of breast feeding, but 65 per cent. of the babies remained on the breast while in this series the average was 66 per cent., so they certainly had not reduced the amount of breast feeding by the complement feeding during the first few days. There was only one case of inanition fever, and that baby refused all food.

The Breast and the Nursing Child.—Dr. FRANK H. RICHARDSON of Brooklyn presented this paper in which he stated that recent literature was comparatively bare of observations on the physiology of lactation, that was, in studies of the nursing of healthy babies. He therefore desired to present clinical observations made on three normal breast-fed babies during the nine or ten months each was on the breast. The conclusions based on these observations were: Appetite and thirst of the mother were automatically regulated by the demands of the child on the breast supply; decreasing demands of the baby were met by a decreasing secretion of milk by the lactating breast; this statement was based on observations during weaning and elimination of night feeding; what had been described by mothers as the "coming in" of the milk was a clinical entity, recognized or not by the individual; if long intervals were observed, the nursing baby could not be overfed. These conclusions were based not upon ward studies but upon replies to a questionnaire by nursing mothers. On the second day or thereabout the true milk rushed into the breast and this was often an extremely painful experience to the mother. An attempt was often made to check the amount of milk secreted by applying a binder and giving a cathartic. This line of treatment frequently resulted in drying up the milk. In a study of 200 cases of premature weaning only 18 were weaned after the first month. It was also a mistake to overfeed the nursing mother.

Dr. ISAAC A. ABT of Chicago called attention to the fact that physiological lactation depended upon some external forces and some internal forces. The internal forces might be described or referred to as the "coming in" of the milk. This phenomenon occurred shortly after birth when lactation began and it occurred during lactation when the breast became distended. The flow was dependent upon the internal factors of muscular activity, nervous activity, and glandular activity. It was well known that the nervous system had a considerable influence on the milk. The woman under the influence of fear or other psychological states was frequently unable to nurse her baby. Dr. Abt said he, too, had devised a milking machine and they had found that when the milking machine was first applied the mother showed fear and the supply of milk was inhibited. Finally when the woman became accustomed to the milking machine the milk would flow freely. Dairymen told him that they had the same experience with the milking machine. Now referring to the external dynamics they were dependent upon the sucking action, and this was dependent upon sucking and compression. The breast might be emptied in either way. It was probably that the baby used both suction and compression and that was the better way. They had found that it required considerable pressure, as estimated by an air gauge in the milking machine, to bring about the flow of milk. The amount of compression measured by the air gauge varied greatly under different conditions. Dr. Abt said he wished to emphasize the point that the baby was the best machine for emptying the breast and if a mechanical device was substituted it should be one that provided for both suction and compression.

Dr. CHARLES H. WAHRER of Fort Madison, Iowa, said he had been talking with old Dr. Aristotle the other day, and notwithstanding his great learning he had said, "Experience is fallacious and judgment is difficult." In a modern sense that told one how to feed a baby understandingly. He had never met a baby yet who could not stand a little starvation until he had figured out what to do. One need not be in a hurry to get a patent milking machine for he thought the baby would take care of the situation.

Dr. W. A. MULERIN of Augusta, Ga., said the free expression of opinion during this session showed the importance of having papers such as these on the program. He thought complemental feeding had come to stay because it was the most natural way of feeding a baby. It was simpe and it was practical. He had been surprised that more men had not taken up Dr. Sedgwick's method of complemental breast feeding. There were a few things that should be stressed that made for success in the use of this method. 1. Proper stimulation of the breast as advocated by Dr. Sedgwick. Put the baby on the breast and after ten minutes help the baby by compressing the breast with the fingers. 2. Get the mother's cooperation. The mother usually could and would cooperate. 3. The physician himself must be thoroughly convinced that he could succeed in establishing maternal nursing, and then it was easy work. It was surprising how often one would be successful in bringing up the milk supply if he carried out these three points. The practice of stuffing the nursing mother was wrong in principle and wrong in practice.

Dr. RICHARDSON, in closing the discussion, said he was glad Dr. Abt had brought out the point that the original inflow of milk was parallel to what happened a number of times a day during lactation. As to the advice derived from the quotation from Aristotle, it was good up to a certain point. It was true that a great many babies if left alone would get up an appetite, but there were babies in which the lack of food had led to inanition fever and they had no appetite. What Dr. Mulherin had said in regard to complemental feeding should be emphasized. Complemental feeding was based upon the assumption that the baby would not overfeed on the breast if fed at sufficiently long intervals, and if the baby was not getting enough food he might be fed after he had exhausted the breast supply. As to the length of the time consumed in nursing, he thought it did not harm if the baby were allowed to take forty or fifty minutes in nursing, as he was not eating during all that time.

Some Neglected Practical Points in the Technique of Infant Feeding.—Dr. JOSEPH BRENNEMANN of Chicago read this paper, in which he said that the things to which he would direct attention were so simple and elementary that except for the fact that they were of great importance they would be unappreciated or ignored. It was often the very simple things that determined whether a child was normal, happy, and mannerly or abnormal, unhappy, and ornery. Frequently when a mother had been a good breast feeder and it came time to wean the baby the child would not take the bottle. The mother may have abandoned breast feeding while she was making the attempt to have the baby take the bottle and with the baby getting insufficient food from either the breast or the bottle he might be losing weight. The mother might then try feeding the baby with the spoon, from a cup, from a hygeia bottle, etc., only to find that the baby rejected all these means of obtaining nourishment. The situation was then difficult indeed. It was not the food that the child objected to, but the method. The psychology of habit explained the situation. The baby preferred one food by one method; monotony did not pall upon him. A difficult situation of this kind could easily be avoided by teaching the baby very early in life to take the bottle. This might be done without interfering with breast feeding, by giving a little slightly sweetened water in the bottle after breast feeding. If there was any objection to giving the small amount of sugar in the water a little saccharine might be added. Even in the second year the baby as a rule would not take as much from a cup as from a bottle. He saw no reason of depriving the child of the bottle and thought the child should be allowed to have the bottle well into the second and even into the third year. The same psychology applied in reference to spoon food. Spoon food in the form of strained vegetables might be given as early as the fifth month. If attention were given to these matters there would be no difficulty in passing from the breast to the bottle and from one kind of food to another. This apparently simple matter might have an influence on the child's entire attitude toward life. The child who would not take the bottle, refused the cup, the spoon, and every feeding device, and whose mother spent hours trying to cajole him into taking each new article of food, was liable to become the person with peculiar tastes, who could not eat this, that or the other article of food, and adapted himself poorly to all situations in life.

Dr. BORDEN S. VEEDER of St. Louis said he was much gratified to hear this paper. They now started early to feed babies with cereals and vegetables. He had done nothing in recent years that had given him so much satisfaction as starting in early with spoon feeding. He started at five months giving cereals and at seven months gave strained vegetables. He did not believe in starting with the bottle too early. Neither did he believe in the child having the bottle for two or three years, as he could see no necessity for it.

Dr. MARY T. MOORE of Boston called attention to the importance of making sure that the baby was not tongue-tied when it did not take the bottle readily. Such a child might be looked upon as cantankerous when the difficulty was a mechanical one.

Dr. H. M. APPEL of New York stated that they encouraged spoon feeding at the hospital with which he was connected, but they dreaded the use of sugar because they had seen it cause eczema and green stools. Spoon feeding early placed one in a position to overcome any deficiency in the diet during the first year. They started with one teaspoonful of cereal a day and changed the variety of cereal each day. They instructed the mothers how to prepare the cereal and it was forced down if necessary, as though it were medicine. In this way the child soon became adjusted to the spoon.

Dr. E. J. HEUNEKENS of Minneapolis said they fed solid food after the sixth month and from the tenth month on the baby used a cup and solid food and they went one step further. The babies were put on three meals a day when they were ten months old. This made the care of babies much simpler. They had carried out this plan for five years with a large number of babies.

Dr. M. L. TURNER of Des Moines said he wished to indorse the three meals a day plan. The children did better on three than on five meals a day. They had one child fed on three meals a day that weighed thirty pounds at the age of two years.

Dr. BRENNEMANN, in closing the discussion, said he first began giving vegetables and cereals to children ten months of age, and then gradually worked down to nine, to eight, to seven, to six, and now to five months. He began when the baby was five months old with cereal and when it was six months old vegetables were given. Until ten years ago he had followed the teachings in the books and took the babies off the bottle at the age of thirteen months and put them on the cup. In his experience it was wholly unsatisfactory. During the last ten years he had done the opposite, and allowed the child to have the bottle until the fourth year. In his experience it was not true that a baby in the second year would take as much milk as he wanted it to take. As to giving water in a bottle, he did not give much sugar in the water. He only gave an ounce of water and very little sugar. As to the three meals a day, he recalled having read a book on children written sixty years ago in which three meals a day were advocated at the latter part of the first year. He had never been able to feed a baby successfully on three meals a day, though perhaps it might be done, as many babies could perform quite remarkable dietetic acrobatic stunts. During the latter part of the first year and the second year he preferred to give five meals a day. Three meals might be given at the end of the second year, but he thought it a little difficult for children to get along well on three meals a day much earlier.

Diet as a Factor in the Etiology of Adenoids.—Dr. FRANK VANDER BOGERT of Schenectady, N. Y., presented this contribution. He stated that little was known of the cause of adenoids and tonsillar hypertrophies, and therefore there was little opportunity for their prevention. Their frequent association with rickets suggested that the same underlying etiological factor might be responsible for both conditions. There was considerable evidence to indicate the dietetic etiology of rickets. It was also quite generally recognized that adenoid and tonsil hypertrophy were associated with digestive disturbances in later childhood. These digestive disturbances frequently persisted after the removal of the tonsils and adenoids. Carbohydrate excess frequently was responsible for a catarrhal condition of the digestive tract extending from the mouth to the anus. It was reasonable to believe that such a condition might also involve adenoid and tonsillar tissue. Tissue thus affected was lowered in resistance and fell an easy prey to infection. It was worthy of note that the development of adenoids and hypertrophied tonsils was coincident with the introduction of bottle feeding at the end of the first year. Hypertrophied tonsils and adenoids were frequently found associated with colitis, mucous disease, and enuresis. Of a series of 101 infants artificially fed, sixty-one showed hypertrophied tonsils, and of sixty-five children breast fed for more than one year fifty-one showed enlarged tonsils and adenoids, indicating that there might be some relation between the prolonged nursing and the hypertrophied tonsils. A sufficiently large number of cases were treated dietetically by restriction of carbohydrates following the removal of tonsils and adenoids to afford a basis for the belief that diet had an influence on the recurrence of tonsil and adenoid growth. Bad hygiene seemed not to be a factor in the causation of adenoids, for in China, where hygienic conditions were notably bad, hypertrophied adenoids and tonsils were rare. The facts seemed to point to the increased consumption of sugar and the unbalanced ration as an etiological factor in tonsil and adenoid hypertrophies.

Regional Sensitivity of the Skin of Normal Infants.—Dr. LOUIS W. SAUER of Evanston, Ill., presented this paper, in which he described a number of attempts that had been made to perfect tests whereby the exudative diathesis might be detected in its latent side. None of these investigators used the same substance on the various regions of the body. The thorax, feet, and palms were seldom involved in infantile eczema. The face and buttocks were the sites of predilection. Solutions of phenol in benzol were applied to the cheeks, buttocks, thorax, and sole of 100 normal-skinned infants. The reaction one hour after the application and twenty-four hours later were compared. The phenol benzol

was applied in strengths of 15, 20, and 25 per cent. to the above mentioned sites. At the end of one hour the 15 per cent. solution gave seventy-seven reactions on the cheek, twenty-four on the chest, and seventy-one on the buttocks; at the end of twenty-four hours there were twenty-seven reactions on the cheek, three on the chest, and twenty-six on the buttock. Using the 20 per cent. solution, the cheek showed ninety-seven positive reactions, the chest forty-four, and the buttocks eighty-five; at the end of twenty-four hours the 20 per cent. solution gave fifty-nine positive reactions on the cheek, seven on the chest, and forty-seven on the buttock. With the 25 per cent. solution at the end of one hour the cheek gave ninety-eight positive reactions, the chest sixty-five, and the buttock eighty-eight; at the end of twenty-four hours the cheek showed seventy-eight positive reactions, the chest twenty-one, and the buttock fifty-nine. From these results it was evident that the regional difference in the skin must be reckoned with in perfecting tests for the exudative diathesis.

The Clinical Diagnosis of Heredosyphilis.—Dr. HENRY F. STOLL of Hartford read this paper in which he stated that the Wassermann test was frequently negative in late heredosyphilis. There were, however, often certain "leads" in the symptomatology and careful examination would frequently reveal suggestive physical signs. The cases reported showed that the chief "leads" might be found in other members of the family. If with care and patience one fitted together these isolated and in themselves apparently insignificant data, he would frequently obtain an unmistakable picture of familial syphilis.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 3, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Concerning the Function of Calcium in Plant Nutrition.—Professor RODNEY H. TRUE, Director of the Department of Botany of the University of Pennsylvania, delivered this address which was illustrated by lantern slides. He stated that the investigation upon which his presentation was based was begun ten years ago in order to determine, if possible, the reason why distilled water was injurious to plant life. In making the investigations new methods of determining the behavior of plants in distilled water were employed. A study was made of the interchange of substances between the plant and the solution. The method of measuring the interchange by the varying resistance of the solutions to the electric current had enabled them to make much more accurate estimations than was possible by ordinary chemical methods. When seedlings were placed in distilled water the conductivity of the water was found to be increased which meant that something was being given off by the plant. The conductivity of the water continued to increase for some time but later came to a state of equilibrium. An attempt was made to find out whether distilled water was harmful to plants because of something in the water or whether it was because there was nothing or nearly nothing in it. The water was purified in many different ways without any apparent difference being noted, and they finally reached the conclusion that distilled water was harmful to plants because it lacked something. They then tried to grow plants in solutions of distilled water containing minute amounts of various chemicals. If potassium chloride was added to distilled water they found that the water attained more and more a condition of purity, indicating that the plant was taking something out of the water. Other experiments showed that the changes in the solution were not due to differences in osmotic action but to differences in chemical action. Plants were grown in various solutions of alkaline salts and alkaline earths and the results observed. These experiments were carried out first with solutions containing a single salt and then with solutions containing two or three different salts. The solutions containing the salts of potassium and sodium gave results not widely departing from those of distilled water. The case was somewhat different when the alkali earths were used; here absorption took place. A marked absorption took place in the weaker solutions of magnesium salts, but when this salt was added in any considerable quantities the plant became poisoned and died. The addition of calcium salts to distilled water was tried, and the results of these investigations indicated that the calcium salts prevented the leeching observed with other salts. It was well known that we limed land for deficiencies of the soil but the nature of this necessity had never been understood. It was thought that the function of the calcium was to neutralize the acidity of the soil and improve its character, leaving out this factor of absorption which was quite as important in plant nutrition. Plants were grown in solutions of distilled water containing different calcium salts which led to the discovery that certain groups of calcium salts were more readily absorbed than others. The sulphate, carbonate, chloride, and nitrate were about equally absorbed, and some plants absorbed more of one salt than of another. The plants that absorbed calcium sulphate most readily were the sea coast plain plants. The plants which used calcium in rather moderate amounts were the acid land plants. Garden plants used other kinds of calcium salts. The question here arose as to whether the calcium demands of animals and people could be readily supplied by these plants. This was a most important question both to agriculture and to public health. It was found that if a solution of distilled water contained more than one kind of salt the plant absorbed the salts more readily than when only one salt was present. It was also evident that in the presence of calcium other salts were absorbed more readily. This fact also had an agricultural bearing. In putting different kinds of fertilizers into soils the question of their availability had not come up for consideration. He had found that in solutions that very closely approximated soil conditions the solution might rob the plant and, similarly, not only was the soil able to yield materials to the plant, but it might even abstract materials from the plant. The question of calcium-magnesium ratio which had long been a subject of discussion among those interested in plant physiology had received overemphasis. They had found little evidence that the calcium magnesium ratio was as important as some investigators had thought it to be. So long as calcium was present its ratio to the quantity of magnesion was of little significance. When mixtures of three salts were used it was found that these were nearly complete solutions for plant growth, provided calcium was present, the evidence indicating that the function of calcium was predominant, and that if other salts were present and calcium was absent the plant structure fell apart. A plant placed in magnesium sulphate solution seemed to prosper for a time but after a time it developed pathological symptoms and went to pieces with the characteristic symptoms of magnesium poisoning. This occurred in a way that suggested a cumulative action of the magnesium upon the plant, which seemed to store magnesium until it concentrated to a sufficient extent to be fatal. There had been in the past a good deal of discussion as to whether hot lime was injurious to the plant. It seemed that they had here a hint from which they might develop a positive answer to this question. In dolomite (magnesium calcium) soil which was sufficiently rich these symptoms of magnesium poisoning seemed to develop due to an accumulation of magnesium in the plant. Absorption might be defined as the process by which materials in solution got into and attached themselves to the cells of the plant. There was a difference between plant and animal cells, both in the cell wall and in the cell contents. When in a solution the contents of the cell were separated from the solution by an osmotic membrane there must be a tendency for the solution and the cell contents to come to equilibrium. One might get an idea of the behavior of the plant cell in a calcium free solution. In such a solution there was a tendency for the outer tissues of the cell to fall off and settle to the bottom of the solution. It had been found that these tissues were still living. They parted from the plant for some reason that should be explained. This subject had been investigated and it was found that the cell walls consisted of two layers over a thin wall, mostly cellulose; between these

layers was a thickened lamella belonging to both adjoining layers. This lamella was not cellulose but was a compound of calcium with pectic acid, a substance known as pectate. It had a great deal of strength and held plant tissues together. Pectic acid and magnesium formed a compound of considerable firmness but not at all as strong as the compound formed by pectic acid and calcium. If calcium was not present we had a magnesium or potassium pectate substance that readily fell to pieces. A plant in a calcium short solution would have a sloughing epidermis and a fusing out of calcium ions. One investigator had worked out the amount of calcium necessary to protect a grain of wheat. When the calcium ions began to ooze out other substances came out also, such as magnesium, sugar, and amino acids, and something far reaching happened at once. Copper sulphate had been shown to be a deadly poison readily absorbed by plants when calcium was not present; calcium very much delayed the permeability of the plant to copper sulphate. The amount of pectate in a plant increased with the age of the plant. It formed on the outside of the cell wall and seemed to come from the interior of the cell. The cell perhaps extruded the substances of which the lamella was composed in a definite order and only when they were all present was calcium pectate formed. This was probably the result of light action dealing with the substances of the cell. The speaker then drew an analogy between this function of calcium in plant life and the findings of Herbst in his study of sea-urchins. Herbst had found that when sea-urchins were deprived of calcium various types of malformation resulted and that they showed a marked tendency to fall to pieces because of lack of coherence. Another observation was that the H_2SO_4 ion seemed to prevent the absorption of other ions. Iron was of use in connection with the chlorophil function, and while its function here was not understood it was not a decisive factor in absorption in these plant studies. It seemed clear that the deeper lying aspects of this subject required further investigation. In order that such investigations into the physiochemistry of plants might be carried out there was need of an apparatus which would make more accurate measurements than any they had at present.

The Calcium Requirement in Animal Nutrition.—Professor H. C. SHERMAN, in discussing this phase of the subject, said that all the while he was listening to Professor True unfold the function of calcium in plant nutrition he had been wishing that they had the information to draw a parallel for the animal and particularly for the human organism. Speaking of only a few observations relative to the function of calcium in animal nutrition, mainly from the standpoint of gross results, it might be mentioned that Osborne and Mendel described experiments in which they fed growing rats with a ration otherwise adequate but in which they reduced to the minimum each in turn several of the inorganic constituents of the food. The outstanding result was that while the animals got along very well on small amounts of sodium, or of potassium, or of chlorine, they required very considerable amounts of calcium and of phosphorus. With reduced amounts of calcium the growth stopped more quickly in some than in others. Aron and Sebauer made somewhat similar experiments on dogs and found that when calcium was withheld from the diet some of the dogs stopped growing, while one dog grew as well as the control. Aron and Sebauer made a chemical analysis of the bones of dogs fed on a calcium-poor diet and found that they contained less mineral matter than the bones of control dogs. Van Gieson was interested in the effect of a calcium-poor diet on tuberculosis. He found a much greater resistance in the dogs having a calcium-rich diet, and a low resistance and great susceptibility in the dogs having a calcium-poor diet. It was altogether probable that these instances and many others in which results had been attributed to a deficiency in the mineral elements were more or less influenced by a deficiency in vitamines as well. Van Gieson's diet poor in calcium must have been poor also in the fat soluble vitamine. Mendel had spoken of the fact that animals on a calcium-poor diet maintained their nitrogen equilibrium and showed no effect due to the loss of lime for a long time, but then they suddenly underwent collapse. McCollum also had pointed out from his experiments that a ration consisting largely of seeds was deficient not only in calcium but also in sodium and chlorine and in the fat soluble vitamines. This deficiency might be remedied by the addition of the leaves of plants, milk and eggs which afforded protection against a diet consisting of seeds, while meats, fats, or sweets never made up the deficiency. Diets deficient in calcium as well as in fat soluble vitamine were believed to be relatively common, and such nutritional deficiencies might be important factors in susceptibility to infection. From the practical standpoint of human nutrition they had been interested in the question as to whether in the typical American diet there was any appreciable danger of calcium deficiency. A comparative study had been made of the diets of over 200 families, covering definitely the food intake and the results compared with about 100 laboratory experiments upon the requirements for normal calcium equilibrium. On comparing the two sets of data it appeared that about 16 per cent. of typical American diets were distinctly deficient in calcium. Some of these individuals did not get enough food. Figuring on a basis of 3,000 calories a day as a normal intake it seemed that about 7 per cent., or one in 14, were getting a diet deficient in calcium. The question came up whether this deficiency in calcium could be made up in the drinking water. He thought that in general we could not trust the water to do more than replace the calcium lost in the process of cooking. If the calcium deficiency, which was perhaps the commonest deficiency in the American diet, were the sole deficiency it could be remedied by the simple addition of calcium salts but it seemed that the calcium deficiency was not the only deficiency. A series of experiments were made to study the effects of successive additions of salts to a basal ration of patent flour which showed that while this flour was particularly deficient in calcium it was also deficient in other mineral salts which were necessary in order that the calcium might be assimilated. It would not be safe to rely upon the addition of calcium alone to a diet, but we should encourage the more liberal use of foods such as milk and vegetables containing the other mineral salts and which possessed an all-around well-balanced mineral content and were important for their vitamines as well.

Dr. ALFRED F. HESS said it was impossible for one interested mainly in clinical medicine to discuss this admirable paper on plant physiology. As was well known all crops suffered from lack of calcium and this in turn had been proven by recent experiments to have its effect on animals. Dr. Hess referred to a recent report from the Wisconsin Laboratory by Hart, Steinbart and others who had performed the experiment of arranging the diets of cows so that they merely lacked calcium. As a result the calves were all premature, still-born or weakly, though all the other requirements of diet were fulfilled. Forbes of the Ohio Agricultural Station had shown that cows producing milk on a winter ration did not maintain a calcium balance. These experiments showed how important it was that the calcium requirement be fulfilled in the diets of animals. Dr. Hess said that he suspected that the diet of human beings was often deficient in calcium. We obtained our calcium from milk, eggs and vegetables and it was peculiar that some people ate very sparingly of vegetables and took very little milk, and consequently their diet was low in calcium. A number of such cases had been brought to his attention. This had been particularly true during the past few years of the peoples of Central Europe. The lack of phosphoric acid was still more common owing to the fact that they had been deprived of eggs, milk, cheese and meat. When there was a lack of calcium in the diet there might be no symptoms whatever, but among the early symptoms were little petechial hemorrhages and edema about the ankles. He had wondered as he listened to the paper whether this could be due to a phenomenon something like that described by Professor True in plants where there was a lack of calcium pectate; whether it might be due to a lack of calcium in the walls of the lymphatics which permitted exudation. Dr. Hess said he wished Dr. Sherman would

tell them what he believed was the role of the vitamines in calcium metabolism, and whether he was in agreement with the theory commonly accepted and brought forward by Mellanby, who found that the laying down of bone in dogs was associated not only with calcium in the diet but also with a vitamine. The remarks of Professor True had a close application to human pathology, and especially to rickets, which was so closely associated with the calcium problem, and to the relation of anions to the cations. He thought these were involved in the occurrence of rickets and that this work showed how impossible it would be to solve the problem of rickets from mere clinical observations.

Dr. GEORGE B. WALLACE stated that there were some interesting analogies between the facts Professor True had brought out and certain facts in animal physiology. Thus it had been shown that exudates and transudates in serous membranes could be prevented by previous administration of calcium. It was assumed from this that the chief factor in transudation and exudation was a deficiency of calcium in the vessel walls. There was a close analogy again in intestinal absorption. If the absorption of various salts was studied, it was found that one group, such as chlorides, bromides, iodides, was easily absorbed. The members of this group all formed soluble calcium salts. Another group, sulphates, tartrates, oxalates, etc., were absorbed with difficulty. The members of this group formed insoluble calcium salts. The explanation of the lack of absorption was that the calcium in the intestinal wall was precipitated, and permeability was checked as a result. Again, in line with Professor True's experiments, it was possible to induce general anesthesia in animals by giving magnesium nitrate by stomach, but not by giving magnesium sulphate.

Dr. TWEEDELL stated that he had been trying various solutions of calcium intravenously. Max Kahn said that the calcium inorganic salts were not absorbed but lately he had been using organic compounds of calcium which were very readily absorbed. These were the substances usually thrown away, the egg shells. We used the raw egg or boiled egg and threw away the shell. He found that the calcium of the shell was more readily absorbed than any of the calcium salts he knew of. He had noticed that wounds in patients with tuberculosis did not heal unless a large amount of calcium was given. Finding that calcium was a necessity for the healing of wounds he had tried to find a territory where there was no calcium and he finally learned that on the Island of Aden there was practically no calcium, that the only water they had to drink there was distilled water, and there was no vegetation, all their foods being imported. Just as he was writing to make inquiries about this island he met a merchant, recently returned, who told him that wounds did not heal in that locality and that when any one was wounded he was sent away from the island.

Dr. SHERMAN, in reply to Dr. Hess' question as to the relation of the fat soluble vitamine to the assimilation of calcium, said he had great respect for the fat soluble vitamine and believed it very important but thought it had no specific relation to the development of bone as the English work had indicated. In their little animals bone formation went on when they were receiving no fat soluble vitamine, but one always had to take into consideration the fact that we did not know the amount of fat soluble vitamine stored up in the body, which was more variable than had been recognized in experimental work.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

CONNECTICUT MEDICAL EXAMINING BOARD.

November 9 and 10, 1920.

(*Continued from vol.* xcix, *p.* 989.)

HYGIENE AND MEDICAL CHEMISTRY.

1. What are the chemical changes which occur in protein, fat, and carbohydrate constituents of food as they pass through the body?

2. What is the chemistry of the red blood corpuscle?

3. Where in the body is glycogen found? What is its origin and ultimate disposition?

4. (*a*) Give a method for determining the presence of free hydrochloric acid in the stomach contents. (*b*) Quantitative estimation?

5. Give chemical tests for acetone and diacetic acid in urine.

6. Describe sea-port prophylaxis against bubonic plague.

7. Discuss prophylactic methods for control of diphtheria, including the various ways of inducing and estimating immunity to the disease.

8. Describe a sanitary dairy.

9. Describe the acceptable methods for hospital ventilation.

10. Give the required cubic air space for hospital wards for children, infants, and adults.

PRACTICE, PATHOLOGY, AND DIAGNOSIS.

1. and 2. (a) What physical signs would you expect to find in a case of left sided interlobar empyema in which the fluid (about 250 c.c.) lies mostly anterior to the mid-axillary line?

(*b*) What is the usual history of onset, the symptomatology, and the course of the disease?

(*c*) Discuss the differential diagnosis and treatment.

(*d*) At what stage would you advise thoracotomy?

3. Describe the symptoms and physical signs referable to the abdomen in some cases of spondylitis.

4. What are the important points in the differential diagnosis of ascites and a large ovarian cyst?

5. How would you treat a small, slightly indurated ulcer of the glans penis of two weeks duration?

6. In a six months old baby on a modified milk mixture, what are the characteristic symptoms and signs of (*a*) an excess of fat in the diet, and (*b*) an excess of carbohydrate?

8. Briefly define three of the following: petechiæ, pyuria choked disc, Babinski's sign.

9. and 10. Mrs. K, age 36, white, is a native of Connecticut, where she has lived on a farm all her life. She was admitted to the hospital in July and gave the following history: *Chief complaint.* Pain, which she has had at intervals for six years, in lower part of abdomen.

Present Illness. Four days ago she had cramps in the lower part of the abdomen. These she describes as tearing in character. They were accompanied by pains in the arms and legs. She had a similar attack five weeks ago and another five weeks prior to that. At the beginning of each attack she vomits, is able to retain very little food, the bowels are constipated, and she is forced in a few days to take her bed. At this time the abdomen and extremities are so tender that she suffers even from the pressure of the bed clothes. Th first attack occurred six years ago and lasted about ten days; since then these attacks have come on at increasingly shorter intervals, till now they occur about every five or six weeks. She has twice been operated upon in one of these attacks, each time without relief, once for supposed appendicitis and once for intestinal obstruction. The attacks she says are not accompanied by fever do not follow an indicretion in diet, and are not related to menstruation. Between the attacks except for constitpation the patient's health is good. She has, however, had occasional pains in her arms and legs for several years, during which time she has had increasing difficulty in extending the hands.

Past History. Has had usual children's diseases including diphtheria; no other infections or constitutional diseases except that she has always been rather nervous and easily excited. Has had no headaches or disturbances of vision, no symptoms referable to ears, cardiorespiratory, or genito-urinary systems. Habits are good.

Family History. Father died of an accident, mother of "heart failure," one sister of tuberculosis. Husband is living and well. Four years ago she had a miscarriage at four months; except for this she has never been pregnant.

Physical Examination. A poorly nourished, rather pale and nervous woman who looks ill. Skin is clear. There is a slight diffuse enlargement of the thyroid

gland. No exophthalmos. Pupils are large, equal, and react sluggishly to light and accommodation. The tongue is slightly coated, the teeth in fair condition, and the pharynx normal. Lungs normal. Heart normal except for tachycardia. (Pulse 120, regular.) Abdomen not distended, no definite tender areas on deep pressure but considerable diffuse muscle spasm throughout and marked hyperthesia in the hypogastrium on both sides. Scars of former operations in good condition. Vaginal examination negative. Extremities: There is slight tremor of the fingers and all the reflexes are exaggerated, especially those of the lower extremity. There is a definite bilateral patellar and ankle clonus. (This clonus disappeared in two days.) There is some weakness in the handgrasp on both sides and inability to completely extend the hands. Babinski's and Kernig's signs absent. Spine negative. Pulse 120 to 86. Blood pressure S. 158, D. 90. Temperature normal. Urine, 1,300 c.c. in 24 hours, clear amber, acid, sp. g. 1012, very slight trace of albumen, no sugar. Microscopic, few uric acid crystals, rare hyaline cast. Hgb. 70 per cent. R. B. C. 4, 400,000. W. B. C. 6,200.

Discuss the diagnosis. What further data do you wish in order to make your diagnosis more certain?

ANSWERS.

HYGIENE AND MEDICAL CHEMISTRY.

1. *Proteids* are digested in the stomach (by the pepsin of the gastric juice) and in the small intestine (by the trypsin of the pancreatic juice).

During digestion the proteids are split up into proteoses, peptones, polypeptides and amino-acids. The amino-acids are believed to be taken as such by the epithelial cells and carried to the blood of the portal capillaries. Another view is that in the intestinal epithelium the amino-acids are built up again into proteins such as are found in the blood. There are three theories of the further history of the proteids. According to one of them (the theory of Voit), "the protein of the tissues, living or organized protein, is to be differentiated from the absorbed circulating protein. It is only in this circulating protein, which is assumed to be present in the fluids of the body, the blood, and lymph, that catabolic changes take place. These changes take place under the influence of the living cells. The more resistant organized protein is not supposed to undergo catabolic changes. If any of it does, it is cast off into the fluids of the body, and thus becomes circulating protein, undergoing catabolic changes in precisely the same manner. It is obvious that a small part of the absorbed protein must be utilized to replace the waste of the organized protein and to subserve the process of growth. This portion is termed tissue protein."

Absorption of Proteins.—"The view previously held with regard to the absorption of protein was that during digestion protein was finally converted into peptone, and the peptone so produced was absorbed by the columnar cells over the villi, and built up again by these cells into serum albumin and serum globulin, the chief proteins of the blood plasma. The view generally accepted now is that protein is completely hydrolyzed into the cleavage products known as amino-acids in the intestine; and it is these amino-acids which, being smaller molecules than the original protein, readily pass through the striated free border of the columnar cells over the villi and so get into the protoplasm of these cells. Here a synthesis takes place, and some simple and aromatic amino-acids are converted by the columnar cells into serum albumin and serum globulin, the native proteins, and this protein is conveyed to the tissues."

Digestion of Fats.—In the stomach the gastric juice dissolves the connective tissue binding the fat cells together, and sets free the fat, which passes into the duodenum. Here the steapsin of the pancreatic juice (aided by the secretin) splits up the fats into glycerin and fatty acids.

Absorption of Fat.—"Fat is not absorbed as fat, but as glycerin and fatty acid or soap. It is generally accepted that the fatty acid set free in the intestine is dissolved by the bile salts, and in this way, together with the glycerin, is absorbed by the columnar cells, but that during absorption a lipase which is contained in the columnar cells resynthesizes, by reverse action, the glycerin and fatty acid. In this way minute fat particles are found near the bases of the columnar cells. The fat globules are further taken up from the columnar cells by some of the lymphocytes, which are capable of exhibiting ameboid movements, and which are found in the lymphoid tissue between the columnar cells and the central lacteal. The fat is then deposited in the central lacteal by these ameboid cells, and in this way it gets into the general lacteal stream, and thence into the thoracic duct. The bile salts, which have been absorbed by the columnar cells, in all probability get into the portal vein radical, and in this way are taken back to the liver to be excreted again in the bile."

Absorption of Carbohydrate.—"During digestion the greater part of the carbohydrate of the food is converted into the glucoses. These are comparatively small molecules which are readily dissolved, and easily passed through the columnar cells into the portal vein radical which lies beneath. It is possible that some maltose may be absorbed by the columnar cells, and that during its passage through those cells it is converted into dextrose before it enters the portal vein radicals. It is possible that in these columnar epithelial cells the glucose, which is being absorbed, is linked to the cell protein, and that, farther down the cells, this loosely combined substance is split into two, the dextrose passing into the portal vein radical and the protein molecule remaining intact in the columnar cells and ready to combine with fresh glucoses to be passed through the cells. A small portion of the dextrose, which is carried to the liver, goes on unchanged to the tissues to be assimilated, but the greater portion of the absorbed glucose on arriving at the liver is stored there by the liver cells as glycogen." (Lyle's *Manual of Physiology.*)

2. *Chemistry of the Red Blood Corpuscle.*—The red blood corpuscle contains from 60 to 65 per cent. of water and from 35 to 40 per cent. of solids. The latter consists of hemoglobin (which is the chief ingredient), protein, cholesterin, lecithin, and inorganic salts of potassium and sodium. The hemoglobin is the carrier of oxygen from the lungs to the tissues; it contains iron, and its molecule is very large and complex, with a high molecular weight. The oxygen is in very light chemical union with the hemoglobin, so as to be the more readily given up to the tissues; the hemoglobin thus deprived of its oxygen is called reduced hemoglobin. When it is charged with oxygen it is sometimes called oxyhemoglobin. The coloring matter is called hematin. There are compounds and derivatives of hemoglobin.

3. *Glycogen is found* in the body in the liver cells, in muscle tissue (including the heart), in the white blood corpuscles, and in the placenta.

Glycogen is chiefly *formed* from the carbohydrates. The liver cells act upon the dextrose into which the carbohydrates have been converted by the action of the ptyalin and amylopsin of the digestive juices. This *may* occur by a simple process of dehydration:

$$C_6H_{12}O_6 - H_2O = C_6H_{10}O_5$$

But the precise process by which it occurs in the liver cells is not known. At a subsequent period the glycogen is transformed into dextrose and is returned to the circulation. Hence the blood of the hepatic veins contains more sugar than the blood of the arteries, and these latter more than the blood in the veins (except the hepatic). This is the generally accepted view, but it is denied by Pavy, and the whole subject is in a state of uncertainty.

The *function of glycogen* is to form a temporary reserve supply of carbohydrate material that is stored up in the liver during digestion, and made use of between meals; at the same time the percentage of sugar in the systemic blood is kept nearly constant.

4. (a) *To determine the presence of free hydrochloric acid in the stomach content:* Dimethyl-amido-azobenzene forms a yellow solution which turns red with free mineral acids. Delicacy = 02 p/m HCl. This and other similar tests are applied by simply mixing a few drops of the indicator with a like quantity of the contents.

(b) *Quantitative estimation: "Töpfer's Method.*—Three samples of 10 c.c. each are separately titrated with N/10 NaHO solution; in (1) using phenolphthalein as an indicator, and carrying the addition of alkali to

a distinct red, not to faint pink, as is usual. This gives the total acidity (A), made up of free HCl (L), protein HCl (C), and organic acids and salts (O). In (2) alizarin is used as an indicator, to pure violet. This gives the acidity due to (L + O), and, therefore, the result of (2), subtracted from that of (1), leaves the value of (C) = protein HCl. In the third sample (3) dimethyl-amido-azobenzene is used as an indicator to yellow. This gives the value of (L) alone, *i.e.* free hydrochloric acid. If the value of (O) be desired, it may be obtained by subtracting the result of (3) from that of (2). In each of the above titrations the number of c.c. of alkaline solution used, multiplied by 0.0365, gives the result, expressed in percentage of HCl." (Witthaus' *Manual of Chemistry.*)

5. *Chemical test for acetone in the urine:* "*Legal's test* for its detection consists in the addition of a few drops of a strong solution of sodium nitroprusside to about 4 c.c. of urine which has been previously rendered alkaline by potassium hydroxide solution. In the presence of acetone a red color is produced, which turns purple on the addition of acetic acid."

Chemical test for diacetic acid in the urine: "To detect its presence the urine should be boiled with a solution of ferric chloride, and if diacetic acid is present, a Burgundy-red color will be produced." (Hughes' *Practice of Medicine.*)

6. *Seaport prophylaxis against bubonic plague:* "Passengers and crew from plague-infected ports are carefully inspected at quarantine. . . . The period of detention is seven days. The sick are isolated in the hospital and the remainder segregated in small groups. All persons exposed to the infection are bathed and their body clothing disinfected. Rats and fleas on the vessels must be killed and burned. The destruction of rats on a ship requires special knowledge and care, else many rats escape. Sulphur fumes generated by the pot method remain the cheapest, simplest, and best method yet proposed for this purpose. . . . A survey of the ship from stem to stern, from pilot-house to bilge, should be made in order that the disinfector may know its peculiarities of construction, the location of apartments, the condition of doors, ports and ventilators. Before the sulphur pots are lighted, dunnage must be piled up or slung two feet from the floor. . . . The engine-room sometimes needs treatment, and all engine-room lockers should be freely opened. Forecastle lockers, the forepeak with small manhole hatch, and its two or three lower compartments, usually stored with ropes and canvas, are favorite refuges for rats. The galley, pantry, and storerooms must not be neglected. . . . Rats are sometimes found in the dining saloon, social hall, lifeboats, rafts, the bilges, vegetable bins, refrigerating plants, and even in the casings over the steering gear. All out-of-the-way places must be carefully scrutinized after fumigation for live, dead, or dazed rats. Special precautions must be taken to prevent the escape of rats. Vessels should be anchored at sufficient distance from shore to discourage rats swimming to the land. If the vessel ties up to the dock the hawsers must be guarded with balls of tar or special traps in order to stop rats reaching the shore along these lines. Gangplanks must be taken in before dark, and searchlights will help to deter rats from leaving the ship. Nothing should be thrown overboard. . . . A plague-infected ship is given a simultaneous disinfection and the cargo is removed by a special procedure. After sulphuring, the cargo is removed piece by piece to lighters, each article being examined as it swings overboard for rat nests. This work goes on during the day, while the empty cargo spaces are fumigated with sulphur during the night." (From Rosenau's *Preventive Medicine.*)

7. *Prophylactic methods for the control of diphtheria:* This is difficult, but the following points should be tried: (1) Determination of carriers and, where possible, their isolation; (2) the application of Schick's test to all contacts and children; (3) the immunization of all susceptibles by toxin-antitoxin inoculation; (4) early recognition of the disease; (5) isolation until two or more cultures from nose and throat, at 24-hour intervals, are negative.

The Schick test is performed as follows: One-fiftieth of the minimum lethal dose of diphtheria toxin for a guinea pig is diluted to make 0.1 c.c. of fluid; this is injected intracutaneously. If there is at the site of the injection a local reaction or inflammatory area at the end of 24 hours, the subject is susceptible; if there is no such reaction, the subject is insusceptible.

8. A SANITARY DAIRY. The following items, taken from the rules of the Indiana State Board of Health, give, by implication, an idea of a sanitary dairy: "(1) No building shall be used for stabling cows for dairy purposes which is not properly constructed, well lighted, well ventilated, and provided with a suitable solid floor of plank, cement, or other impervious material that can be readily cleaned, and laid with proper grades and channels to carry off all drainage. (2) No water-closet, privy, cesspool, urinal, inhabited room, or work shop shall be located within any building or room for stabling cows, or for the storage of milk or milk products; nor shall any fowl, hog, horse, sheep, goat or other animal be kept in any room used for milking or for storing milk or milk products. (3) All rooms and stables in which cows are milked shall be thoroughly clean and in good repair, and shall be painted or whitewashed once each year. (4) All manure shall be removed daily from the room or stable in which cows are milked, and shall not be stored where odors from the same will be noticeable at the stable or milk room. (5) All persons keeping cows for the production of milk for sale shall cause each cow to be kept clean and groomed. (6) Each person using any premise for keeping cows shall cause the yard or pasture in connection therewith to be provided with a proper receptacle for drinking for such cows, and none but fresh, clean, pure water shall be stored in such receptacle. (7) Any inclosure in which cows are kept shall be graded and drained so as to keep the surface reasonably dry and to prevent the accumulation of water therein, and no garbage, urine, fecal matter, or similar substances shall be placed or allowed to remain in such inclosure, and no open drain shall be allowed to run through it. (8) All milk shall be removed, as soon as drawn, from the stable to the milk room. The milk room shall be separate from the stable in which the cows are kept, and shall not be used as a living or sleeping room, but shall serve for the handling and keeping of milk and cream exclusively. It shall be sanitary in construction, properly screened, supplied with proper ventilation, light, and pure water, and suitable facilities for straining, cooling, and storing milk or milk products, and for washing and sterilizing all utensils and apparatus in which milk is removed, stored, and delivered. (9) All utensils used for the reception, storage, or delivering of milk or cream shall be made of glass, stoneware, glazed metal, or tinplate free from rust and of sanitary construction. (10) All cans, pails, strainers, coolers, dippers, separators, bottles, churns, butter workers, and other dairy utensils shall be cleansed from all remnants of milk and scalded with boiling water or live steam after each use." (From Gardner and Simond's *Practical Sanitation.*)

9. *Acceptable methods for hospital ventilation* are: (1) *Natural ventilation*, which is best accomplished by having the wards built with windows on two sides (opposite to each other); these windows should be made to open at the top, they should extend from three feet from the floor to six inches from the ceiling. Ventilators in the ceiling are helpful. (2) *Artificial ventilation*, which requires special apparatus and special attention and care; the air has to be drawn in and pumped out; it should be warmed before it is admitted to the wards; it is liable to get out of order, and requires constant supervision. The incoming air may need to be filtered, or cooled, or washed. The problem of ventilation of hospitals is by no means settled; both methods have their faults and their advocates.

10. *The required cubic air space for hospital wards for children* is about 1000 cubic feet; *for infants*, about 1000 cubic feet; *for adults*, from 3000 to 4000 cubic feet.

PRACTICE, PATHOLOGY, AND DIAGNOSIS.

1. (a) *The physical signs* are very similar to those of a pleurisy with effusion; there will be absence of tactile fremitus, with dullness or flatness on percussion; local pain and tenderness; the breath sounds are distant, and are bronchial in character. Posteriorly there will be clear pulmonary resonance and normal respiratory murmur unless the primary pneumonia has in-

volved the lower lobe. The heart is pushed over to the right side; the right border is displaced outwards, and the apex is displaced inwards. Traube's semilunar space is probably clear. There will probably be a pericardial rub or a pleuro-pericardial rub. There will be a leucocytosis, and the whispered voice will not be transmitted (over the area containing pus).

(b) The *usual history* is that the condition follows a pneumonia, with an insidious onset; the temperature either does not fall or it rises again; there are symptoms of sepsis, malaise, chills, sweats, and a purulent fluid may be obtained on aspiration. The intercostal spaces may bulge. An *x*-ray should be taken to aid in the diagnosis, and care must be taken not to confound the condition with pericardial effusion or cardiac dilatation.

(c) The *differential diagnosis* is between the pneumonia, pleurisy with effusion, pericardial effusion, cardiac dilatation, and the empyema. The pneumonia will not give the displacement of the heart, the leucocytosis, or show pus on aspiration; the classic signs (such as the crepitant rale, etc.) will be present. The pleurisy with effusion will not give rise of temperature, evidences of pus, and aspiration will procure serous fluid. The cardiac conditions will show negative pulmonary signs. The *treatment* is by aspiration and drainage, or by resection of parts of one or more ribs, with drainage.

(d) *Thoractomy* should be undertaken about a week or ten days after the pneumonia has resolved (presumably), so as to allow for the formation of antibodies. But it may be necessary to operate earlier.

3. *The abdominal signs and symptoms in spondylitis* are: Pain and tenderness in pit of stomach, with a feeling of constriction; "bilateral belly-ache"; hyperesthesia, with weakness and atrophy of the abdominal muscles.

4.

ASCITES.	OVARIAN CYST.
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovariana. Anemia absent, or later.
4. Patient on back, enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change.
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dullness in lowest parts for all positions—*i.e.* areas of resonance and dullness change with position.	8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter.

—(From Dudley's *Gynecology.*)

5. Assuming that the lesion is a *chancre*, it should be kept clean, protected, covered with a small amount of a 33 per cent. calomel ointment applied twice a day for about a week, and protective gauze. Excision or cauterization is not recommended.

6. *Excess of fat in the diet* produces gastro-intestinal disturbances, vomiting, and diarrhea.

Excess of carbohydrate in the diet produces an appearance of plumpness, but the muscles are flabby, the skin is pale, and the bones are inclined to be rickety; griping and diarrhea may be present.

8. *Petechiæ* are small spots in the skin, due to effusion of blood.

Pyuria is the condition in which the patient voids urine containing pus.

Choked disc is a papillitis with serous infiltration; it can be recognized only by the ophthalmoscope.

Babinski's sign is a lessened or absent Achilles tendon reflex in sciatica which is not hysterical; also, extension of the toes (instead of flexion) on tickling the sole of the foot.

9 and 10. With such a very unsatisfactory history no competent person would venture on a diagnosis. Among the possibilities are hyperthyroidism, lead poisoning, hysteria. Before a diagnosis is even thought of a proper history should be presented.

(*To be concluded.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM. By DR. MURK JANSEN. 82 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

ORTHOPÆDIC SURGERY OF INJURIES. Volumes 1 and 2. Edited by SIR ROBERT JONES, M.D. 1232 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

PATHOLOGISCHE ANATOMIE. By LUDWIG ASCHAFF. 590 pages with illustrations. Published by Johann Ambrosius Barth, Leipzig.

A PRIMER FOR DIABETIC PATIENTS. By RUSSELL M. WILDER, M.D. 76 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

UEBER DIE ENTWICKLUNG UND DEN AUSBAU DER SUPRASYMPHYSÄREN SCHNITTENTBINDUNG AN DER UNIVERSITÄTS-FRAUENKLINIK TÜBINGEN. By DR. EMIL VOGT. 115 pages with eight illustrations. Published by S. Karger, Berlin.

THE PRINCIPLES OF THERAPEUTICS. By OLIVER T. OSBORNE, M.D. 881 pages. Published by W. B. Saunders Company, Philadelphia.

THE PRINCIPLES OF HYGIENE. By D. H. BERGEY, M.D. 556 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

DIE THERAPIE DER PLACENTA PRÆVIA By PROFESSOR DR. F. HITSCHMANN. 172 pages. Published by S. Karger, Berlin.

LE FORAGE DE LA PROSTATE. By DR. LOUIS ESCANDE. 102 pages with illustrations. S. A. des Etablissements d'Imprimerie A. Hervelin, Mulhouse.

PRÉCIS DE RACHIANESTHÉSIE GÉNÉRALE. Par G. LE FILLIATRE, M.D. 125 pages with illustrations. Published by Librairie E. Le Francois, Paris.

MOTHER AND CHILD. By EDWARD P. DAVIS, M.D. 278 pages with illustrations. Published by J. B. Lippincott Co., Philadelphia.

TEETH AND HEALTH. By THOMAS J. RYAN, M.D. and EDWIN F. BOWERS, M.D. 264 pages. Published by G. P. Putnam's Sons, New York.

CORNELL UNIVERSITY MEDICAL BULLETIN. Volume X. Number 4. April, 1921. 525 pages with illustrations. Published by Cornell University, New York City.

THE EXTRA PHARMACOPŒIA. Revised by W. H. MARTINDALE, M.D., and W. W. WESTCOTT, M.D. 688 pages. Published by H. K. Lewis & Company, Ltd., London.

Miscellany.

A GLIMPSE OF CHINESE MEDICINE OF THE MIDDLE AGES.

By M. FORD MORRIS, Jr., M.D.,

ATLANTA, GA.

JUNIOR VISITING PHYSICIAN TO THE GEORGIA BAPTIST HOSPITAL; VISITING PHYSICIAN TO THE ANTI-TUBERCULOSIS ASSOCIATION; INSTRUCTOR IN MEDICINE IN THE SCHOOL OF MEDICINE OF EMORY UNIVERSITY.

But wherefore seek immortal life by means of wondrous pills?
Noise it not in the market-place, nor quiet on the hills.
The secret of perpetual youth is already known to me:
Accept with philosophic calm whatever fate may be.
—MA-TZU-JAN.

ALTHOUGH the Chinese were shut in for centuries by the never-ending walls which mark the boundaries of this Mongolian kingdom, and so had nothing of our Western civilization, they had a high degree of civilization of their own, and led the West in many directions. Their leadership was not confined to any particular line of endeavor. As we are especially interested in their practice of medicine, we shall confine our researches to that subject. In reviewing the Chinese literature from B. C. 2357 to A. D. 1848, we find several incidents of interest. About A. D. 1200, a judge named Sung Tz'u published a curious book on Medical Jurisprudence which is still much in use. After twenty-six years of unremitting labor, Li Shih-Chen completed, in 1578, his great Materia Medica. More interesting than these, however, is one Dr. Hua.

This famous Chinaman will be remembered for the reason that he was doing major surgery under anesthesia long before painless operations had been dreamed of in other lands. This is, indeed, a remarkable fact, occurring as it did in the latter part of the thirteenth century. In the account of this wonderful man are related facts which some of us supposed were of comparatively recent discovery. But for a sad experience which an emperor had with Hua, the doings of this Mongolian physician might never have been set down.

Being a great general, Ts'ao Ts'ao became in time an emperor. One day he attempted to cut down a pear tree. The spirit of the pear tree struck him so violently on the head with a sword that the resulting wound was a source of much agony. One of the minor officers recommended a certain skillful physician. This man told his ruler that Hua's administration of drugs and his use of acupuncture and counter-irritants were always followed by a speedy recovery of the patient; that, if the sick man was suffering from some internal trouble, of which medicines produced no relief, then Dr. Hua would administer a dose of hashish, under the influence of which the patient would become intoxicated as by wine. "Then," continued the advisor, "he takes a sharp knife and opens the abdomen, washes the patient's viscera with medicinal liquid, sews up the wound with medicated thread, and puts over the incision a plaster—all without the slightest pain; and by the end of a month or twenty days the place heals up."

The narrator then relates several incidents to show Dr. Hua's extraordinary skill. If the reader is skeptical regarding the following facts, he may verify the translation from the original Chinese:

One day, for instance, as he was walking along a road, he heard someone groaning deeply, and at once declared that the cause was indigestion. On inquiry, this turned out to be the case; and accordingly Dr. Hua ordered the sufferer to drink three pints of a decoction of garlic and leeks, which he did, and vomited forth a snake between two and three feet in length, after which he could digest food as before. On another occasion, the Governor of Kuang-Ling was very much depressed in his mind, besides being troubled with a flushing of the face and a total loss of appetite. He consulted Dr. Hua, and the effect of some medicine administered by him was to cause the invalid to throw up a quantity of red-headed wriggling tadpoles, which the doctor told him had been generated in his system by too great indulgence in fish and which, although temporarily expelled, would reappear after an interval of three years when nothing could save him. And sure enough, he died three years afterwards. In a further instance, a man had a tumor growing between his eyebrows, the itching of which was insupportable. When Dr. Hua saw it, he said, "There is a bird inside," at which everybody laughed. However, he took a knife and opened the tumor and out flew a canary, the patient beginning to recover from that hour. Again, another man had his toes bitten by a mad dog, the consequences being that two lumps of flesh grew up from the wound, one of which was very painful while the other itched unbearably. "There are ten needles," said Dr. Hua, "in one sore lump, and two black and white weichi pips in the other." No one believed this until Dr. Hua opened them with a knife and showed that it was so.

At this point of the narration Ts'ao Ts'ao sent away messengers who traveled night and day and brought Dr. Hua before him. The emperor held out his wrist and asked the physician to take his pulse and diagnose his case.

"The pain in Your Highness' head," said this Chinese man of medicine, "arises from a wind, and the seat of the disease is the brain, where the wind is collected, unable to get out. Drugs are of no avail in your present condition, for which there is but one remedy. You must first swallow a dose of hashish and then, with a sharp axe, I will split open the back of your head and let the wind out. Thus the disease will be exterminated."

Ts'ao Ts'ao flew into a great rage and declared that it was a plot aimed at his life. To which the Oriental surgeon replied: "Has not Your Highness heard of Kuan Yu's wound in the right shoulder? I scraped the bone and removed the poison from him without a single fear on his part. Your Highness' disease is but a trifling affair; why, then, so much suspicion?"

The emperor did not consider the disease or the cure the least bit trifling. And being enraged at that which he thought was an attempt to kill him, he ordered the doctor to be seized and cast into prison, where the unfortunate and innocent man soon died. Before very long, too, Ts'ao Ts'ao himself succumbed.

Both died, when each might have saved the other. A tragic and untimely end was Dr. Hua's. No stone marks the final resting place of the body of such a man. His grave may be high up in the mountains, where the only friends of his earthly house are frozen ground and snow, with the cutting wind overhead wailing its mournful requiem. His bones may lie in some sunny river

valley where the sad twilight lullabys of the blowing fields of rice and the heavy odor of countless water lilies are the lone companions of that eternal night.

CANTLIE BUILDING.

SOME CHANGES.

WHO recalls the Society Meetings at the Old Academy of Medicine of the New York County Medical Association? Do you remember those days in 1892-93-94, etc.? I am referring to the days when McLeod was President and P. Brynberg Porter was Secretary; to the days when Sayre, the great father of orthopedics, attended the meetings and discussed our papers vigorously, but when the scientific order of business was over he then entered into the convivial section of the meeting very earnestly and enchanted his associate fellows with his ever jovial and entertaining personality. Yes! those were the days when George Tucker Harrison, while in scientific session, told us how to handle a prolapsed cord, but during the social period how the Yankees freed the horses in the South. Yes! To the days when singing was still permitted, and many was the time when an impromptu "Glee Club" rendered selections which would never pass modern censorship.

You know I am referring to the days when all the Fellows were good fellows, whether the leaders in the profession of their day or the young man just starting a career. A fraternity existed, a professional and social unorganized association of gentlemen, basing their code of ethics, not upon any legislative enactment, but upon the teachings they received while sitting on their mothers' knees.

I ask, why have these medicosocial societies gone? Some of my intimate friends tell me they think it's prohibition. Then, I ask, why should prohibition have such an effect? I am told without a moderate amount of stimulation the best in man may remain dormant. And then they attempt to prove this assertion by calling to mind Shakespeare, Shelly, Burns, Keating, Scott, Longfellow, Dickens, Henry Clay, Daniel Webster and some others whose names I have forgotten, with the exception of our great American, Teddy Roosevelt.

When I observe things as they were, and as they are, I fail to see where, in the law of average and equity, there has been anything gained thus far.

E. STYLES POTTER, M.D.

150 WEST FORTY-SEVENTH STREET,
NEW YORK.

The Bubonic Plague in Paris in 1920.—The existence of the plague in Paris during 1920, which was at first carefully concealed, is now freely admitted; and the medical press has published several accounts of it. One of these by Rathery appeared in the *Journal de médecine et de chirurgie pratiques* early in the year. The first case was reported secretly to the Société médicale des hôpitaux on June 25, 1920. Cultures of the bacillus of Yersin had been obtained from the body of an infant dead of some obscure malady Mlle. Pfeffel, who was one of the bacteriologists, was also quite certain that she had obtained a similar find in another child dead in December, 1917; so that if she was right the disease may have lurked in Paris for three years. Nor was this the only old case. But in such isolated episodes the bacteriologists were not entirely sure of their diagnoses, and it is, moreover, certain that epidemics did not follow, although apparently no preventive measures were then inaugurated.

No new case came to light until August 3, 1920, when a patient entered the Tenon Hospital in Rathery's service. This woman, aged 24, was accompanied by a sick baby and both were found to have severe septic phenomena with some cervical adenopathy. But the gastroenteric tract bore the brunt of the symptoms, there being profuse fetid diarrhea with vomiting. The infant died and hemoculture showed only the pneumococcus. In the meantime the husband of the woman became severely ill and presented inguinal adenopathy, while three other members of the family died soon after, having been stricken with the same disease. The husband having succumbed, his blood was found to contain the *B. pestis*. The blood of the wife contained both the *B. pestis* and the pneumococcus. Without further details, the author states that the entire number attacked by the plague to the date of the report was 18, with 8 deaths; this refers to the one group of cases, without reference to earlier isolated examples of infection.

In addition to this group, other scattered foci have since appeared. The number of cases per focus has been 4, 6, 10, and upward. These foci, while scattered widely, show some tendency to concentration in certain quarters. Each focus was stamped out by the usual measures, and in a short time the city was free, while it became a simple matter to trace the contagion backward.

The number of symptoms was bewildering, and, in addition to the classical ones, others are mentioned as of common occurrence. Purpura and various rashes are enumerated, with mastitis and parotitis. The conditions most closely simulated were typhoid fever and ordinary sepsis. Pneumonia is hardly mentioned. Of great interest was the occurrence of walking cases for the author believes that an ambulatory abortive form is common. There may be adenopathy, with a little fever or none at all. These people went about their business as usual, but some of them went to surgical clinics for acute suppurating glands. In general, one should be a little suspicious of such cases until they are proved innocent. Any unusually large mass of inflamed glands in the neck, armpits, or groins should be watched unless there is a sufficient cause in evidence. Serotherapy gave results in the writer's cases equal and perhaps superior to those in diphtheria.

Outcome of a Case of "Rejuvenation."—Professor Sauerbruch was consulted by an elderly man for a felon. This patient turned out to be one of the men "rejuvenated" by the Steinach-Leichtenstern operation. Before the intervention he had been sexually weak from the age of thirty-four and unable to copulate save with certain women. After the operation his potency improved but was still relative; he still had to find the special type of woman.—*Wiener klinische Wochenschrift.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 2.
Whole No. 2644.

NEW YORK, JULY 9, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

TREATMENT OF SOME FRACTURES OF THE LONG BONES, INCLUDING SOME FRACTURES OF THE PELVIS.

BY ETHAN H. SMITH, M.D.,

SAN FRANCISCO.

FIRST of all let us discuss some of the modern ideas as to the treatment of fractures. We hear much at the present day of the standardization of splints. It would seem that an effort is being made to make the treatment of fractures conform to the same mechanical rules applicable to the machine shop or wood working factory where materials are turned into newly manufactured articles, where it is possible to turn out parts by piece work according to standard patterns. New parts to repair broken ones can be made from the same patterns with great mechanical accuracy. These can be supplied by the trade throughout the entire world.

Until we can standardize human beings as to size, weight, shape, including length, breadth, and thickness; and eliminate possible complications in the way of under-development during childhood, and conditions caused by existing disease, malnutrition, old age, and many other circumstances incident to human existence at the present day, it must be readily seen how well nigh impossible it is to think of standardizing splints or anything else of a mechanical sort necessary to the treatment of fractures or deformities. Our work is repair work. We are dealing with damaged human beings, many of whom are ill formed or unsound, undeveloped or damaged by age. We cannot take the human machine all to pieces on a bench or floor and throw out positively used-up pieces and reapply new material, as can be done with inanimate materials in the shop.

We are going through a period of readjustment from the great world war. In the field and base hospitals with tens of thousands of wounded, requiring immediate care, measures had to be adopted looking to the conservation of life first of all, and the giving of immediate aid to as many wounded as possible in the limited time at hand and under such circumstances as were forced upon the surgeons through no fault of their own, but through force of circumstances ever existant in the world.

In the reconstruction hospital the great problem confronted the surgeons of salvaging from the vast amount of human wreckage, as much as possible and restoring to the unfortunate wounded as much as surgical skill could give them.

Our surgeons of the various countries involved, found it necessary to go back and review the literature on fractures and from some of the men of long ago, adopt ideas as a basis, and then, by applying modern ideas, establish a routine for the handling of fractures. Much of that routine must be abandoned, and a wide latitude given to the surgeons with greatest skill and most originality in bringing order out of the chaos of the war period. It is not going to be done by a standardization of splints. Much of our present day literature is based on the practice of surgery as it exists in large, well equipped hospitals. I have no desire to criticize the excellent work that is being done in many large hospitals in many countries. However, in a consideration of the care of fractures, we must consider the circumstances under which the general practitioner is obliged to work, in districts remote from well equipped hospitals. A goodly proportion of fractures occur in communities and under circumstances making it impossible for the patient to be cared for under ideal conditions. My own attempts to instruct are made largely in behalf of the men who must care for fractures in private homes, logging camps, and ill furnished charitable or semicharitable institutions.

We do not give sufficient consideration to the lack of manual skill on the part of those who are going to treat fractures. Students going through a medical school and after graduating, serving as interns cannot have the necessary training to make them expert in the application of the many appliances necessary for the successful treatment of fractures. Many of these students have never followed a vocation in which their hands became skilled in the manipulation of mechanical contrivances. We unload an avalanche of technical and scientific mental training on our medical students. They do not and can not have much training calculated to develop manual skill in the handling of fractures. However, this latter condition can be remedied quite materially if our instructors in surgery put themselves to the task of solving the problem.

I wish to say a few words concerning the use of plaster of Paris. Much of the plaster of Paris work of the present day is unpardonably bad. Ninety-nine out of a hundred of all pressure sores are preventable. The use of plaster of Paris has not been given careful and studious attention by the bulk of those who have been employing it. It is taken as a matter of course and the plaster is slapped on with little regard for consequences. In our endeavor to secure accurate adjustment of fractured bones, we have been led into the error of putting them up too tightly. The use of sheet wadding has become universal through habit and because it is cheap. It was never a fit material to use for splints or underneath plaster of Paris. It does not sufficiently pad

over bony prominences, mats down, wrinkles, retains moisture from perspiration, and soon becomes offensive. If there are any abrasions or wounds which may exude moisture this is retained in the damaged area and forms a very favorable culture for the development of infecting organisms. I realize from the positive assertion that I have made that I am going to arouse the antagonism and possibly the ire of some of my fellows in the profession. While I do not wish to appear unmindful of the good will of my fellows I am willing, for the sake of the patients who suffer, to be responsible without apology for the statements I have made.

Sized crinolin which is made stiff by glucose sizing is unfit for use in plaster of Paris bandages. The sizing has a deteriorating effect on the plaster, causing it to remain soggy for hours or days after it is applied. Frequently it has been found that a plaster of Paris dressing has been warped or bent after the manner of a lead pipe and a fracture which was in good position at the time of the application of the dressing will have become displaced, or partially so, from the change in the contour of the plaster. Modeling compound, commercial plaster, and flasking plaster are unfit for use in surgery. Dental impression plaster, thoroughly dry and undamaged by moisture, is the only fit plaster to use. Unsized gauze of not too fine a mesh makes an ideal bandage.

Best quality of absorbent cotton in pound rolls so as to have a good width of material carefully cut into shape by sharp scissors and smoothly applied to the part, with strips of cotton to reinforce exposed or bony prominences and bound into place by very coarse meshed gauze bandages gives the very best material which we now have, over which to apply plaster of Paris. The normal contour of the part to be covered by plaster should be approximated by the careful application of the bandage outside of the cotton. Plaster of Paris is obtainable in any community at the present time. The bandages should be freshly made from unsized gauze and good impression plaster by the surgeon or assistant, and none of the abominable commercial canned bandages should ever be used for any purpose. Do not immerse the bandages in salt water, because the impression plaster sets so quickly that it needs nothing to hasten it. Bandages should not be more than five yards in length (if the surgeon is a slow worker, three yards is better). Salt makes the dressing as brittle as glass. Cold water is uncomfortable to everybody concerned and has nothing to recommend it. If the bandages are loosely rolled and slowly dropped endwise into the water they will settle on end in the bucket and rapidly soak through. The assistant handling the bandages should keep the hands dry at all times. To have an assistant grasp a bandage by both ends, plunge it into a basin of water and imitate the playing of an accordion, thus washing all the plaster out of the bandage and then hand the wet rag to the surgeon to apply, is a sarcasm on the art of using plaster of Paris in surgery. A bucket with water deep enough to submerge any bandage set on end, should be provided.

After the Civil War, had the surgeons who had served through that period presumed to demand a standardization of splints (and they used many splints those days, as plaster of Paris had not been discovered as a dressing for fractures), we should still be doing fracture work according to the Civil War Period. Who is going to standardize splints? Who is going to presume to approve of them? Where are the specifications for their proper manufacture? Where are the shops in which they may be made? Who has any idea that they would be uniform in specification or construction, if we should all agree to use them? Standardization of hospital technique may be accomplished, and is right, providing it is occasionally revised. Standardization of splints and appliances must ever yield to progress. Some mechanical principles have been evolved in the past, that are as good today as when they were discovered, but many appliances are in the rubbish heap.

I shall now take up the treatment of the fractures of the long bones and also of the pelvis. I shall take up the pelvis first out of its order.

Fractures of the pelvis were formerly very rare. Automobile accidents have made them frequent. Before the advent of the *x*-ray many of them were never discovered. At the present time many obscure fractures of the pelvis are not diagnosed because they are not suspected and radiograms are not made.

For convenience of discussing treatment of fracture of the pelvis, these fractures may be divided into three general groups. Group I. Those fractures involving the acetabulum in which the acetabulum is driven into the pelvic cavity. Group II. Those involving the inominate bone without depressing the acetabulum and with expansive separation of the fragments. Group III. Those fractures in which neither separation of the fragments nor deformity occurs. In group I, in which there is depression of the acetabulum with the head and neck of the femur following deeply into the pelvis it is obvious that plaster of Paris should never be used. This will fix the deformity and cause malunion and permanent crippling. Tight strapping around the pelvis is equally bad. By making traction on the lower extremity, the capsular ligament of the hip joint will usually pull the broken fragments nicely into place and maintain them there. Failing in this, replacement and suture will be necessary. Recovery may be so complete as to leave no visible trace from the outside. In those fractures in which there is expansive separation of the fragments, the condition is reversed and firm strapping about the pelvis is indicated. Plaster of Paris is not indicated as it increases the pain and discomfort of the patient and the fractured parts cannot be held in close enough apposition to keep them in place while the plaster is being applied. The strapping is much more simple and answers every purpose. Group III requires merely rest in bed.

Fractures of the Long Bones.—Fractures of the humerus, because of the peculiarly exposed position of the arm, whether at rest or in action, are more apt to be transverse or only slightly oblique when occurring in the middle or lower portion of the shaft, than fractures in any other of the long bones. The medullary canal is relatively small in this bone. The bone itself is more compact than any other of the long bones. Unless reduction of the fracture is

more accurate than in fracture of other long bones and the separated portions of the medullary canal are more certainly opposed, delayed union or non-union is more liable to occur than in any bone in the human body. Some of the splints developed during the war period for treating fracture of the humerus are excellent. It seems stronge now that we had not thought of them more generally before. They accomplish just what should be sought after in the treatment of the fracture of any bone. They produce a maximum of muscular relaxation thus permitting the fragments to drop into place without using undue force, where they may be easily kept in position. This plan of treatment has been unfortunately reversed by most surgeons in handling fractures of the lower extremity. I will speak of that later. In necessary operations on the shaft of the humerus, the musculospiral nerve should be located as soon as the incision is made, when necessary to operate in the vicinity of that nerve. It should be gently and carefully pulled out of harm's way by a soft gauze strip and the utmost care used not to meddle with it more than can be avoided. It should not be handled with metal retractors. As a rule the step-cut splice can be more readily done, when necessary to repair the bone in case of non-union, than the application of a bone transplant. However, if the bone in either fragment is ecchymotic or has the appearance of not being fully vital, an inlay transplant should be done, which transplant should be long enough to reach from thoroughly vital looking bone in one fragment over into equally good bone in the other fragment. The ends of the bones should be carefully cleared of all soft callus or fibrous structure. It is not best to saw off the bone transversely. A transverse cut in bone is very frequently soon covered over by fibrous tissue, which may prevent union for the second time. Leave the rough surface, thoroughly clear out the medullary canal so as to make way for restoration of the nutritive circulation through the bone. Leave all metal bands, plates, staples, and similar obsolete junk absolutely out of the arm.

Fractures of the shaft of the radius or ulna will usually unite very readily if once well reduced. Because of the peculiar function of the forearm and the tendency for many fractures of these bones to be nearly transverse when occurring in the shaft, reduction is often difficult. The appearance of the forearm from the outside is very deceptive. It is no kindness to the patient to give an anesthetic and wring and twist and pull at the parts in a vain endeavor to reduce over-riding transverse fractures. Make a moderate incision and with the bone skid gently, but postively reduce the fracture. If the fracture is fully reduced it requires no fastening to remain in position in the vast majority of cases. If it must be secured, do so with kangaroo tendon and do not use any sort of hardware. The kangaroo tendon can be introduced with great facility by means of untempered steel bone needles. These can be bent to any desired curvature during the operation.

Most Colles' fractures can be, and should be reduced without an anesthetic. Ten anesthetics are administered in the handling of fractures where one is really indicated. I regard this as a conservative statement. With children, terror of the doctor and his preparations for work is the factor which frequently compels the use of an anesthetic, rather than any pain incidental to work when skilfully done. Gentle handling will reduce well nigh any Colles' fracture without the necessity of an anesthetic. Anesthetics have led to the most inexcuseable and unnecessary rough handling of fractures. Much of the disability following simple fractures is due to reckless disregard of the integrity of the soft parts during the manipulation incidental to putting up a fracture in some sort of dressing. I am well aware that a proper dressing for Colles' fracture is a subject for great combat of opinion. After many years in handling many of these fractures and observing the handling of them by many other surgeons I am convinced that nothing affords such uniformly good results as a properly applied plaster of Paris dressing. (The placing of the hand in marked dorsiflexion is to my mind grotesque to say the least; I shall waste no more words on it.) The hand should be slightly flexed anteriorly; slightly flexed on the ulna; the forearm flexed to a right angle with the arm, with the hand midway between pronation and supination and then smoothly enveloped in first class absorbent cotton, carefully cut in shape, from a pound roll so as to have the necessary width, and the cotton bound firmly but not tightly into place by a very soft loose mesh gauze bandage. Plaster of Paris should then be put on from the fingers to the axilla, and reinforced at the elbow by a couple of small strips of yucca stem to prevent breaking. The plaster should be trimmed out so as to give free use of the fingers and thumb and the dressing immediately split up the dorsum of the hand, forearm and outer side of the arm. Patients should be encouraged to move the fingers and thumb freely and frequently. This dressing left in place for four weeks, without any foolish meddling with the wrist while there is possibility of motion between the broken fragments gives universally good results. Any splint is objectionable, because it makes clamp like pressure on the parts, both front and back, and is one source of serious adhesions. I am prepared to have this treatment combated, but I am also certain that many of my fellows in the profession will come to see that it is good treatment.

A transverse fracture of either the radius or the ulna, or both bones, at a distance of one or more inches above the wrist joint, produces a condition that is wellnigh impossible to handle safely or properly without incision and reduction of the fragment with the aid of a bone skid. It is not often necessary to suture the fragments after reduction. If suture is necessary, kangaroo tendon used with the untempered steel bone needle gives most satisfactory results. All metal contrivances should be obsolete at this time; just as much so as the Murphy button in the suture of intestines. Plaster of Paris from the fingers to the shoulder with the forearm at a right angle to the arm, with the radius and ulna midway between pronation and supination gives an ideal dressing. It is preposterous to put any sort of dressing on a fracture of the forearm which permits pronation and supination. No dressing that does not include the arm will prevent that function.

All fractures of the femur can be better handled and much more comfortably and safely handled

without the use of plaster of Paris than with it, except in some operative cases. The use of the Hawley table should be mentioned only to condemn it, as a retrograde in the surgery of fractures of at least a century. It substitutes brute force and awkwardness for skill and intelligence in the treatment of fractures of the lower extremity.

In fractures of the neck of the femur whenever the lower extremity is abducted, the adductor muscles serve as a fulcrum while the upper extremity of the femur adjoining the neck serves as the short arm of the lever, while the whole thigh and leg serve as the long arm. The adductor muscles pull not only inward, but upward. The fragments involved in the fracture are unnecessarily jammed and over-riding of the neck of the femur by the shaft is almost sure to follow. Shortening of an inch or more is the rule, rather than the exception. It does not matter who the surgeon is, or whether he uses a Hawley table or not, the above mentioned holds good.

If we use a straight pull with the old time weight and pulley, we shall bring the limb down to the normal length. When the leg and thigh rotate outward, as they do invariably in this fracture, the fractured parts are not separated in a parallel manner, but open up like a book. By strongly rotating the thigh and leg inward, at the same time lifting forward on the great trochanter, the fracture may be brought into perfect apposition. A small sand bag, about two-thirds the size of a brick and not tightly stuffed, with a pad on top of it should be placed behind the trochanter, then with big sand bags, one reaching from the level of the tenth rib to the bottom of the foot on the outer side, and the other from a few inches below the perineum to the bottom of the heel on the inner side, tied into place by strips of bandage, two below the knee and two above with a long thin pillow used as a pad to protect the bony prominences, and placed underneath the leg and thigh and brought up on the sides, so as to intervene between the sand bag and the limb. The upper end of the sand bag should be bound in place by an abdominal binder. The sand bag should be big enough to prevent the strips of bandage from cutting into the thigh or knee. A good quality of moleskin adhesive plaster should be used to make traction. Spiral strips should be discarded, the foot should be bandaged with a flannelette bandage and the leg and thigh also with the same material. The patient's body can be raised and lowered, as moderate movement of the hip joint will not displace the fragments in a fracture dressed in this manner. It is vastly more comfortable than any plaster dressing could possibly be. It requires absolutely no anesthetic in any patient of any age. It can be applied by one doctor without any assistant if necessary. Pneumonia is practically unheard of. Recovery with shortening scarcely to be demonstrated is the rule. Rotary displacement is avoided. Function of the hip joint will be from 50 to 70 per cent. of the normal which is as good or better than when other methods are used.

Fractures of the shaft of the femur may be treated by the same method with excellent success when they can be readily reduced. Transverse fractures of the femur are the ones that are difficult of reduction.

Oblique fractures of the femur slide readily into place if permitted to do so with gentle handling. Rough handling, either with or without an anesthetic, means more traumatism, more hemorrhage, more muscular edema, and much more muscular spasm. If a transverse fracture cannot be readily reduced without great force, cut down upon it and reduce it with a bone skid. Paralysis of the bladder has been produced by the use of the Hawley table in reducing difficult transverse fractures of the femur. Many muscular fibrillæ are destroyed by the same means, leaving permanently impaired muscles. In compound fractures of the femur, or multiple, or badly comminuted fractures of the femur, nothing equals a modified Hodgen splint. The Thomas splint was an admirable affair for transporting patients in an ambulance to where they could have better care. The clumsy makeshift affairs that are turned out in most parts of the world and called Thomas splints are positively bad and could not give good results. Pressure sores are common in the ischial region, the muscles are not relaxed as they can be by the use of the modified Hodgen splint, and the patients are much less comfortable.

Very few fractures of the femur require operative repair. Metal plates produce more rapid destruction in the femur than in any other bone and frequently defeat the purpose for which they are used. Metal bands surrounding the bone are ungainly and unnecessary foreign bodies. A kangaroo thong wound around an oblique fracture holds it as securely, or more so, than a metal band and disappears when its function has passed.

Inlay bone transplants are permissible in the femur, a medullary transplant never. It plugs the medullary canal and prevents the restoration of the nutrient circulation through the bone. Sometimes it prevents the repair of the bone, each end of the peg uniting within the medullary canal of each fragment, with little or no union between the fragments. In such cases the peg promptly snaps off and produces a very mean operative case with the prospect of a great deal of trouble before recovery is complete.

Nearly all fractures of the leg can be easily and readily reduced in the recent state, if the knee is semiflexed, and held in that position during the necessary manipulation incident to the reduction of the fracture. Trying to reduce a fracture of the leg with the knee in complete extension is about as sensible as trying to drive away with a horse, without untying him from the post. After the fracture is reduced, a plaster dressing extending from the toes to the gluteal fold between the hip and the thigh and fixing the knee in semiflexion should be applied. A properly shaped pad of absorbent cotton accurately cut from a pound roll, should be placed next to the skin and firmly but not tightly bound in place by very coarse meshed gauze bandage. This is the dressing suitable for closed fractures including Pott's fractures. There is this exception, in the typical Pott's fracture the foot should be inverted and always without exception brought to a right angle or more with the leg. If the fracture is through the external malleolus at about the level of the ankle joint, the foot must not be inverted or everted, but put up in the straight

position with the foot at a right angle to the leg. In compound fractures of the leg, requiring dressing for some time or frequent inspection, the plaster may be reinforced with three-fourths inch strips of galvanized iron on the side opposite the wound. (Tin is useless.) Then a sufficiently large fenestra may be cut out so as to afford ample room for dressings and also the removal of all soiled gauze, leaving nothing to become offensive in the vicinity of the fracture. The trap cut out should always be replaced over dressings to prevent swelling and edema. The modified Hodgen splint is most excellent in compound fractures, multiple fractures, badly comminuted fractures, or V-shaped fractures with longitudinal splitting of the bone. The Hodgen splint can be made by any blacksmith of ordinary skill, and is well-nigh fool proof in the hands of the general practitioner, which is not the case with the Thomas splint.

Very few closed fractures of the leg when uncomplicated, ever require operating upon. Thousands of legs have been unnecessarily opened, many of them through a bad psychological frenzy, that sometimes afflicts the medical profession in surgery, to do what the other fellows are doing, but if possible do more of it. Lane plates and other metal devices have destroyed more legs than were ever necessarily saved, because of them. This statement holds good when we think of the thousands of legs that got well in spite of the so-called internal splint and which would have recovered more safely and just as well without operation.

In operating on a fracture of the leg, inlay bone transplants are permissible. A medullary bone transplant, never. It prevents the restoration of the medullary circulation through the bone and frequently gives rise to a throbbing pain at the site of fracture that will remain until the pressure from the medullary plug is relieved.

Never take a bone transplant from the crest of the tibia. The bone is too dense and does not readily unite in other locations to which it is transplanted. The medullary canal of the tibia is not opened up, and because of this fact, and the density of the bone in this location, little or no repair takes place in the tibia. It looks like a top board of a fence that the horses have been chewing. Worse yet, the tibia is very easily damaged and apt to be painful on slight provocation for all time to come. An inlay graft can be sawed out of the face of the tibia with less than half the trouble and within a few weeks the slot from which it was taken will have made a perfect repair. Do not make a sliding bone transplant from damaged bone and do not be content with applying a bone transplant wholly within partially devitalized bone. As well try to graft a half dead scion from one tree to a half dead limb of another, as to transplant partially devitalized bone into partially devitalized bone. Recently much has been said about sawing out the transplant, because of overheating the bone. The man who is not a good enough practical mechanic to run his saw without choking it and making it heat, should leave such work to surgeons with more skilful hands and better mechanical training.

Bone cut transversely and very smoothly is prone to fill rapidly with soft connective tissue which will so plug the bone as to prevent solid union. Bone cut obliquely or longitudinally tends to unite kindly, the bone structure is more freely opened up, leaving more spacious channels through which reparative tissue may reach the desired place. Do not place bone transplants in salt solution or meddle with them more than can be helped, during the process of the transplanting. Cut a neat and careful seat for the transplant and get it ready, then cut the transplant to fit, lift it out and place it in its new position and as speedily as possible fix it there.

A fracture of the neck of the femur very rarely requires operation. The use of a machine to turn a round bone peg to transplant into the neck of the femur is a ridiculous waste of time and endangers the integrity of the bone transplant and the freedom of the wound from infection. A quarter or three-eighths inch chisel graduated on one side in quarter inches may be used, first to cut a square hole out of the compact shell of the trochanter major and then lightly driven, occasionally loosening it, into the upper portion of the neck of the femur until it reaches the head. The distance from the greatest convexity of the trochanter major to the insertion of the ligamentum teres in the adult male subject is almost uniformly three and five-eighths inches. In the adult female, three and three-eighths inches. Knowing this, we may always see when we are at a safe depth, by seeing how deeply we have driven the chisel bit. The seat for this bone transplant should never be in the central portion of the femoral neck, as in that location we have a vast amount of fatty tissue making almost a medullary canal, rendering the bone transplant well-nigh useless and making a ghastly farce in the event of a nail or a wood screw or other metal abomination being used in this location. The bone transplant should traverse the upper portion of the femoral neck in order to get best results. The chisel when withdrawn from the hole in the femoral neck is then laid down on the face of the tibia and with a scalpel, a bone peg is marked out and quickly sawed to fit the hole in the femur. The medullary tissue and the periosteum should be removed before placing this peg within the femoral neck, otherwise there will be no union. It should be remembered that the periosteum limits the growth of the bone, forms a matrix on which bone may be reproduced, but has nothing to do with the reproduction of the bone. In the absence of infection osteogenesis takes place through the reparative material being conveyed to the part by the blood. In some cases, even in the midst of most serious infection, huge portions of new bone are produced. In such cases the periosteum is frequently largely destroyed before the bone is produced. The bone peg, as described above, can be very gently pushed or tapped into place. Valuable time and unnecessary meddling with the bone are saved and the surgeon is relieved of the necessity of buying a costly and unsafe machine. Smaller autogenous bone pegs can be very quickly and accurately shaved out with a sharp chisel by resting one end of the bone on a table while the other end is grasped by a pair of forceps. I shaved out one such peg and placed it through the two fragments of an ununited scaphoid bone of the wrist and secured a good result. If the ligamentum teres is ruptured and its accompanying artery destroyed, absorption of the head of the femur may occur.

Do not attempt a bone transplantation or any other operative repair as an immediate operation in compound fractures. Do not operate on such fractures, other than for the purpose of putting in drainage or cleaning out débris. Wait a week or ten days in closed fractures. It is safer, no matter who says otherwise. In compound fractures, wait until the original wound is healed and all signs of infection, either latent or active, have positively disappeared. Do not reverse the longitudinal axis of a bone transplant in removing it from one place and applying it in another. It reverses all of the nutrient channels in the bone and may be the cause of failure in an otherwise well performed operation. Never undertake reparative work in the event of the discovery of pus that might not have been apparent before making incision.

We have been for many years very prone to put up our fractures in too tight a dressing. It is one of the most dangerous mistakes that any individual can make in putting up a fracture.

Nothing is superior, in the treatment in most fractures of the clavicle, to the time honored dressing of the late Lewis A. Sayre. This dressing should always be put on with moleskin plaster, otherwise it is not a Sayre's dressing. A large pad which is unmentioned in many faulty descriptions of Dr. Sayre's dressing, should always be placed in the axilla, otherwise it is not a Sayre's dressing and is useless.

The writer does not expect everybody to agree with him. If he did it would be a waste of time to write this article.

Just a few words in conclusion about the use of electricity and also the idea of baking recuperating surgical parts.

In an occasional case a thoroughly well and safely constructed battery with accurate milliampere meter and everything strictly in good repair, electricity may be used by a fairly well trained electrotherapeutist with some degree of benefit. The haphazard way electricity is used by means of a lot of trashy batteries and by inexperienced, half taught, or wholly untaught individuals is a sarcasm on surgery. More muscles have been electrocuted in this way, ten times over, than have ever been benefited, even by the best of appliances.

A short time ago a very well trained young woman in reconstruction work in one of our largest and best equipped hospitals had been using the battery on a paralyzed lower extremity, which had been paralyzed because of damage to the origin of the sciatic nerve above the paralyzed part. She remarked that she could get no response whatever from the muscles by the use of the battery. The chief of staff to whom she had been speaking advised her to "turn on enough current so that you do get a response." Such advice was most ridiculous from a physical, a physiological, or a pathological standpoint. It is but an evidence of the truth that I have stated above.

About thirty-five years ago, at a time when bacteriology was in its beginning, somebody in the profession remembered the old story that used to be related in the old primitive works on Physics, of the two men who entered a huge oven with eggs and meat cooking all around them, were shut into the oven for a half hour or more and came out apparently unharmed. Immediately on its being found that heat was the best sterilizing agent, generally speaking, in the preparation for surgical procedures, someone thought that if we could only apply dry heat to a part or the whole of a human being, they could cook the infection right out of them. There was a great rage for baking appliances and a great deal of harm, and very little good accomplished. It led to more or less devitalization of the soft parts with permanent thickening of ligamentous joint structures which failed to function properly afterward, and so the joints never got well, and the muscles remained flabby for all time. The useless and dangerous lot of appliances met a quick and merited oblivion in most parts of the world. With the enormous amount of reconstruction work to be undertaken, following the world war, was opened up a great opportunity to make huge fortunes out of supplying batteries and bakers to be used in reconstruction work. The war psychology was propitious to the exploiting of the medical profession and the cripples both together. These abominable baking machines were resurrected, and have been supplied by the train load to all sorts and classes of hospitals as well as creeping back into private practice. Some day the baking machine will take its place along side of "tar water" and "tractors." The use of excessive heat causes the plugging of many lymph and blood channels by coagula and destroys the muscle fiber by half cooking it. In the part that is already attempting to undergo recuperation, this cannot do anything less than damage.

701 Phelan Building.

ACUTE SEPTIC PERITONITIS.

By JAMES A. MacLEOD, M.D., M.R.C.S., Eng., F.A.C.S.,

BUFFALO, N. Y.

ATTENDING SURGEON, BUFFALO CITY HOSPITAL; CONSULTING SURGEON, BUFFALO HOMEOPATHIC HOSPITAL.

"Acute septic peritonitis" is a disease which is always secondary to some acute lesion occurring elsewhere in the abdomen. Although it is most commonly due to some acute perforative lesion, such as a perforated gangrenous appendix, it may be due to a non-perforative lesion, such as an acute intestinal obstruction. In a recent contribution, entitled "Acute Intestinal Obstruction," I pointed out that, as the intestine above the site of the obstruction becomes paralyzed, bacteria pass freely through its wall and infect the peritoneum; a similar phenomenon occurs in any condition in which an intestinal paresis develops. Without going into the bacteriology of acute septic peritonitis, I may say that any of the pathogenic microorganisms may be the underlying factor in the production of the infection; in my practice, the colon bacillus has been the commonest offender. A few years ago, the late Norman K. MacLeod, in an investigation covering a large number of acute septic processes, recovered the organism of the infection from the blood and urine; and so one may say that in a large percentage of the cases of acute septic peritonitis we are dealing with, in addition to the local infection, a general septicemia. Whether the peritonitis is local or general depends upon the rapidity of the

disease leading up to the infection of the peritoneum. If the primary lesion be slow in its course, a protective barrier may be formed and the resulting peritonitis localized. If, however, the process leading up to the infection of the peritoneum be very acute, it is usually too rapid in its course to have a protective barrier built between it and the general peritoneal cavity, and a general peritonitis develops. In a general peritonitis we have a number of factors coming into play: The neuromuscular apparatus of the intestines becomes greatly stimulated, giving rise to increased peristalsis, which soon becomes reversed in character, as is made evident in the persistent and urgent vomiting. The vomiting in itself is extremely important, as it rapidly removes fluid from the general circulation and hurries the onset of an acute acidosis. The spasmodic peristalsis going on causes friction between the various inflamed peritoneal covered surfaces, and this causes great pain, which is the chief cause of the shock from which the patient is acutely suffering. As the disease progresses, the peristalsis lessens and the intestines pass into a paralytic condition; the vomiting continues, but it ceases to be urgent in character and becomes regurgitant, as is seen in intestinal paresis. Death takes place from a combination of toxemia, anaphylaxis, exhaustion, acidosis, and shock; and of these, the shock and acidosis are, in my opinion, the more important factors to be considered. If the shock and acidosis are combated successfully, the patient will generally take care of the toxemia and exhaustion, but occasionally the infection is so virulent and so widely spread that the patient is quickly overcome by the toxemia.

In making a diagnosis of an acute septic peritonitis, the causative factor, or factors, should be determined whenever possible. As a rule, the actual onset is difficult to place, as the disease is a continuation of the primary and causative lesion; the signs and symptoms becoming graver as they become graded into those of the peritonitis. In a well-developed peritonitis the signs and symptoms depend upon whether or not localization has become established. Where the disease has become localized the physical signs are more or less confined to that area. The condition may end in resolution or in abscess formation; where the latter occurs, a distinct tumor is to be made out. Where, however, the disease does not become localized, it progresses on to a general infection, the signs and symptoms of which may be briefly described as follows: The facial expression is one of great anxiety. The pulses are small, tense, and rapid. The temperature is elevated, although it becomes subnormal toward the end from toxemia; one of the most ominous signs to be encountered during the course of an acute septic peritonitis is a temperature falling to below the normal and an increasing pulse rate. Superficial tenderness and widely spread pain are prominent features throughout the course of the disease. The abdominal muscles are rigid and boardlike. Early in the case, urgent vomiting is a prominent sign, as the result of strong reversed peristalsis; as the case proceeds, the intestines become paralyzed and the vomiting becomes regurgitant in character, as is seen in other forms of intestinal paresis; it is never projectile, as is seen in cases of acute intestinal obstruction, unless the peritonitis becomes complicated by an intestinal obstruction. Distension is usually an early sign, and as the intestines become paralyzed it becomes very marked; it is associated with spasm of the abdominal muscles; in the most virulent cases, however, death may take place from an overwhelming toxemia before distention makes its appearance. In acute septic peritonitis, examination of the blood demonstrates that the leukocytes are increased in number and the polynuclear percentage raised, the percentage of the polynuclear cells being more important than the actual number of white cells; this also obtains in most of the primary lesions which are inflammatory in character. Examination of the urine demonstrates nephritic changes in direct proportion to the length and severity of the acute septic peritonitis; as already pointed out, the microorganism, the causative factor of the primary lesion and the acute septic peritonitis, may be recovered from the blood and urine. Constipation is an early symptom, and where the disease progresses on to intestinal paresis it becomes absolute; the passage of flatus during an acute septic peritonitis is a most encouraging sign.

In making a diagnosis of an acute septic peritonitis one has to consider other acute disturbances occurring within the abdomen, and of these the following are the most important: (*a*) Appendicitis; (*b*) Cholecystitis; (*c*) Gastrointestinal perforations; (*d*) Pelvic inflammations; (*e*) Ruptured extrauterine pregnancy; (*f*) Torsion of the pedicle of an ovarian cyst; (*g*) Acute pancreatitis; (*h*) Acute inflammation of an intestinal diverticulum; (*i*) Typhoid fever; (*j*) Mesenteric embolism and thrombosis; (*k*) Acute lead poisoning; (*l*) Acute renal infections; (*m*) Renal colic; (*n*) Biliary colic; (*o*) Acute intestinal obstruction; (*p*) Intestinal paresis.

The differential diagnosis between the above conditions and acute septic peritonitis, while it is in some instances somewhat academic in interest, is, however, of great importance, as it aids us in deciding whether or not an operation is necessary; and, where an operation is indicated, it gives us information as to the best possible situation in which to attack the existing disease.

Early in an attack of appendicitis the temperature and pulse rate are usually, but not necessarily, elevated. The right rectus muscle is in a state of spasm. Vomiting, if present, is not usually as persistent as in the case of peritonitis. There may be little or no distention. Later on, in cases which do not resolve or become operated upon, the signs and symptoms become those of the peritonitis which has developed.

In cholecystitis the physical signs are more marked in the upper right quadrant of the abdomen. The temperature and pulse rate are both elevated. The conjunctivæ and skin may be tinged with yellow; the urine and blood may show the presence of bile salts. Constipation is not marked, in fact a diarrhea may be present, as a result of a colitis, which is very often associated with cholecystitis. The stools, when present, may

be clay colored. Vomiting is not a marked feature of the case. Distention is not a prominent feature. The Murphy hammer stroke test elicits localized tenderness in the region of the gall bladder.

In a gastrointestinal perforation there is the history of the disease leading up to the perforation. Under this heading may be included those cases in which the peritoneum becomes infected, as a result of a perforative wound of the abdomen or an operation upon any of the hollow viscera of the abdomen. The actual onset is sudden and accompanied by marked signs of shock. The vomiting is not urgent. There may be evidence of free air in the abdominal cavity, with obliteration of part of the liver dullness.

In pelvic inflammations, the history, as a rule, will throw valuable light upon the subject. The temperature, pulse rate and leucocyte count are elevated. The physical signs are more marked in the lower abdomen. Vaginal examination reveals a tender mass in close relationship to the uterus, and fixing it. There may be an uterine discharge or a history of such. Vomiting is not a marked feature of the case. Constipation may or may not be present.

In ruptured extrauterine pregnancy the onset is sudden and accompanied by marked signs of shock and hemorrhage. If there is vomiting, it is not persistent. There is usually the history of a missed period, although such is not always the case. There may be a blood-stained uterine discharge as a result of the uterus casting off its false decidua; this commences immediately after the death of the fetus, and, when present, is practically diagnostic. There is a lowering of the hemoglobin percentage in direct proportion to the amount of the hemorrhage.

In torsion of the pedicle of an ovarian cyst there are marked signs of shock. The vomiting is not persistent. A movable tumor is to be made out in the lower abdomen; bimanual examination reveals the tumor as arising out of the pelvis.

In acute pancreatitis the onset is sudden and accompanied by signs of intense shock, very acute pain in the upper part of the abdomen, and vomiting. There is little or no distention in the early stages, although it does make its appearance later on. Vomiting is present and is usually persistent. The condition is often not diagnosed before the operation. The following case may be of interest:

Mrs. D. was admitted to the hospital with all the signs and symptoms of an acute septic peritonitis. Four years prior I had seen her in consultation during an attack of acute cholecystitis. The abdomen was opened through the right rectus. The appendix was delivered and found to be very hyperemic, but not seriously enough diseased to be the causation of the signs and symptoms presenting; it was however removed. Examination of the abdomen through the incision revealed a gall bladder full of stones. The incision was prolonged upwards and an acute hemorrhagic pancreatitis was revealed by numerous patches of fat necrosis on the peritoneal surfaces of the intestines and flame shaped hemorrhages into the mesocolon and neighboring organs. The peritoneum was reddened. The pancreas was increased in size and boggy, but no fluctuation was detected. An opening was made through the mesocolon and the finger plunged into the substance of the pancreas; a cigarette drain was inserted into the rent in the pancreas and brought out through the mesocolon and the lower end of the abdominal incision; this drain was surrounded by other cigarette drains with the idea of protecting the general peritoneal cavity from any possible pancreatic drainage. The gall bladder was emptied of a large number of stones and concentrated black bile, and drained by an implanted tube. The convalescence was somewhat stormy, but eventually the patient made an excellent recovery, and was discharged from the hospital in a little over four weeks from the time of the operation. The peritoneum in this case was very much injected but not infected.

In acute inflammation of an intestinal diverticulum the signs and symptoms are similar to those of an acute appendicitis, with the exception that the localization depends upon the situation of the diverticulum.

In typhoid fever the onset is insidious, and is not preceded by an acute intraabdominal lesion, as in an acute septic peritonitis. The temperature and pulse rate are elevated. Vomiting, if present, is not a prominent feature. Diarrhea is usually but not always present. A distinct gurgling in the right iliac fossa is very often to be detected by palpation. Distention may be marked, but it is not associated with much spasm of the abdominal muscles, as is seen in acute septic peritonitis. Red rose spots and enlargement of the spleen are not evident in the early stages of the disease. Blood examination shows a leukopenia, except where a secondary bacterial infection of the ulcers occurs, and in those cases we may have a leukocytosis. The Widal reaction is usually negative in the early stages of typhoid, but a blood culture is positive after the second or third day of the disease. Abdominal pain is not a prominent symptom.

In mesenteric embolism and thrombosis the onset may be sudden or insidious. Before distention makes its appearance a tumor may be made out. Bloody mucus is passed from the rectum, and even a diarrhea may be present. The vomiting is not urgent. There may be signs of pre-existing cardiac disease; there may be thrombosis in other parts of the body.

In acute lead poisoning the prominent features are widely spread colicky pain, relieved by pressure, obstinate constipation and collapse. Abdominal distention and vomiting are not marked features. There is the typical blue line on the gums.

In acute renal infections the onset is sudden and accompanied by pain, which is most marked in the costovertebral angle of the affected side. Vomiting, if present, is not persistent and urgent as in an acute septic peritonitis. There may be some colonic distention, but this is not associated with spasm of the abdominal muscles. In a pyelitis, examination of the urine shows pus cells and bacteria; this also obtains in other nephritic infections when the focus is draining into the pelvis of the kidney.

In renal colic the onset is sudden and accompanied by severe cutting pains, and very often by nausea and vomiting. The pain is reflected down the affected side, in the male to the tip of the penis; tenderness is to be made out by palpation in the costovertebral angle of the affected side. Very early the urine shows red blood cells. The vomiting is not severe, and it is not, as a rule, persistent. There is no distention. There may

be spasm of the abdominal muscles of the affected side.

In biliary colic the onset is sudden and accompanied by severe pain in the upper right quadrant, and very often by nausea and vomiting. The muscles on the right side of the abdomen may be in a state of spasm. There may be some distention of the colon. A tender tumor in the region of the gall bladder may be made out very often. Jaundice may be present, or the history of a previous attack followed by jaundice; where jaundice is present biliary salts may be found in the urine, and the stools may be clay colored.

The differential diagnosis between acute intestinal obstruction, intestinal paresis, and acute septic peritonitis is peculiarly of very great importance. As already pointed out, an acute septic peritonitis may be the end picture of either an acute intestinal obstruction or an intestinal paresis. An acute intestinal obstruction may arise during the course of an acute septic peritonitis, and on the prompt diagnosis of such depends the patient's life. In all cases of acute septic general peritonitis, which do not resolve, the end picture is an intestinal paresis. In acute intestinal obstruction, whatever the etiologic factor may be, the onset is usually like a bolt out of a clear sky, whereas in acute septic general peritonitis there is usually some good and definite cause for its occurrence. The facial expression from the onset is one of anxiety, the features pinched and pale, the hands and feet are cold, and the body is covered by cold, clammy sweat. The temperature is subnormal. The pulses are rapid, thready, and weak. Early in the case, the abdominal muscles may be soft, and the coils of intestines, in a state of tonic spasm, may be seen and palpated, giving rise to a lattice-like effect; as the case proceeds, the abdominal muscles become rigid and distention makes its appearance; in acute septic peritonitis, muscle spasm is a prominent feature from the onset. The stethoscope, applied to the abdomen, reveals active peristalsis; early in the case of acute septic peritonitis, active peristalsis can also be demonstrated in a similar manner, but later on, as the intestines become paralyzed, nothing can be heard by the stethoscope; this latter phenomenon also obtains in other forms of intestinal paresis. Vomiting is a constant symptom and probably the most important one of acute intestinal obstruction; as the disease progresses, it increases in severity and becomes urgent and projectile in character; at first the vomiting is from the upper gastrointestine, is mixed with bile and has a sweetish odor; this is soon followed by the contents of the small intestine, and the odor is foul and putrid. The occurrence of projectile vomiting is, in my opinion, the most valuable aid in the diagnosis of acute intestinal obstruction. The vomiting in an acute septic peritonitis is urgent, but it is seldom projectile in character, unless the disease has become complicated by the development of an obstruction. The temperature in acute intestinal obstruction, in the beginning, is subnormal, and as the case proceeds, is further depressed, except in those cases in which a general peritonitis has developed, when there may be an elevation; and this, in progressive cases, does not last very long, the temperature becoming subnormal again, as the result of an overwhelming toxemia. Early in the case of acute intestinal obstruction the lower bowel may be emptied; this, however, is soon followed by complete stoppage of the passage of gas and feces from the rectum; in cases due to intussusception, bloody mucus may be passed from the rectum. In the case of a strangulated external hernia, we have an irreducible protrusion through a hernial opening. In paralysis of the intestines, following abdominal or other grave operations, or occurring during the course of a pneumonia and other acute diseases, the facial expression is not that of great anxiety. The pulses are rapid, but not extremely so. The temperature may be slightly depressed. In the early stages of intestinal paresis there is not the extreme toxemia of acute septic peritonitis or acute intestinal obstruction, but as the disease progresses the peritoneum becomes infected in a manner similar to that met in the late stages of obstruction. In paralysis the vomiting is regurgitant in character and may be persistent; it is not urgent, as in septic peritonitis, or projectile, as in acute obstruction. Distention may be excessive, but it is not associated with much spasm of the abdominal muscles.

In the question of the treatment of acute septic peritonitis one must necessarily take into consideration the primary lesions leading up to the infection of the peritoneum, and one may discuss it under three headings: (1) The treatment of the primary lesion. (2) The treatment where localization has occurred. (3) The treatment where localization has not occurred.

1. The treatment of a primary lesion may be regarded as one of prophylaxis, since one may say that in each of the inflammatory conditions occurring within the abdomen, in a gastrointestinal perforation, in an acute intestinal obstruction, in a mesenteric embolism or thrombosis, and in an intestinal paresis, we have a potential acute septic peritonitis. The treatment is obviously the relief of the primary lesion, and need not be discussed in this contribution.

2. The treatment where localization occurs: In some of the cases of acute septic peritonitis there is a distinct tendency to localization, and this is especially true in the case of pelvic inflammations. The following case may be of interest:

I was called in consultation to see a patient suffering from an acute abdominal disorder. On arrival, I found the following conditions: The facial expression of the patient was one of great anxiety. The temperature was high. The pulses were rapid, thready and intermittent. The abdomen was greatly distended and exceedingly tender. The breathing was rapid and shallow. The patient complained of great pain in the right chest upon deep inspiration. Vaginal examination revealed a discharge from the cervix, and the uterus was held fixed by a sensitive mass in each broad ligament. The cardiac action was irregular, with a systolic murmur at the apex. Examination of the chest revealed a basal pleurisy on the right side. She was evidently suffering from an extreme degree of shock, and operation was out of the question. Two and one-half grains of morphine were given in the first four hours, and thereafter one-quarter grain every two to four hours, as occasion demanded, for several days. Fisher's solution with 10 per cent. glucose solution was administered by the Murphy drip. Ice packs were applied to the abdomen. On the fourth day, she

passed flatus, on the following day, she had a copious bowel movement, and thereafter made an excellent recovery.

Where localization is taking place everything should be done to assist in the building up of the barrier between the infection and the general peritoneal cavity; practically the same régime should be carried out as will be described later in dealing with the question of acute septic general peritonitis. As already pointed out, the process may end in resolution, or it may go on to the formation of an abscess. Drainage is, of course, necessary in cases going on to abscess formation, but operation should be delayed sufficiently long to allow organization of the barrier between the focus and the general peritoneal cavity, and then nothing more than simple drainage should be attempted.

3. The treatment where localization has not occurred: Where localization is not evident, and is not expected, early operative interference is imperative, as it is very evident that the causative factors must be eliminated before one has any chance in the treatment of the peritonitis; thus a gangrenous appendix, intestinal diverticulum or gall bladder, whether perforation has occurred or not, must be removed; a gastrointestinal perforation must be closed; an acute intestinal obstruction must be relieved; and, where indicated, adequate drainage must be provided for. Following the operation my routine treatment for these cases is as follows: The patient is placed in the Fowler position and intra-abdominal drainage encouraged toward the pelvis, where lymphatic absorption is at its minimum. Bartlett in his recent work, "After-treatment of Surgical Patients," advocates that the patient be placed in the position most advantageous for drainage; while this appeals to me as a very sensible procedure, I have not as yet used it.

To combat the shock the peristalsis with its resulting pain and vomiting must be stopped; and this can be done by the free use of morphia. Morphia is given hypodermically and should be pushed to the physiologic limit, in order to splint the intestines; to do this large doses are necessary. I have often given to an adult patient two to three grains of morphine in four to five hours and thereafter sufficient to keep him under the influence of the drug until the vomiting has ceased, the abdomen has become soft, and flatus has been passed freely. In order to use morphia in this heroic manner one must have courageous and conscientious nurses, who are thoroughly familiar with the mode of treatment; the respirations should be kept in the neighborhood of twelve per minute; in the most desperate cases even as low as eight per minute; the frequency and character of the pulse and the urinary output should be kept under the most careful observation.

To combat the acidosis arising from the dehydration, etc., Fisher's solution with 10 per cent. solution of glucose is given per rectum by the Murphy drip method; this, by supplying fluid to the circulation, dilutes the circulating toxins, protects the alkaline reserve in the blood, and, by increasing secretions and promoting diuresis, aids in the elimination of the toxins. Occasionally, on account of the intestinal irritability, we find that the rectum will not retain the fluid in the early stages of the treatment. Under such circumstances sterile normal salt solution is supplied by hypodermoclysis until the rectum becomes tolerant, which occurs as soon as the patient is fully under the influence of the morphia; thereafter the drip method is continued more or less continuously for several days, according to the rectal tolerance. No fluid is given by the mouth as long as the symptoms are acute, but is commenced just as soon as the vomiting ceases, which occurs when the patient is fully under the influence of the morphia; it is given at first in small quantities at the temperature of the room, and the amount is increased gradually as gastric tolerance is shown. Some surgeons hold that fluid should be withheld both by rectum and by mouth, and that fluid should be supplied only by hypodermoclysis, but I have found by experience that the régime as above outlined works out practically very well. It is wise during the forcing of fluid to remember that a patient may become water-logged, and, therefore, the lungs should be kept under observation for any possible edema. During the course of treatment the blood and urine should be kept under careful observation for a diminishing alkaline reserve. Where full laboratory cooperation is not possible, I find that watching the amount of urine and its general characteristics gives a very fair index as to the amount of alkaline reserve in the blood. However, where possible, it is wise to have the full cooperation of a competent pathologist in the treatment of these cases. If an acute acidosis is pending I diminish the morphine and increase the administration of fluid; in desperate cases where suppression of urine seems imminent I give Fisher's solution intravenously and administer theocin or diuretin hypodermically. The following case, reported in more or less detail, may be of interest:

R. M., a girl, eleven years of age, was admitted to the hospital with the following signs: Temperature 102.6°; pulses 126; abdomen distended, muscles rigid, tenderness being most marked on the right side; leucocytes 17,000, with 85 per cent. polynuclear cells. The abdomen was opened through the right rectus, and a perforated gangrenous appendix and a general peritonitis found. During the incision of the peritoneum, the cecum was accidently opened and the wound was immediately flooded by fluid feces, swarming with pin worms. The opening in the cecum was closed, the appendix removed and drainage provided for. During the first 24 hours after the operation the rectal temperature rose to 105.6; the pulse rate increased to 165; vomiting was present but not excessively so; the patient became delirious and had to be restrained; the amount of urine passed was 17 ounces. One and three-fourth grains of morphine were administered hypodermically in ¼ grain doses during the 24 hours. The Murphy drip of Fisher's solution and glucose was not retained, and, consequently, a pint of normal saline was given by hypodermoclysis. During the second 24 hours after the operation, the condition continued grave: Morphine was increased to 2 grains in ¼ grain doses; the Murphy drip was not being retained very well and, so, a second hypodermoclysis of normal saline, one pint, was administered. During the 24 hours, the delirium became less, 24 ounces of urine were passed, and the temperature and pulse rate commenced lowering; vomiting ceased; some flatus was passed. During the third 24 hours after the operation 2 grains of morphia were given and the

patient's condition improved considerably; the delirium ceased; the temperature and pulse rate continued to fall; 25 ounces of urine were passed; small quantities of water were retained by the stomach; flatus was passed freely. During the fourth 24 hours after operation the improvement continued and it was only necessary to give ⅛ grain of morphia; she was allowed water freely by mouth. During the fifth 24 hours after the operation the temperature was 99 and the pulse rate 70; morphia, in one dose of ⅛ grain, was given for the last time. During the seventh 24 hours after the operation the patient had a copious bowel movement. She was discharged from the hospital in 29 days from the date of the operation.

Throughout the course of the treatment of an acute septic peritonitis the character of the vomiting should be carefully observed, as an acute intestinal obstruction may develop at any time. As already pointed out under the caption of diagnosis, the vomiting of acute septic peritonitis may be urgent, but it is seldom projectile in character. The following case is illustrative:

J. C., a boy, seven years of age, was admitted to the hospital and operated upon for a perforated gangrenous appendix, complicated by an acute septic general peritonitis; the appendix was removed and adequate drainage provided for. Under treatment, the patient was apparently convalescent. On the eighth day after operation vomiting recurred and quickly became projectile in character; the abdomen became distended again and his general condition rapidly became critical. The abdomen was reopened through the former incision, and a large evil smelling abscess found and drained. The projectile vomiting immediately ceased and, thereafter, he made an excellent recovery.

The treatment, as outlined above, when scientifically and thoroughly carried out, is not only efficacious but a very humane one; when the patient is fully under the influence of the morphine he loses that anxious, pinched look, which is so characteristic of a general peritonitis, the vomiting ceases, the pulses become slower, softer, and of a better quality, the abdomen becomes soft, and flatus is passed on the third or fourth day, and the bowels move of their own accord a day or so later. Even where the case ends fatally, and some of these cases are fatal whatever one does for them, the patient is spared the terrible torture that is suffered by patients dying from acute septic peritonitis without the aid of morphia.

In reviewing my private case records I find that appendicitis is the most common cause of acute septic peritonitis occurring in my practice. In the last 150 operations for appendicitis 28 were for gangrenous appendices; three deaths occurred, giving in the total number of cases a mortality of 2 per cent. It may be of interest to give a brief résumé of the fatal cases:

First death—G. S.—Patient had been ill for nearly three days before admission to the hospital. At the time of operation it was found that the appendix was gangrenous and perforated, with a widely spread general peritonitis present. Ten days after the operation the patient was making an excellent convalescence when he had a severe intra-abdominal hemorrhage. He was transfused and no further bleeding occurred. Following the hemorrhage, however, his condition commenced retrogressing; distension and vomiting reappeared; and he died on the fourteenth day after his operation. Post mortem examination showed that the hemorrhage had come from the great omentum, which had become gangrenous in the neighborhood of the cecum; that the cecum and ascending colon had become gangrenous; that the right side of the abdomen was filled with putrid blood clot; that there was a large putrid abscess behind the cecum and liver.

Second death—H. S.—Attack commenced two days before admission to the hospital. A widely spread and virulent general peritonitis, in addition to a perforated gangrenous appendix, was found at the operation. His condition continued to get worse and he died thirty hours after the operation.

Third death—B. B.—Man aged 72 years. Operation took place within twelve hours of the onset of the disease; a perforated gangrenous appendix was found. Following the operation he had a brisk general peritonitis, which subsided under treatment. On the seventh day after operation he developed an acute mania, from which he recovered. On the tenth day he was apparently convalescent. On the thirteenth day his wound opened and omentum presented; this was reduced, and the wound was strapped. Thereafter, his condition became grave, and he died on the fourteenth day after operation.

288 Linwood Avenue.

LARYNGOPULMONARY TUBERCULOSIS.*

By JULIUS DWORETZKY, M.D.,

Liberty, N. Y.

Tuberculosis of the larynx is always secondary to tuberculosis of the lungs or lymphatic glands. There are a number of instances where laryngeal tuberculosis is reported as a primary affection, but the author in all his experience never saw a case of primary tuberculosis of the larynx. Occasionally, however, we do meet a case of laryngeal tuberculosis without any definite signs of the disease in the chest, but a diligent study will always discover the primary focus in the lungs or in the thoracic glands. If the larynx were involved primarily and alone the treatment of the lesion would be very fruitful, and in the vast majority of cases would be crowned with success: First, because of the accessibility of the larynx and the ease with which it could be treated; and second, because of the high tendency to fibrosis that tuberculous tissue possesses. The reason for the poor prognosis in laryngeal tuberculosis is chiefly because of the underlying trouble in the lungs. We all know of cases where the trouble in the larynx was cured by local treatment. But in such cases we invariably find that the pulmonary lesion was either slight or else inactive. Where the lesion in the lungs is active and a laryngeal complication exists, regardless of the type of the laryngeal lesion, the prognosis is very poor.

It would therefore seem insufficient to treat the lesion in the larynx as an affection *per se*, and the author is of the opinion that a case of laryngeal tuberculosis should always be spoken of and treated as laryngopulmonary tuberculosis. For only by treating the lungs primarily may we hope for success, and for this reason the writer feels that laryngeal tuberculosis should never be treated in the office or clinic, except where the pulmonary lesion is inactive or where distressing symptoms have to be relieved. It is not the author's desire to discourage the laryngologist from treating laryngeal tuberculosis, but rather to stimulate his interest in pulmonary tuberculosis and to impress on the mind of the laryngologist the importance of such work.

*Résumé of studies, based on eight years' experience in institutions and private practice. Submitted as thesis for candidacy to the American Laryngological, Rhinological, and Otological Society, November 1, 1920.

Etiology.—Tuberculosis of the larynx is almost invariably found among tuberculous adults, and occurs in about twenty-five per cent. of the patients. It is extremely rare among children and the writer can recall only one case of laryngeal tuberculosis in a child of the age of eight. It is also present only in those cases which have, or have had, a positive sputum. In the repeated absence of tubercle bacilli in the sputum the diagnosis of laryngeal tuberculosis should always be made with reservation. From a study made in 1913-1914, the writer found that in the vast majority of cases of laryngeal tuberculosis there was usually present some predisposing cause, such as nasal obstruction, chronic pharyngitis, tonsillitis, catarrhal laryngitis, history of excessive cough, excessive use of tobacco and alcohol, and lues. The infection, in the writer's opinion, is caused directly by the tubercle bacilli implanted on the mucous membrane of the larynx. Let us bear in mind that in almost every case of laryngopulmonary tuberculosis we have an open pulmonary lesion which means a constant stream flowing over and bathing the laryngeal mucosa. The anatomy of the interior structures of the larynx is very complex, and pus travelling over it is bound to become stagnant and thus adhere to the minute folds of the mucous membrane. Healthy mucous membranes may be able to resist it by its natural immunity, but when inflamed the intercellular spaces become widened, and the bacilli, not meeting with any resistance, enter the mucosa and submucosa, thus setting up a tuberculous inflammation.

Clinical Types.—There are three distinct types of laryngeal tuberculosis; the acute, the subacute, and the chronic, each one of the types having a course of its own. The acute type is characterized by a soft edema of the larynx with a marked tendency to ulceration. It may begin acutely or else follow the subacute or chronic type. It usually occurs in advanced pulmonary cases, often in moderately advanced, and occasionally in an incipient case. There is little or no tendency to fibrosis and it, therefore, takes an acute course. Nodules, consisting of tubercles, can often be seen above the surface of the mucosa. When the tubercles caseate, they give rise to ulcers. During the stage of caseation the nodules often coalesce with the production of extensive ulcerations. The patient usually suffers from marked hoarseness or aphonia, sensation of fulness in throat and irritation with constant desire to cough and expectorate. Dysphagia is of common occurrence, and may be very pronounced, depending largely on the location and character of the ulcerations. With the patient in good general condition it may run its course, become subacute and occasionally arrested, but in general the lesion is hardly amenable to treatment. As to prognosis, the life of the patient is generally from six to eighteen months. It is often a terminal condition in advanced pulmonary cases, especially in patients who are overwhelmed by the toxins of the tubercle, and who have completely lost the acquired immunity to the disease.

The subacute type is characterized by a pseudoedema of part or parts of the larynx with a moderate tendency to fibrosis. It may begin as such or else follow the acute or chronic type. It takes a subacute course, has a tendency to fibrosis and is usually benefited by treatment. Papiliform infiltrates and soft polypoid excrescences usually belong to this type. The local symptoms may be slight or moderate, depending largely on the extent and site of the lesion. Hoarsness, as a rule, is present, particularly when the true cords or the interarytenoid sulcus is involved. Dryness in the larynx is usually complained of, especially when the fibrosis is extensive. With the patient in good general condition it runs its course and may become completely arrested. The prognosis as to life and voice depends much on the patient's general condition, and on an early diagnosis. With proper treatment the prognosis in the average subacute case is favorable.

The chronic type, which offers the best outlook, is characterized by firm infiltration of part or parts of the larynx with a marked tendency to fibrosis and healing. The lesion, due to an excessive proliferation of connective tissue cells, is usually limited in extent in the affected areas, and may remain so for an indefinite period. These patients suffer very little, and often, with the exception of occasional dryness in the throat and slight hoarseness, have no symptoms at all. For this reason *this type is very often overlooked.* The prognosis as to life and voice is very good, and unless the lesion takes on the course of the acute or subacute type the complication will have very little influence on the pulmonary condition. The diagnosis of this type, however, is of major importance. The patient should be told of the condition, so that the proper measures may be taken. Abuse of the larynx will often modify its course, while with proper attention this condition will usually remain secondary to the pulmonary lesion.

The three types just described, although one type may follow or precede the other, are undoubtedly distinct, and it is a highly essential to differentiate them because of the bearing on prognosis and treatment. As a rule, more than one examination will be required to make the proper diagnosis and to determine the course of the disease.

Diagnosis.—It is unfortunate that in the majority of instances the diagnosis of laryngeal tuberculosis is made after the lesion has become considerably advanced. This is usually due to the fact that the larynx of the tuberculous individual is not scrutinized more carefully. It should be borne in mind that the development of the laryngeal lesion is often very insidious and without any troublesome symptoms, and by delaying the examination of the larynx till the patient complains of symptoms, the lesion, as a rule, will have reached an advanced stage. In previous studies the writer found laryngeal tuberculosis in one out of four pulmonary patients, and it is his opinion that the larynx should be examined in every tuberculous individual, and only thus could early involvement be discovered. We must never forget that the respiratory tract does not begin at the apices of the lungs. The examination of the respiratory tract should always begin with the nasal chambers and an examination of the lungs, no matter how thorough, without an examination of the upper respiratory tract should be considered incomplete. As in most other diseases, these patients present subjective and ob-

jective symptoms. The subjective symptoms are those caused by the lesion in the larynx as well as those associated with the pulmonary lesion. The objective symptoms are those of pulmonary tuberculosis and the physical findings on laryngoscopic examination. In this paper laryngeal symptoms and signs only will be considered.

Subjective Symptoms.—The symptoms of tuberculosis of the larynx can be conveniently divided into two groups; first, those of the early stage, and second, those of the moderately advanced and advanced stages.

The most common symptom in cases of early disease is hoarsness. It often begins with slight huskiness of the voice in the morning, gradually disappearing during the course of the day. It varies from a slight change in the voice quality to a low pitched rasping sound. The onset of the hoarsness is, as a rule, insidious in the chronic cases, while it is more sudden in the acute and subacute cases. When the onset is insidious, the patient is often unaware of the development of this symptom, and only by careful questioning can the date of the onset be established. In early cases the hoarseness is most commonly due to infiltration of the posterior commissure or of one or both cords, and often to a combination of both. Cases with marked papillomatous growths in the upper portion of the posterior commissure with no alteration in the quality of the voice are often seen. Thus the hoarsness depends largely on the location of the tumefaction. If it is above or below the cords, the voice may be quite normal.

The most frequent symptom, or rather combination of symptoms, is the sense of discomfort in the larynx. This sensation is vaguely and variously described as a lump in the throat, desire to clear the throat before talking, consciousness of the throat, irritation as if caused by a hair lodging in the throat, dryness, hypersecretion, burning, rawness, sticking pain, etc.

Dysphagia, dysphonia, and aphonia are uncommon among early cases of tuberculous laryngitis. The symptomatology in more advanced cases of laryngopulmonary tuberculosis is more definite and often pathognomonic. Hoarseness is almost always present when the involvement is extensive, and the classic symptoms, such as dysphagia, aphonia and dysphonia, although more common than in the early stages, are less common than generally supposed.

Objective Symptoms.—The physical findings in tuberculous laryngitis will depend, first, on the stage of the disease, whether early or advanced; second, on the type of the lesion, whether acute, subacute or chronic. Early or incipient cases are characterized by infiltrative changes; the advanced cases by extensive infiltration with ulceration. The various types of laryngeal tuberculosis have already been described.

Pathological Manifestations.—Anemia of the Larynx.—This is often spoken of as a sign of tuberculosis. This manifestation is present in acute cases in which there is formation of tubercles, marked edema and interference with circulation. The acute type of laryngeal tuberculosis, however, is not the most common type. When anemia is present in other than acute cases, it is usually due to a general anemic condition of the patient.

Congestion.—This condition is more common than anemia. It is present in the great majority of the subacute and chronic cases. The congestion may be due to a catarrhal condition preceding the tuberculous lesion, or may be caused by the tuberculous lesion itself.

Infiltration.—By this term is implied inflammatory changes caused by the tubercle bacillus. The part affected is congested and increased in size. The edema may be either of the soft variety, such as seen in the acute case, or of the hard indurative kind, as seen in the subacute and chronic cases. Soft edema occurring in the arytenoids usually produces the characteristic pear-shaped swelling. When the process is chronic, there is a marked proliferation of connective tissues, and the infiltration becomes hard. Infiltration is most common in the posterior segment of the larynx, but may be seen elsewhere.

Ulceration or Necrosis.—Degeneration of tissue usually occurs after tubercles coalesce and caseate. A typical recent ulcer has a grayish appearance, while a chronic ulcer may be red due to the formation of granulations. Ulcers are most commonly seen at the posterior portion of the vocal cords, the vocal process, the posterior commissure, and the rim of the epiglottis.

Tumefaction.—This may appear before or after ulceration takes place. Tumefaction before ulceration is usually due to edema, and is most common in the arytenoids, the ventricular bands, the laryngeal surface of the epiglottis and the aryepiglottidean folds. When it follows ulceration, it usually takes the form of granulations, papillomas or tuberculomas. Granulations are most common when ulcerations are present. Papillomas and tuberculomas usually occur at the posterior commissure.

Lesions.—The frequency with which a part of the larynx is found to be affected is in direct proportion to the amount of trauma that part receives as a result of its functional activity and its location.

Interarytenoid Space.—The earliest and most frequent seat of disease is the posterior commissure. The earliest change in the posterior commissure consists of hyperplasia of the mucous membrane. On partial approximation of the cords, this hyperplastic mucous membrane takes on a wrinkled appearance. A streak of mucopus is often seen adhering to the space; but this merely signifies that there is a discharging focus in the lungs. It is often present without any demonstrable tuberculous lesion in the larynx. The usual color of the hyperplastic mucous membrane is gray, although occasionally it is red. As the lesion progresses, a median furrow is formed which is readily perceived on a partial approximation of the cords following a deep inspiration. At this stage a lateral furrow, as described by Casselberry (Casselberry, W. E.; The Recognition of Early Changes in the Larynx in Tuberculosis. *Journal A. M. A.*, Nov. 15, 1913, p. 1789), is also frequently observed. The formation of these furrows is due to the constant creasing of the diseased mucous membrane during all respiratory acts. A little later, if the disease is not arrested, the process will go on to ulceration. The ulcers are usually shallow and of gray appearance. Often there is an exurberance of granulations with

the formation of papillomas or tuberculomas. The papillomas vary in size and shape, but are usually of the broad base type. The amount of discomfort caused by a papilloma in the space depends on its location. If situated right between the true cords, the symptoms, such as hoarseness, aphonia and dysphonia, are marked, while if situated above or below the cords, symptoms may be lacking. Patients with papillomatous growths in the space almost always clear the throat before talking. This is usually due to the presence of the growths or to the streaks of mucopus adhering to its rough surface. Conditions such as nasal stenosis, chronic pharyngitis, accessory sinusitis, bronchiectassis, lung abscess, syphilis and asthma will cause a hyperplasia of the posterior commissure simulating tuberculosis. When these conditions, however, are eliminated, interarytenoid hyperplasia with or without ulceration is pathognomonic of tuberculosis of the larynx.

Vocal Processes.—The portion of the larynx next most frequently affected is the vocal process, or the anterior angle of the arytenoid cartilage, which gives attachment to the vocal cords. The vocal process is found frequently affected in early cases, and is therefore considered separately. The proximity of the vocal processes to the arytenoids, true cords and interarytenoid space, with the consequent liability to trauma, renders them a favorable site for the development of the lesion.

Arytenoid Cartilages.—The arytenoids are next in frequency of involvement. Infiltration of the arytenoids varies from slight swelling, which appears hard, or semiedematous, to large edematous masses, partially obstructing the opening into the larynx. Marked edema of the arytenoids with extension into the folds gives the characteristic pear-shaped appearance.

Vocal Cords.—The usual site of the lesion is at the posterior portion of the cords. The anterior portion is often involved together with the posterior portion, but very rarely is the lesion limited to the anterior portion. Lesions of the cords do not differ in their appearance from a lesion located at any other part of the larynx. Descriptive terms such as "mouse-eaten," "granular" and "cleft-like," are often used in speaking of these lesions.

Epiglottis.—The epiglottis is the first portion of the larynx that comes into view on laryngoscopic examination, and its lesions are therefore most easily located. Infiltration is the most common manifestation. The site of the lesion is either at the rim or else at the cushion. Epiglottidean lesions are usually bilateral and more or less diffuse.

Ventricular Bands and Arepiglottidean Folds.—The most common affection of the above structure is manifested by infiltration.

Differential Diagnosis.—In discussing the differential diagnosis, only those conditions that are not described at length in textbooks will be considered here.

Bronchiectasis and Lung Abscess.—A large majority of patients with bronchiectasis or lung abscess present an appearance in the larynx typical of tuberculosis. The pulmonary condition of these patients being unknown at the time of the examination, the laryngeal lesion is classified as tuberculous. The diagnosis is changed only when it becomes established that they are suffering from a nontuberculous pulmonary infection, and the larynx would unlikely be tuberculous.

Accessory Sinusitis.—These cases often present an appearance in the larynx that may lead one to believe it tuberculous. In these patients there is usually a marked thickening at the posterior commissure and often at the posterior ends of both cords. The thickening is undoubtedly caused by the purulent discharge from the posterior nares, and by the improperly modified air breathed in through atrophic nasal chambers; a condition which usually accompanies chronic accessory sinusitis. In such cases, a thorough examination of the nasal chambers and sinuses will help in establishing the diagnosis of the laryngeal lesion.

Laryngitis Sicca.—This condition often accompanies accessory sinusitis, atrophic rhinitis and nasal obstruction. The lesion in these cases is diffuse, and here, also, the diagnosis may be determined after a thorough examination of the upper portion of the respiratory tract. If, however, in addition to one or more of the three previously described conditions the patient also has a positive sputum, he should be carefully watched, for the resistance of the larynx having been lowered, it is readily subject to infection by the tubercle bacillus, and any signs of progress of the lesion should be regarded as evidence of clinical tuberculosis.

Lupus.—When occurring in the larynx, this disease is characterized by a warty growth, very little ulceration and marked fibrosis. While tuberculosis of the larynx is usually secondary to tuberculosis of the lungs, lupus of the larynx is supposedly secondary to lupus of the skin. The writer, however, reported a case of lupus of the larynx where the lesion was apparently primary. (*Journal A. M. A.*, August 25, 1917, lxix, pp. 619-624.)

We must also differentiate tuberculous laryngitis from hypertrophic laryngitis, syphilis and carcinoma.

Prognosis.—The prognosis may be discussed in regard to (1) life and (2) voice. As a rule both are intimately connected, except in chronic cases, in which the voice may remain affected while the length of the patient's life is generally not affected.

The factors that determine the prognosis as to life are:

1. *The Pulmonary Condition.*—The character and extent of the pulmonary lesion should be carefully studied. The chronic type of pulmonary tuberculosis is the most favorable and the outlook here is good, while in the acute and subacute cases the prognosis is more serious. Patients with the most extensive lesions do not give the poorest prognosis. One with a widely spread fibroid lesion invariably offers a better prognosis than a patient with a limited subacute or acute lesion. In other words it is not so much the extent as the charcter of the lesion that determines the gravity of the individual case. Of course a small lesion is of more favorable outlook than a more extensive involvement of the same type.

2. *General Condition.*—Temperature, pulse and weight constitute the keynote to the patient's general condition. A rapid pulse usually signifies myocardial degeneration caused by the toxemia from

the tubercle, and when present for a prolonged period renders the prognosis grave. Daily or frequent elevation of temperature for a considerable length of time shows that the case is either of the acute or subacute type, depending on the height of the fever. The chronic cases often have febrile exacerbations, which, however, last only a brief time. A continued sub-normal temperature is a bad prognostic sign. The patient's state of nutrition is also an important guide in the prognosis.

3. *Underlying Disease,* such as syphilis, undoubtedly aggravates the prognosis by lowering the general vitality of the patient.

4. *Type of Laryngeal Lesion.*—The prognosis in acute cases is poor, but occasionally we see such cases improve. In subacute cases the prognosis is much better. This is the type that is most amenable to treatment, and when other factors are favorable the prognosis is good. The chronic cases are the most hopeful. Here the voice may remain affected, but the length of the patient's life is generally not influenced. We must, however, bear in mind that any one of the lesions may suddenly change its course, and for this reason the prognosis should always be guarded.

5. *Location of the Lesion.*—The prognosis as to life is most favorable in cases in which the lesion is situated in the posterior commissure or on the true cords. Such lesions usually are of the subacute or chronic type and tend to heal by fibrosis. Lesions of the epiglottis, aryepiglottidean folds, arytenoids, and ventricular bands may be of the acute, subacute or chronic type, and the outlook here is less favorable. In other words, where the mucous membrane is closely adherent, such as on the true cords and posterior commissure, the disease takes a chronic course and the prognosis is therefore favorable. When the mucous membrane is loosely adherent, such as on the epiglottis, folds, arytenoids and ventricular bands, the course is usually more acute and the prognosis less favorable.

6. *The extent of the Lesion.*—This does not necessarily influence the prognosis as to life, although cases of slight involvement are the most hopeful cases as far as the voice is concerned; nor is the prognosis less favorable in cases with ulceration. In fact, local medication takes better effect when ulcers are present. Thus we may say that widespread lesions, unless of the acute type, do not necessarily indicate a poor prognosis as to life.

7. *Early Diagnosis and Treatment.*—It is evident that the earlier the diagnosis is made, and the sooner treatment is instituted, the more easily can the lesion be cured or checked in its progress. This applies especially to the subacute cases which are most benefited by treatment and also to the chronic cases. The local resistance in the chronic cases is naturally lowered. The patient is usually unaware of the condition, and by early diagnosis and proper instruction regarding the care of the larynx, a chronic lesion will often be prevented from becoming acute. The acute cases, which as a rule take their own course, are occasionally helped by an early diagnosis.

8. *Nasal obstruction or Disease.*—Sinusitis, pharyngitis, or tonsilitis tend to lower the resistance of the larynx and thus influence the prognosis.

9. *Environment.*—The economic condition of the patient is often an important factor. Tuberculosis is a protracted and tedious disease and it takes about three to five years to accomplish an arrest of the lesion. Ample financial resources are necessary to "cure" over such a prolonged period. It is evident that the patient of independent means, and one who is faithful to the treatment, offers a better prognosis than his fellow of insufficient financial resources, who, in order to obtain a livelihood, must return to business or manual labor after only a brief course of treatment.

In giving a prognosis as to life, therefore, all the above factors should be carefully studied. Although in a number of cases the lesion in the larynx runs a course independent of the lesion in the lung, in the great majority of the patients the laryngeal lesion serves as an indicator of the pulmonary condition; and an active process in the larynx generally indicates activity in the lungs. Not only is a thorough knowledge of all these factors necessary but the laryngeal lesion itself should be watched for a considerable length of time so that the course may be definitely determined. In cases in which the lesion in the larynx is the chief predominating factor and runs an independent course, the general prognosis will of course depend chiefly upon the condition in the larynx.

The prognosis as to voice is usually more definite. This will depend largely upon the extent, location and character of the local lesion. The more extensive the process the greater the probability that the voice will remain affected. Cases with involvement of the true cords and interarytenoid space give a poorer prognosis as to voice than if situated elsewhere in the larynx. The destruction of tissue is usually greater in the acute and subacute cases, and there the voice suffers mostly. Of course the other factors, such as early diagnosis and treatment, influence the local as well as the general prognosis.

In general, then, it may be said that no definite prognosis as to life can be made from the condition in the larynx alone. All factors should be carefully considered and the laryngeal condition should only serve as an aid in the prognosis.

Treatment.—The treatment of tuberculous laryngitis is (1) general, (2) prophylactic and (3) local.

(1) *General Treatment.*—The general treatment is of primary importance since it is generally admitted that tuberculous laryngitis is invariably secondary to pulmonary tuberculosis. By treating the larynx and disregarding the lungs, we actually ignore the main issue. It is not only futile but also detrimental to a patient with symptoms of toxemia to go to the office for daily treatment of the laryngeal condition. The lungs should receive our first attention, and activity in the lungs requires absolute rest. The larynx in such cases may be treated with the patient in bed but never otherwise. Only cases with no activity in the chest may be allowed some exercise and may therefore be treated in the office, and in these cases, too, we must never overlook the pulmonary lesion. The sanatorium is the ideal place, although a number of patients that are financially able could be successfully treated at home. The country, where plenty of pure air can be obtained, is undoubtedly the most desirable place of residence. The dry mountainous climate is the most agreeable in the great

majority of instances. Outdoor sleeping should be urged, and persistent "curing" on a porch with a southern exposure will often accomplish surprising results. The exercise should be well regulated, and prescribed as the activity in the lungs and larynx subsides. The diet should be full and nourishing, and we must always remember that good digestion is the greatest asset in tuberculous patients. The stomach should never be abused and the diet should be carefully watched and regulated. As a rule three good meals judiciously selected are sufficient. Nourishment between meals should be recommended to patients whose weight is not up to the standard, and who apparently benefit by it. The writer feels that the general treatment of the patient is far more important than the local treatment, and a patient receiving only local attention with half-hearted or no treatment for the pulmonary condition is not being properly treated.

(2) *Prophylactic Treatment.*—This consists of the removal of predisposing factors capable of producing a catarrhal condition of the larynx with a consequent formation of a favorable site for the implantation of the tubercle bacillus. The predisposing factors are (*a*) nasal obstruction or disease; (*b*) pharyngitis and tonsillitis; (*c*) frequent colds; (*d*) abuse of the voice; (*e*) excessive cough, and (*f*) local irritants, such as smoke, dust, tobacco and alcohol. All these factors have a deleterious effect on the larynx and if possible should be removed.

(3) *Local Treatment.*—No specific remedy has as yet been discovered for tuberculosis of the larynx. The remedy, which we hope will eventually be discovered for the cure of tuberculosis of the lungs, will also cure the larynx. We are familiar with the different remedies tried, such as formalin, lactic acid, argyrol, silver nitrate, iodoform, etc. The writer has tried most of them and found some cases to be benefited by one, some by another, while a good many improved without any treatment and healed spontaneously. The method of treatment giving the best results is as follows:

First determine whether the case is acute, subacute or chronic. If chronic, the patient only suffers from slight discomfort, such as occasional tickling, irritation, etc., he is treated with a spray of 5 per cent. menthol in olive oil at frequent intervals. If no discomfort is present, he is told of his condition, warned not to abuse the larynx in any way and no local treatment is advised. The acute and subacute cases are treated locally at regular intervals. Such patients are supplied with De Vilbiss atomizers and told to spray the larynx four or five times a day with an alkaline solution, followed by a solution of 5 per cent. menthol in olive oil. If properly used the larynx is thus kept clear of accumulated mucopus and the patient is relieved of much of the discomfort.

Rest of voice is imperative in the acute and subacute cases. Absolute silence for the acute cases, while the whispered voice may be allowed as the case gradually becomes subacute. The patients with lesions of the chronic type may use the voice without harm. Abuse of the voice should, of course, always be discouraged.

For topical application the remedy found to yield the best results is the solution of iodine in glycerin. It is of the greatest benefit in the subacute and also in some of the acute cases. The writer uses it in strengths varying from 1.5 to 7.5 per cent., and applies it directly to the larynx on a laryngeal applicator. He begins with the 1.5 per cent. three times a week, gradually increasing the strength as the patient develops a tolerance for the solution. The application should be made gently during quiet breathing, and the entire larynx may be covered with it by asking the patient to phonate while the applicator is in the larynx, thus squeezing the swab with the true and false cords. The swab is then immediately removed and the patient is told to breathe quietly, thus preventing a coughing spasm in the majority of instances. When the stronger solutions are used, and especially in case with fresh ulceration, the patient often experiences sharp burning for a few seconds. This can easily be mitigated by previously spraying the larynx with a 2 per cent. solution of cocaine. Under this treatment, the writer has observed infiltration to diminish, granulations to disintegrate and absorb and ulcerations to heal. The solutions of iodine should be in brown bottles with glass stoppers. The action of the iodine on the lesion is probably due to its penetrating and antiseptic properties. The tubercle is avascular and cannot be reached by drugs through the circulation, while iodine is known to have a special affinity for tuberculous tissue. The iodine may also possibly exert its beneficial effect by causing mild irritation, thus producing slight reaction. The following are the formulas used:

Solution Iodine No. 1.
℞ Iodine crystals ..... gr. $7\frac{1}{2}$
Potassium iodide ..... gr. 15
Glycerin q.s. ..... oz. 1

Solution Iodine No. 2.
℞ Iodine crystals ..... gr. 15
Potassium iodide ..... gr. 30
Glycerin q.s. ..... oz. 1

Solution Iodine No. 3.
℞ Iodine crystals ..... gr. $22\frac{1}{2}$
Potassium iodide ..... gr. 45
Glycerin q.s. ..... oz. 1

Solution Iodine No. 4.
℞ Iodine crystals ..... gr. 30
Potassium iodide ..... dr. 1
Glycerin q.s. ..... oz. 1

Solution Iodine No. 5.
℞ Iodine crystals ..... gr. $37\frac{1}{2}$
Potassium iodide ..... gr. 75
Glycerin q.s. ..... oz. 1

Cases with superimposed catarrhal laryngitis or tracheitis are distinctly benefited by the intratracheal injection of 5 per cent. menthol in olive oil at frequent intervals. It allays irritation, diminishes cough and facilitates expectoration.

For relief of pain in laryngeal tuberculosis orthoform or cocain before meals will usually enable the patient to eat his food without distress. When the dysphagia is apparently due to infiltration and ulceration of the epiglottis, even if the lesion is not entirely confined to the epiglottis, the patient will often be relieved of this troublesome symptom by an epiglottidectomy. This operation is absolutely indicated in cases where the lesion is limited to the epiglottis, and the patient's condition permits.

7 Law Street.

PROSTATIC OBSTRUCTION.*

By P. E. TRUESDALE, M.D.,

FALL RIVER, MASS.

THE subject of prostatism and its treatment commands attention because: (1) the agent of its relief and cure marks an outpost in the progress of modern surgery; (2) it is one of the most serious and distressing changes occurring in the genitourinary tract; (3) frequently it has to do with a very important class of individuals, men of advanced years, often carrying heavy business responsibilities, men whose lives are of great value in the community; (4) such men are prone to hang their faith rather tenaciously on old-fashioned remedies and proprietary drugs, a long life having induced an over-cautious regard of modern art, so that they are reluctant to accept surgical aid until everything else has failed; and (5) lastly, because all practitioners treat the disease, and over 30 per cent. of those among us who pass the age of fifty (Morrow, Diseases of G. U., p. 337) will have some degree of enlargement of the prostate gland, although perhaps not more than one out of three or four thus affected will suffer pronounced symptoms.

Prostatic hypertrophy, then, is an harrassing ailment of the second half of life. The exact period at which it begins varies considerably since its presence is not suspected until it interferes with bladder function. Bladder disturbances from this cause have been reported by numerous observers in patients under forty years, but the extreme interference with the exit of urine caused by enlargement of this gland does not occur commonly before the fiftieth year.

Two forms of hypertrophy are observed in practice, the benign and the malignant. The benign form represents an overgrowth of the normal elements, forming a fibroadenoma or a fibromyoma in the gland.

This overgrowth may predominate in either of the lateral lobes or in the central lobe. One of our recent cases gave a history precisely similar to that of bladder stone. There were frequent sudden interruptions of the stream during urination. Upon cystoscopic examination this proved to be caused by an enlarged pedunculated middle lobe which had acted as a ball valve. Then there is the sclerotic form, the rigid scarred prostate, only slightly enlarged and usually not showing adenomatous changes.

The explanation of the obstruction caused by overgrowth of the fibrous, muscular, and glandular elements is found in the projection of the new tissue from those surfaces of the prostate which offer the least resistance, the vesical and urethral faces, for these are not hemmed in by the same firm fascia that is found on the rectal and perineal boundaries. For this reason the so-called middle lobe often projects into the bladder and may be the sole cause of obstruction.

In the overgrowth of the gland, the prostatic urethra becomes elongated, deviated, and decreased in caliber, the vesicourethral orifice becomes elevated, and thus complete evacuation of the bladder becomes difficult, and eventually impossible. In addition there is obstruction to the return circulation of the bladder, since the vesical veins empty into the compressed prostatic veins. As a result of back pressure there develops a dilatation of the bladder, ureters, and kidney pelvis, which in turn produces a chronic passive congestion of the kidneys. In the course of time obstruction increases. Ammoniacal fermentation of the urine is thus favored. The use of the catheter becomes imperative, and following this we observe cystopyelonephritis, chronic uremia, a progressive diminution of the nitrogen output, and death. Hence it is evident that in the presence of any marked degree of prostatic enlargement, trouble in the entire urinary tract is inevitable.

Occasionally one finds the bladder in a healthy state even after long-continued use of the catheter, but this is exceptional. Bad infections are common and men who carry such secondary changes greatly shorten expectation of life. They can be made good surgical risks only after a long period of treatment. Squire's (*Surg. Gyn. and Obs.*, Oct. 1913) studies of a series of unoperated cases showed that 50 per cent. died within five years from the onset of obstructive symptoms where the catheter was not used, while 66 2 3 per cent. died within a period of two years and eight months of catheter life.

Carcinoma of the prostate is no longer considered to be rare. Careful pathological examination of all areas throughout the gland have frequently revealed the presence of unsuspected cancer. This occurs in the circumscribed form which develops within the capsule. The diffuse carcinomata invade the tissues outside the capsule and are usually detected by their induration and stony hardness. Formerly the unrecognized malignant cases would improve after operation for a period of a few months to a year and return with evidence of cancer invading the anterior wall of the rectum by contiguity.

Symptoms.—The usual local symptoms of prostatic obstruction consist of a difficulty in starting the flow of urine, feebleness of the stream, and the unduly frequent calls to urinate, especially at night, representing the so-called "irritable bladder.." Frequency continues with the amount of residual urine increasing until eventually the patient finds it impossible to respond to the call of urination. Hematuria is common. It is observed more often with benign hypertrophy than with malignancy, contrary to widespread opinion.

It is well to bear in mind that in the earlier stages and the midperiod of the disease, other general symptoms may obscure the urinary discomforts, such as nausea, loss of appetite, indigestion, dryness of the mouth, headache, pain in the back, or slight fever, all of which may be due to mild uremia.

The nature of this disorder may be unsuspected during the congestive period or at least very well tolerated until the period of partial or complete retention. After excessive eating or drinking, constipation or an attack of grippe, there is a sudden exaggeration of the mild symptoms, or a complete retention of urine. When put to bed and catheterized properly, diuretics and cathartics em-

*Read before the New Bedford Medical Society, March 9, 1920.

ployed, the symptoms subside, only to return again under similar provocations. When infection follows the use of the catheter there is ushered in all the symptoms of cystitis, as dysuria, fever, and burning pain referred to the lower abdomen and the lower lumbar region.

Inefficient renal function, which is by no means rare in prostatic obstruction, frequently causes digestive disturbances, such as anorexia, indigestion, constipation, slight nausea, and occasional vomiting. These symptoms may be associated with headaches, blurring of vision, and extreme nervousness.

Diagnosis.—The diagnosis is a very important phase of the problem connected with the disease. There was a time when the history plus the information obtained from examination of the urine and the rectal examination were the only diagnostic means. While these have not been supplanted by other agents, precision in diagnosis has been greatly enhanced by the use of the cystoscope.

It is of prime importance for the physician or surgeon to have an accurate picture of the entire genitourinary tract before he can treat his patient intelligently, not alone estimate the probable outcome of his efforts. One should employ every means at his command to determine the nature of the enlarged prostate. Whether the changes are due to simple hypertrophy, calculi, cancer, or tuberculosis, will have an important bearing upon the prognosis and treatment. Finally, lesions of the spinal cord should be carefully excluded.

The examining finger notes the size, smoothness, symmetry, and consistency of the prostate. Perhaps in the majority of cases the rectal examination gives adequate and satisfactory information. An enlarged, smooth, soft, symmetrical gland may be the cause of great disturbance by the presence of a large middle lobe. Through the cystoscope, the middle lobe when enlarged is readily seen. This instrument should be employed in every case because it enables the examiner to see distinctly the contour of the vesical surface of the prostate, and the condition of the bladder wall. Diverticula, calculi, ulcerations, and carcinomatous degenerations are thus observed. It is sometimes difficult to distinguish the benign from the malignant prostate by visual examination since long-standing infections may give the mucosa an appearance of carcinoma. Tuberculosis is best recognized by the cystoscopist, although this condition is usually accompanied by a thickening of the seminal vesicules and epididymis and the presence of acid-fast bacilli in the urine.

Cancer of the prostate, when advanced, can be recognized by the uneven hardness and nodular areas felt on rectal examination, the presence of enlarged inguinal glands, hematuria, cachexia, etc. These patients are in a state of incurability and except in borderline conditions, no special knowledge or experience is necessary to make the correct diagnosis. Cancer is probably curable in the early stage only, when the cell division is still within the capsule. In this stage it is rarely detected by the examiner, usually overlooked by the operator, and occasionally escapes the pathologist unless the latter habitually makes a thorough search of the specimen for cancer cells. The search for cancer is now given special significance because it has been demonstrated frequently at autopsy that the entire prostate gland is never removed, that a thin layer of gland structure always remains attached to the capsule posteriorly, and radium has proved a very potent agent in destroying any residual cancer tissue.

Treatment.—Naturally the most rational treatment is the removal of the prostatic obstacle to urination. This cannot be done always for reasons that are well known, such as tabes, pulmonary or cardiorenal disease, renal insufficiency, or cancer. Excluding these conditions, Braasch (*St. Paul Medical Journal*, Jan., 1915) and other urologists advocate prostatectomy whenever there is evidence of persistent residual urine.

When a physician is summoned to treat a case of prostatism, he usually finds the patient acutely ill from obstruction following long-standing interference with normal urination. Relief is paramount. Immediate operation would greatly imperil the patient's life. Mild measures may be adopted by the physician and often lead to success in relieving the patient. Under the circumstances one may first empty the rectum by a hot water enema, and follow this with a suppository containing ¼ grain of morphine. The patient is warmly covered in bed with the hips elevated. The anterior urethra is injected with warm sterile oil. A clean, soft catheter is filled with oil and introduced. Should this effort fail, an elastic coudé catheter, No. 10, Eng. is tried and usually enters the bladder. In exceptional cases, all instrumentation per urethram fails, and this should not be continued long enough to exhaust the patient or inflict damage to the soft parts, for superpubic aspiration of the bladder can be done under local anesthesia or gas-oxygen speedily and with most satisfactory consequences. Subsequent drainage by the superpubic route is far more comfortably borne and controlled. At the outset, then, one aims at bringing relief by emptying the bladder in one way or another. When this is done, either by means of a catheter passed through the urethra and left in or through a suprapubic stab wound, the patient's condition, both general and local, improves rapidly. The uremic symptoms clear up, and the engorgement of the blood vessels of the prostate subsides, so that if the patient decides to postpone operation, he may remain free from obstruction for several weeks or months. Under ordinary circumstances surrounding a case of retention, drainage of the bladder thus forcibly established should be made through a suprapubic stab wound and considered a preliminary to the operation of prostatectomy, which is to be done when conditions warrant. During the period of preparation, it is advisable to keep the patient up and about. It is a well-known fact that old people do better when they are ambulatory and not infrequently the recognition and application of this knowledge rapidly promotes early and complete recovery. This applies to the period following operation as well as to that preceding operation. Prostatectomy patients should be encouraged to get out of bed as early as the fourth or fifth day.

Our earlier prostatectomies were done by the perineal route and with virtually no preliminary preparation of the patient. Although the mortality was not high, 6 per cent. for the class of

cases operated upon, the results were not all that could be desired. Healing of the wound was slow, and control uncertain. Then, we did much "fussing" with the patient after operation. Now the "fussing" is done before operation. This consists in the previously mentioned suprapubic drainage of the bladder, continued until the kidney function tested by the renal dye elimination is high enough to afford a good margin of safety, keeping the patient ambulatory, supplying the necessary diuretics, cathartics, and tonic treatment.

We do the operation by the suprapubic method, through a good-sized incision in the bladder wall. Except in the cancerous, the sclerotic and inflated forms of enlarged prostate, the operation is comparatively simple and invariably followed by the most happy results. The sclerotic and inflamed prostate is small, and presents real difficulties in its enucleation. It is almost impossible to obtain a plane of cleavage, and one feels that he must be satisfied with having removed the major portion of the gland without tearing into the cellular tissue. So with the enucleation of the cancerous prostate, the execution of which is fraught with considerable risk. Again one must be satisfied to get out what he can with safety and leave the rest for radium treatment, which now has a definite place in dealing with cancer of the prostate.

Death occurring within the first forty-eight hours after operation is frequently the result of shock, which is usually induced by inordinate bleeding. Squire's (*loc. cit.*) analysis of seven deaths occurring in 100 prostatectomies gives shock as the cause in three, anuria in two, and pulmonary embolus in two. Before the two-stage operation was established, Tenney and Chase (*Boston Med. and Surg. Journal*, Mar. 25, 1915) showed that 41 per cent. of the postoperative mortality was due to either uremia or sepsis. Modern methods have practically eliminated the deaths from these causes. During prostatectomy, a moderate amount of bleeding is expected and allowed to progress without the employment of the common measures for hemostasis. It usually stops spontaneously but not always. If blood pressure rises upon return of consciousness, bleeding may increase. The volume of blood and its coagulability varies considerably in different individuals, and the manifestations of excessive blood loss are not always typical. Therefore, it is often difficult to recognize the approach or actual crossing of the danger zone. This complication should not add more to the risk of the suprapubic operation because the operative field is in plain view and the operation should not end until hemostasis is evident. Bleeding may be controlled by gauze packing, the inflation of a rubber bag in the prostatic pouch, or suturing the pouch over with catgut. The latter method is the one which we have employed. The only safe course is to leave the operating table with a feeling of assurance that bleeding is controlled.

We believe that the risk of operation is greatly increased if it is performed too soon after the patient enters the hospital. In spite of an occasional high percentage of dye elimination during the renal function test, these patients generally are poor risks. They postpone operation until a condition of exhaustion from pain, loss of sleep, and toxemia causes pronounced irritability and impatience. Once decided upon operation, they become impatient about waiting and are apt to press the surgeon into immediate action. One of our patients, in complaining about the waiting period, stated that it caused him considerable worry and that his attitude was like that of Daniel Webster who was interrupted and delayed during a conference and exclaimed, "The best way to resume is to resume!" If an operation was in the foreground, he believed that the best way was to have it done as soon as possible, but in surgery of the prostate the best way to operate is not to proceed with the major effort at once. This patient gained time and perhaps life by the necessary preparation. The benefits from preliminary drainage of the bladder are not only constitutional but local. Those which take place locally loom large in the immediate outcome of operation by clearing up infection of the bladder mucosa, reducing the inflammatory changes around the neck of the bladder and by allowing the engorged blood vessels to regain their normal size and contractility. Add these items to greatly improved renal function and one can feel assured that the chances of success are greatly enhanced.

Finally, it may be said that with the exception of the rare and unfavorable forms of prostatic hypertrophy one is justified in making the assuring statement that few major operations in surgery involve less danger and are more instrumental in prolonging life and the joy of living than suprapubic prostatectomy intelligently approached and well done.

THE RELATIONSHIP OF PELVIC DISORDERS TO THOSE OF ADJACENT VISCERA.*

By JAMES W. NIXON, Jr., M.D.,
SAN ANTONIO, TEX.

THE subject that has been assigned to me for this evening's discussion is not only a broad one, but it has been so frequently discussed at meetings of this kind that there would seem to be little that is new to consider.

At the same time errors in differentiating between disease of the uterus and its adnexa and disease of the appendix, the rectum and neighboring organs are so frequently made and a correct preoperative diagnosis is of such vast importance that it seems worth while to consider briefly some of the more important points in diagnosis of the pathology associated with disease of the pelvic organs.

It is a well-known fact that the appendix is frequently involved in disease of the female pelvis. But in spite of extensive literature on the subject the exact incidence has not been recorded. In my limited experience, without committing myself to figures, I should estimate it so high as to make it a rule whenever called upon to do an appendectomy on a woman, never to omit examination of the pelvic organs. The importance of this was emphasized in a paper by Pozzi and Terrillon in 1890, and has been the method pursued by the best surgeons before and after that time.

The association of appendicitis and salpingitis

*Read before the Bexar County Medical Society, Jan. 27, 1921.

is familiar to every surgeon, but the sequence of cause and effect is not definitely settled; we merely know that the tubes may become involved through extension of infection from the appendix, and *vice versa*—a salpingitis may be the original cause of a subsequent appendicitis. Furthermore, the tubes and the appendix may be simultaneously involved by separate and distinct diseases. It is this fact that stresses the necessity of examining both these regions when called upon to operate for a lesion of one or the other. Neglect to do this may result in the embarrassing position of subjecting the patient to a second operation which could easily have been avoided.

Petersen in a series of two hundred cases found that the appendix was normal in only 50 per cent., and Gobritz found it normal in only 40 per cent., while Child in a study of 746 cases, covering all types of pathological conditions of the pelvic organs, found a diseased appendix in 244, or 32.5 per cent. of the entire series. On the other hand, the danger of the appendix becoming involved through disease primary in the tubes is apparent from the observation that 66.66 per cent. of cases of right salpingitis are complicated by appendicitis. (The incidence in left salpingitis is much lower.)

With regard to the incidence of appendicitis in the male and the female, there used to be a tendency to believe that owing to the liberal blood supply to the female pelvis, women enjoyed a certain immunity from disease of the appendix; but this apparent immunity is more than counterbalanced by the frequency of disease of the pelvic organs in the female, and the danger of appendicitis as shown by the figures just quoted. Most operators claim a larger incidence of appendicitis in the female than in the male, but in the experience of Deaver the disease seems to favor males. This, however, is one of those intricate matters of statistics that depend on so many circumstances that it is difficult to state the exact proportion without entering more deeply into the subject. It may be said in passing, however, that Deaver's comparative figures, 61.87 per cent. male, against 38.13 per cent. female, may be due to the fact that being a general abdominal surgeon he sees more male patients than female since the latter are more likely to consult the gynecologist; it is for this reason, also, that more of Deaver's appendectomies are done through a McBurney incision than through a straight one.

Although the appendix plays a leading rôle in the development of infection of the uterus, tubes, and ovaries, the rectum is often very obtrusive, to say the least. There are very few surgeons who have not been confronted with the trying situation presented by a rectum adherent to the pelvic organs. Only recently I had the opportunity of observing the trouble such pathology can produce. An infected ovarian cyst was so firmly adherent to the rectum that it was only with the utmost care and precaution that the adhesions could be separated without injuring the rectum. In another similar instance, the rectum was injured in separating an adherent pyosalpinx, and a fecal fistula resulted. In view of this and other unpleasant possibilities it is better in such circumstances to allow a portion of the indurated tissue to remain adherent to the rectum rather than to attempt to find a line of cleavage, with the risk of traumatizing the rectum, which, as we all know, is an organ to be treated with the utmost respect. Oftentimes it has proved to be a "boon" to both surgeon and patient. In cases of prolonged pelvic infection where, owing to the depleted condition of the patient, operation is inadvisable, recovery may take place through the liberation of pus having found an outlet by way of the rectum. In fact, sometimes hemorrhoids have been cured by hysterectomy, due to the relief of pressure on the rectum which had produced the hemorrhoids. I have observed two such cases. Oftentimes stricture of the rectum results from induration of its wall—the outcome of close association of the rectum with an infected pelvic organ.

The urinary symptoms developing from pressure of a fibroid, a cyst or a pelvic abscess are frequently the chief complaint. Spontaneous rupture into the bladder of a degenerated myoma uteri has been encountered and injury to the bladder or ureter, which has lost its normal anatomical relations by adhesions or tumors is neither a curiosity nor a pleasure to the surgeon. The close relation of the bladder to other pelvic organs is only too familiar to everyone.

The omentum, well named the "policeman" of the abdominal cavity, may also lead to unpleasantness. It always appears at the site of trouble, and it is often found plastered to a pelvic organ following some inflammation of the "arrested" viscus. In this position the adherent omentum, by restricting the normal intestinal fredom, may give rise to symptoms of intestinal obstruction. There are other pitfalls in this connection; for example, after an attack of acute gonorrheal salpingitis had subsided, a patient under my care developed a high temperature, a rigid abdomen, and a high leucocytosis. Examination of the pelvis failed to reveal any physical signs which might account for the symptoms. At operation a large omental abscess was found, the smear from which contained Gram-negative intracellular diplococci.

Although a small intestine may become involved in pelvic disorders, we are concerned, perhaps, less about its safety than about that of the large intestine. Adhesions and intestinal obstruction are the complications to be most feared in connection with this viscus. A fistula here from the abovementioned cause is rare; but when present it gives the surgeon more concern than does a fistula of the large bowel.

The opportunities for mistakes in diagnosis thus are numerous. The most frequent seat of error in the diagnosis of abdominal conditions in women is found in the right side of the abdomen. Inflammation of the tube, ectopic gestation, ovarian cyst, intraligamentary cyst, pyelitis, stricture of the ureter, or the passage of a calculus along its course have all been mistaken for appendicitis. And appendicitis, on the other hand, which is located deep down in the pelvis, has been diagnosed as acute salpingitis; even a pelvic abscess pointing in the posterior vaginal vault may be due to appendicitis. An ovarian cyst, we know, can easily be confused with myoma uteri.

The value of a correct diagnosis is undisputed. To get this, a complete, careful history is of pri-

mary importance. To my mind this stands far ahead of any other diagnostic means which we have at hand. Many of us have seen an ectopic gestation neglected because the physical signs and the laboratory findings were given precedence over a definite and clearcut history. Next in importance is the physical examination. Very often, in fact, owing to the low mentality of the patient, we are forced to rely completely on this means of arriving at a diagnosis. Wherever it is possible a complete blood examination or any other desired laboratory test should be employed to confirm the diagnosis, and thus make the condition reasonably sure. The character and the gravity of the surgical procedure and its result may depend, in large measure, on the diagnostic and manual skill of the surgeon. It is my belief that as a general rule for appendicitis in the female, although the diagnosis may be fairly certain, it is safer to adopt the so-called straight incision rather than the McBurney. The straight incision permits inspection of the pelvic organs which, as we have seen, are so often involved that routine examination is most desirable. This cannot be done through the small McBurney. It is, therefore, no exaggeration to state that the advantages of the McBurney over the straight incision are too few to risk the need of a second operation in doubtful lower abdominal conditions in women.

331 Moore Building.

A CASE OF EPIDEMIC MENINGITIS TREATED BY COMBINED SERUM AND VACCINE THERAPY.

By CHARLES E. NAMMACK, M.D.,

NEW YORK.

CAPTAIN, M. R. C., U. S. A.; ASSISTANT VISITING PHYSICIAN, BELLEVUE HOSPITAL; CLINICAL INSTRUCTOR IN MEDICINE, CORNELL UNIVERSITY MEDICAL COLLEGE.

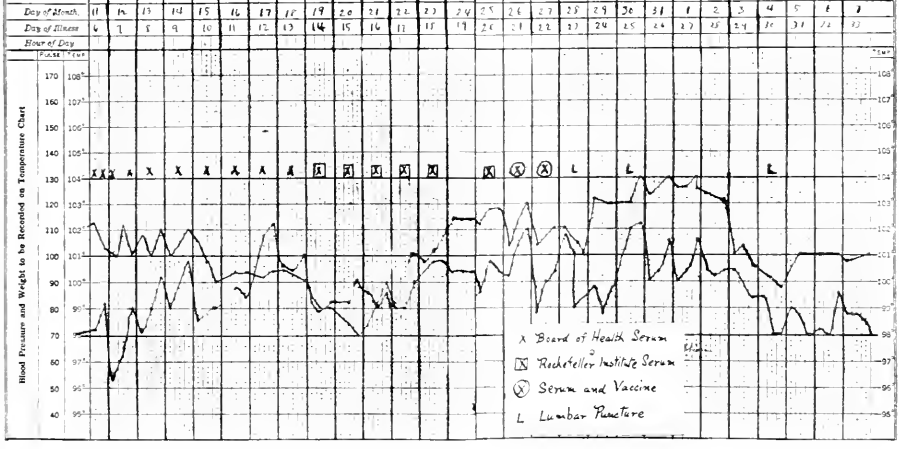
I WISH to present a case of meningococcus meningitis treated by serum and vaccine therapy. The following case has been considered worth bringing to your attention because, while it presents no strikingly unusual features, yet the problems which it presented and the methods used to combat them may prove of some value in similar cases.

The patient, a girl of eighteen, was admitted to the Fourth Medical Division of Bellevue Hospital, October 11, on Dr. Charles E. Nammack's service. The chief complaints were headache, vomiting, stiff neck, and fever. On examination she presented all the classical symptoms of meningitis. Five days before admission and one day before the onset of the severe symptoms she had complained of severe earache without any evidence of discharge from the ear. For this reason it was considered not unlikely that she was suffering from a secondary meningitis, probably pneumococcic. The ears and mastoid were negative, however, and there were no petechiæ found.

On admission the temperature was 102.4°, pulse 72, respirations 24, and the patient was markedly prostrated. Lumbar puncture was done and a large amount of turbid spinal fluid, under greatly increased pressure, was withdrawn and 30 c.c. of Department of Health antimeningogoccus serum was administered intraspinally by the gravity method. The analysis of the spinal fluid showed a tremendous increase in cells with 95 per cent. polys, globulin 4 plus, Fehlings negative, and numerous Gram negative intra- and extracellular diplococci, which proved to present the cultural characteristics of meningococci. The lumbar puncture was repeated in twelve hours with another injection of serum—20 c.c. this time.

The following day the patient was extremely restless, complaining bitterly of headache, and it was necessary to give her 6 minims of Majendie's solution and gr. 1/150 of atropine, both during the day and at night. In addition, two lumbar punctures were performed and she received 50 c.c. of serum intraspinally. The patient received daily treatments on the four succeeding days and on the 16th the temperature began to go down, there was considerable improvement in her symptoms, and a diffuse urticarial rash of serum sickness appeared. Lumbar punctures done on the seventeenth and eighteenth days showed the fluid to be still extremely turbid, however, and meningococci were present in both smear and culture. It was then found that the Department of Health serum which was being used did not agglutinate the strain of meningococcus isolated from this case. Although the efficiency of a serum does not depend entirely upon its agglutinating powers, it was considered best to employ another serum and some serum was obtained from the hospital of the Rockefeller Institute.

Daily doses of this were given from the 19th to the 23d of October and also on the 25th; the fluid continued turbid and organisms were still present, although less numerous, and the temperature reached normal on the twentieth day, but again rose. It was found that the



Rockefeller serum also failed to agglutinate the organism of this case. In the meanwhile an autogenous vaccine had been prepared and on October 26 30 c.c. of cloudy fluid was removed and the patient received 20 c.c. of Department of Health serum with one-half c.c. of vaccine, the strength of which was one billion organisms per c.c. The fluid the following day showed only a slight turbidity and the dose of vaccine and serum was repeated and was followed two hours later by a severe chill lasting about ten minutes and a rise of temperature to 102°. Lumbar punctures were done on the 28th and 30th, and November 4, but no serum or vaccine was given, as the fluids were clear and sterile and there was a steady decline of the temperature to normal. Convalescence was slow but uneventful; there were no sequelæ, and the patient was discharged to go to the country to recuperate on December 1, 1920.

The interesting features of this case are: (1) Failure to respond to serum treatment intraspinally given intensively but with a serum that failed to agglutinate the organism present. (2) The continuance of the symptoms and the presence of organisms in the spinal fluid under further lumbar punctures and serum therapy. (3) The prompt response and improvement going on to complete recovery following the employment of mixed serum and autogenous vaccine treatment intraspinally. I am not prepared to say what the rationale of this treatment is but I believe that it is a specific response in the production of antibodies due to the introduction of foreign protein similar in effect to that produced by the use of typhoid vaccine in cases of arthritis, differing, however, in being specific because treated by a vaccine made from the particular organism present in the spinal fluid. During the past year we had in the Meningitis Division of the Department of Health two cases cured in which autogenous vaccine was employed intraspinally. One of these cases was influenzal meningitis and the other staphylococcic, detailed accounts of which will appear elsewhere in the near future. This form of therapy may offer hope in cases of purulent meningitis which are regarded as uniformly fatal.

In connection with the case that I have described there were two things that might well have done at the outset. One would have been to test the serum to be used as to agglutinating power before beginning its use, but when one is using a polyvalent serum this is not usually considered necessary. Again, we might have given serum intravenously following the plan of combined intraspinal and intravenous therapy employed with such success by Dr. W. W. Herrick at Camp Jackson during the epidemic there among the troops. Dr. Josephine B. Neal and others do not consider it advisable to use serum intravenously unless there are evidences of a meningococcus bacteriemia; there was no such evidence in this case although a blood culture was not taken. Attached is the temperature chart from admission until the temperature reached and remained normal.

In regard to the administration of vaccine intraspinally, I would like to say that had we not been using a specific serum as in this case, we would have diluted the vaccine with an equal amount of sterile saline solution. In a case of influenzal meningitis treated by me by this method, combined with subcutaneous injections, an infant three months old lived three weeks with marked improvement in symptoms and finally succumbed apparently because of a complicating bronchopneumonia.

63 East 56th Street.

Medicolegal Notes.

Abrasion Permitting Erysipelas Germs to Enter—Question of Voluntary Exposure for Jury.—In an action on an accident policy over the life of a physician it appeared that the insured accidentally caused a scratch or abrasion of the skin of the ear in adjusting his glasses while attending a patient suffering from erysipelas, and germs entered the wound and caused infection. The Georgia Supreme Court holds that it was a question for the jury whether recovery should be denied on the ground that the infection occurred from the insured's voluntary act in subjecting the wound to exposure; and judgment for the defendant was reversed.—Bell v. State Life Ins. Co. of Indianapolis (Ga.), 105 S. E. 846.

Administration of Anesthetics—Burden of Proof of Negligence on Plaintiff in Malpractice Case.—In an action for malpractice it appeared that the defendant caused an anesthetic to be administered to a patient, preparatory to performing a surgical operation. The patient died from the effects of the anesthetic before the operation was commenced. The action was for damages for the death. The lower court granted a nonsuit, from which the plaintiffs appealed. They charged negligence in causing the anesthetic to be administered at the particular time, when the patient was in an unfit condition. The evidence showed that the operation, which was for a comminuted fracture of both bones of the right forearm, had been from time to time delayed over a period of two or three weeks, solely on account of the patient's intemperance. Finally, "he appeared at the hospital 'more sober than he had been, but he showed the effects of drinking,' and, accepting the advice of Dr. Scott, stayed there overnight, during which time the doctor got him in as good condition as he could under the circumstances." The Montana Supreme Court said: "The consensual transaction from which arises the relation of physician and patient does not imply absolute liability. A physician is not an insurer, and a malpractice case does not differ in its essential ingredients from any other action for damages arising from negligence. The law does not presuppose that for every injury there must be a recovery in damages. The gist of this action is negligence, and actionable negligence arises only from a breach of legal duty.—Jonosky v. Northern Pac. Ry. Co., 57 Mont. 63, 187 Pac. 1014. What, then, was the legal duty Dr. Scott owed to Charles Lowden? The standard of legal duty owed by the physician the court stated to be the exercise of such reasonable care and skill as is usually exercised by physicians or surgeons of good standing of the same system or school of practice in the community in which he resides, having due regard to the condition of medical or surgical science at that time.

"There was no expert testimony in the case that the defendant's action in causing the anesthetic to be administered indicated the exercise of want of ordinary care, skill, or diligence as required in malpractice cases in that jurisdiction and elsewhere generally."—Stevenson v. Gelsthorpe, 10 Mont. 563; Witthaus & Becker on Medical Jurisprudence, 87. No presumption of negligence arose from the fact that it was dangerous then to administer the anesthetic, the evidence showing that the element of danger is present in every instance where a patient is anesthetized. "The gravamen of this case is negligence, and negligence cannot be inferred from the fact alone that the patient died. Haire v. Reese, 7 Phila. (Pa.) 138; Bonnet v. Foote, 47 Colo. 282; 107 Pac. 252, 28 L. R. A. (N. S.) 136. The maxim, '*Res ipsa loquitur*,' has no application to a case of this character. Ewing v. Goode (C. C.), 78 Fed. 442. Negligence is not to be presumed; it must be proved (Reino v. Montana M. L. Co., 38 Mont. 291, 99 Pac. 853), and plaintiffs were required to assume the burden of proving the negligence charged and that Lowden's death resulted proximately from such negligence (3 Wharton & Stillé's Medical Jurisprudence, § 500). From the very nature of the case, each of these ultimate facts required for its proof the testimony of one qualified to give an expert opinion (Pettigrew v. Lewis, 46 Kan. 78, 26 Pac. 452), and in the absence of such testimony the case failed." Judgment of nonsuit was affirmed.—Lowden v. Scott (Mont.), 194 Pac. 488.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, July 9, 1921.

TUBERCULOSIS IN NURSLINGS.

TUBERCULOSIS is frequent in nurslings, its frequency increasing with the age of the infant. Both sexes are equally attacked during the first year of life, but during the second, males suffer much more than females, the ratio being 5 to 2. In nearly 50 per cent. of the cases there is a history of tuberculosis in the parents. Familial contagion is of the highest importance, hence illegitimate babies are less often afflicted. When a nursing mother presents open tuberculous lesions the baby runs great risk of being contaminated. Two facts dominate the history of tuberculosis in nurslings. The first is that tuberculosis of the bronchial lymphnodes is almost invariably the first important focus of bacillary infection; it is the most constant localization and is found in most cases. This leads one to suppose that the usual entrance of the bacillus in nurslings is the respiratory tract, and it is exceptional to discover lesions which would indicate an intestinal origin of the infection. The second fact is that tuberculosis in early life tends to diffusion and this tendency is all the more marked the younger the child.

The respiratory forms vary. The tracheobronchial adenopathy, which is nearly always present, may be latent and merely cause pyrexia. Or it may give rise to physical signs or compression symptoms and occasionally to laryngeal phenomena. Bronchitis with a subfebrile state is frequent during the first year of life, offering a very commonplace aspect, but the general health of the baby and tuberculosis reactions will indicate its true nature. The infant may recover, but if he dies autopsy will reveal an ordinary bronchitis kept up by adenopathy, or an ulcerating pulmonary tuberculosis, unsuspected during life, may be found. Bronchopneumonia, frequent during the second year of life, has a bad prognosis. Sometimes localized in foci, at other times diffuse, it is usually characterized by the persistency of its symptoms and the profound changes in the general health. At autopsy, the usual lesions of bronchopneumonia, with or without distinct lesions of tuberculosis, will be found. Ulcerating pulmonary tuberculosis is difficult to diagnose in nurslings; even cavities often remain latent, but when hemoptysis occurs, which is very uncommon, it is a sure symptom of this process. Pleural manifestations are rare and consist of a purulent collection due to the ordinary forms of infection. The dry forms are found only at necropsy.

The digestive manifestations may be divided into simple dyspepsia and gastroenteritis. The former is observed especially during the first year of life and is characterized by emaciation and hyperthermy which are disproportionate to the intensity of the digestive symptoms, the latter being in reality mild. Death often occurs in one to three months. Gastroenteritis, which is quite as frequent during the second as during the first year of life, offers the ordinary clinical aspect of this affection, but its characteristic is that no improvement occurs in spite of a perfectly regulated diet. The nature of these processes is often obscure, and as they cannot be attributed to tuberculous changes in the digestive tract, it is probable that their causal factor resides in tuberculous intoxication.

External tuberculous manifestations are not very uncommon in nurslings, particularly osteitis, Pott's disease, spina ventosa, orchitis, subcutaneous gummata, and, more rarely, tuberculides.

The most frequent nervous manifestation of tuberculosis in nurslings is meningitis, while its forms are rather remote from the classified type met with in older children. The eclamptic and somnolent forms are common, likewise the form with paralytic localizations.

Generalized tuberculosis in nurslings often assumes the form of chronic miliary tuberculosis with tubercles scattered throughout the thoracic and abdominal viscera. Clinically, it is made evident by atrophic cachexia with apyrexia, polyadenopathy, and enlarged spleen and liver. Generalized tuberculosis may assume an acute course, either the asphyxiating or the typhoid forms.

In all these various tuberculous processes in nurslings, autopsy usually reveals far more extensive and advanced lesions than were suspected during life, and reactions toward healing are rarely found. Like all chronic infectious processes tuberculosis may act on the bone marrow and cartilages of ossification, thus producing rickets, and the latter condition during the second year of life has been shown by Marfan and Mantoux to depend frequently upon tuberculosis. The diagnosis of tuberculosis in nurslings depends essentially upon tuberculin reaction, and the cutireaction should be the clinician's guide. A positive result will often clear up the nature of symptoms of what was thought to be an ordinary affection of the first two years of life.

EARLY DIAGNOSIS OF CANCER OF THE UTERUS.

THIS subject is a trite one, yet one of great importance and one that can hardly be discussed too often. Many accomplished and conscientious practitioners are not honest with themselves when they suspect the existence of a beginning cancer of the

cervix and hesitate to submit their patients to a hysterectomy which might possibly turn out to have been unnecessary. These physicians wish their diagnosis to be absolutely certain before they countenance this ordeal. They also shrink from terrorizing the women, although to-day the problem has been simplified because the mortality of vaginal extirpation is small—and there is also radium. But to minimize the unpleasant features, it is necessary for the disease to be detected at the earliest moment, and there should be no difficulty in diagnosis if we are circumspect. Sireday, writing on this topic in the *Journal de Médecine et de Chirurgie Pratiques*, xci, 22, says there are three elements which tend to cloud the diagnosis and we have to bear these carefully in mind. First is the age of the subject, for we are most apt to think of cancer at the age period 40-50. This is the rule, but the disease may occur at almost any age and the author has had in his hospital service at one time as many as four or five cases of cervical cancer in women under 35. In his consultations he sees the disease at 28, 26 and 25, and recently he saw a woman of 24, two months pregnant, with cancer of the cervix. He has very exceptionally seen the disease at 23 and 22, while the record in his experience was in a girl of 19, although he has seen a cancer of the rectum in a girl of 18.

The second deceptive factor is the apparent good health of many of the victims. In fact, it is only at an advanced period that the general appearance is altered. Some of the women may be in bad health, thin and anemic, but not from the cancer. On the other hand many seem in magnificent health and vigor—shopkeepers of opulent proportions such as delicatessen store proprietresses, wine dealers, and costermongers with red, outdoor complexions, or corpulent women of the world. Some of these women weigh as much as 220 pounds. Health and youth should not therefore mislead us. Another source of confusion attaches to the menopause with special reference to hemorrhages. It is taught erroneously that a woman should bleed at this period, but this is true only of a certain percentage in whom there is at this time of life a true menorrhagia. This may preserve much regularity but even when irregular and atypical the woman goes a number of days in succession without any loss of blood; in cancer this negative behavior would not be in evidence. In these cases moreover there is a strong presumption of fibroid uterus and examination may confirm this presumption. In other cases we think of angiosclerosis in which condition the uterus may be enlarged or normal in size. We do not know much of the intimate nature of this condition, but as in the case of fibroid uterus the hemorrhage is a menorrhagia, not a metrorrhagia. In rare cases only, a small, detached fibroid in the cavum uteri has been known to cause continuous hemorrhage. But any diagnosis whatever of fibroids should not blind us to the possibility that cancer may coexist. Fibroids are believed to cease growing after the menopause; when after a period of quiescence they appear to grow anew the chances are that sarcoma has begun. When a true metrorrhagia starts up after a period of post-climacteric amenorrhea it is almost certain evidence of cancer; in the rare exceptions a myoma has undergone necrosis. Vaginal examination may reveal nothing at all to the eye or finger, although careful palpation may reveal a slight irregularity in form or consistency with a tendency to bleed on scratching with the finger nail.

The author has the temerity to advocate a biopsy and even to say that it must be repeated once or twice in case the first findings are negative. If later the poor woman died, as she probably would, the surgeon, if a devout man, would probably regard it as the will of God, and not as murder, his only regret being that the biopsy was not made early enough.

In practice one should always assume that the focus is larger than it seems, especially in young women in which the affection travels rapidly. In 15 or 20 days a socalled operable case may become inoperable.

THE PATHOLOGICAL DIAGNOSIS OF SINUSES IN THE NECK.

THE lesions giving rise to sinuses in the neck are many, therefore the subject of differential diagnosis is important. Congenital fistulæ are usually seated in the supra or infrahyoid regions, their external opening being in proximity to the anterior border of the sternomastoid muscle. They are usually incomplete and the probe will strike against the hyoid bone. Their direction is generally from above downward and forward. When complete they open into the larynx in most cases. The fluid secreted is serous, small in amount and contains epithelial débris. Dermoid cysts of the tongue or neck are due to an inclusion of a fold of the ectoderm between the two halves of Meckel's cartilage and since this cartilage precedes the appearance of the jaw it results that cysts of the tongue are behind the symphysis. Dermoids are met with at any point on the median plane of the neck, from the floor of the mouth to the sternum, even in the mediastinum, along the internal border of the sternomastoid. The diagnosis of a sinus arising from these dermoids is often difficult.

In cervicofacial actinomycosis the evolution is slow, the process sometimes remaining stationary. The skin is wine-red or violet, tumefied, and this tumefaction may involve the entire side of the face or neck. The edges of the sinuses are undermined and granulating, but enlarged lymph-nodes of any size are wanting. The pain will be seated at the angle of the jaw. Suppuration is slight and the pus obtained by pressure is grayish-yellow, clotted, and occasionally bloody. Trismus occurs early in the process and indicates inflammation of the muscles. Microscopical examination of the secretion will reveal the actinomyces.

The etiology of salivary sinuses will make their diagnosis easy; a former trauma has caused either Wharton's or Stenson's duct to communicate ex-

ternally. The discharge is saliva, never pus, and flows off especially at meal time. Sinuses from tuberculous adenitis need not be described, as such lesions are common, but those arising from syphilitic osteitis of the lower jaw are important and need description. These bone lesions may appear during the secondary phase of the infection, but more commonly occur during the third phase. They are usually seated at the angle of the jaw. Their characteristic sign is noctural osteocopic pain but occasionally they may be indolent until they set up a neuritis from compression of a nerve. Exquisite pain is produced by palpation. The skin surrounding the sinus is red-violet in color, the edges of the ulcer are round, undermined and pus makes its exit only at the latter part of the evolution of the process; the discharge is at first serous and contains caseous lumps.

Fistulous abscesses and phlegmons of the neck are almost always due to infection of the lymph-nodes. Adeno-odontopathic sinuses are dental in origin. The former process occurs after diphtheria, scarlatina, or measles, also after rhinitis or otitis. Sinuses resulting from osteomyelitis of the jaw are in most cases primarily due to a periodontitis, occasionally a periadenitis, the necrosis in the jaw being secondary. The evolution of the process takes place in a few days. Pain is severe with high fever and a painful tumefaction of the entire region exists. Pus escapes by the sinuses opening on the cutaneous surface and by the alveoli. Sinuses due to phosphorus necrosis of the jaw will be readily diagnosed from the history of the case. They give issue to very fetid pus, while severe salivation, reaching to two to four quarts a day may be present.

Lenticulo-Striate Syndromes.

This was the subject of a recent clinical lecture by Sainton, reported in *Le Progrès Médical* for April 30, 1921, xlix., 18. After a brief enumeration of the nerve centers involved, the author sketched the so-called Wilson's disease, otherwise known as juvenile degeneration of the lenticular nucleus. The tremor in this affection has a striking analogy with that of Parkinson's disease, while the hypertonus is absolutely comparable with that of the same affection. In several other respects and in the incidence of Wilson's disease in young subjects, the two maladies show notable departures. In Wilson's disease there are progressive psychic troubles, but unlike psychoses in which the cortex cerebri is involved, the reflexes are normal or in other words the pyramidal system is not compromised. For the same reason sensory disturbances are absent. The picture is essentially a motor one—tremor, rigidity, and muscular asthenia. In the elderly subject who has had a cerebral hemorrhage we may at times see a similar picture. Either the hemorrhage itself or the secondary softening has occurred in the pallidal or pallidostriate region. There are a mask-like expression, tremor of the hands, and a hesitating, somewhat ataxic gait. The symptoms present suggest the spastic paralysis of Little's disease; there are general rigidity, choreiform or athetotic movements, and pseudobulbar symptoms. The lesion involves the striate area but spares the pallidal region. The lecturer showed a patient with this affection side by side with a case of Huntington's chorea. He would also place the latter affection among the striate syndromes. In describing the pallidal syndrome the author draws freely on the account of "Ramsay," who is of course Dr. Ramsay Hunt of New York, whose name is closely identified with this syndrome. It is of interest to note that a pallidal syndrome is often seen in encephalitis lethargica—the so-called pseudo-Parkinson picture of that disease. The pallidostriate area is closely connected with the thalamic areas—red nucleus, locus niger, and Luys's body; so that in lethargic encephalitis both systems are involved. In the author's opinion the pallidus exerts a motor-inhibitory action, while the striate nuclei are coordinating exciters of motor functions.

Cancer of the Matrix of the Nail.

This affection must be one of the rarest known. In the large monograph by Heller on diseases of the nails which appeared in 1900, but three cases seem to have been reported. A new one has recently been placed on record by Dr. Carlos Chagas of the faculty of the medical college of Bello Horizonte, in an article in the *Brazil-Medico* for May 7, 1921, xxxv, 19. This is not the first appearance of the patient in medical literature, for the case was reported in the *Archivos Mineiros de Dermato-Syphiligraphia* for November 19, 1919, with the title "A Case for Diagnosis." The patient is a man of 60 at the present time, a laborer. There was a history of traumatism involving the right great toe, but as this had occurred 20 years before it could not be brought in any causal relation with the cancerous growth which dated back a year and 6 months and began with a simple thickening of the nail of the toe in question. The condition appeared to have been one of onychauxis suggesting a cutaneous horn, but preserving throughout the semblance of a nail. It was at this juncture that Drs. Aleixo and Orsini of the Clinic for Dermatology and Syphilis showed the case to the profession and reported it as above stated. The possibility of an epithelioma had been incidentally canvassed. Dr. Chagas then made a biopsy of a fragment of the hypertrophic nail and the latter was seen to be an exquisitely keratinized epithelioma. The type of tumor was therefore of the rarest—if possible more nearly unique than the location of epithelioma of the nail. Chagas can find no record of such a tumor in literature and the cases quoted by Heller are all of a different type. The toe was amputated and the man, apparently cured, disappeared. The diagnosis was confirmed by a histological study of the specimen.

News of the Week.

Additional Hospitals for Soldiers' Homes.—Secretary Mellon has approved an allotment of $3,100,000 out of the special hospitalization fund of $18,600,000 to the Board of Managers of the National Homes for Disabled Volunteer Soldiers, to be expended in the development and expansion of existing national soldiers' homes into hospitals for

the treatment of veterans of the World War afflicted with tuberculosis. The project includes the national homes for disabled volunteer soldiers at Milwaukee, Wis.; Dayton, Ohio; Leavenworth, Kas.; the Battle Mountain Sanitarium at Hot Springs, South Dakota, and the Marion National Sanitarium at Marion, Ind. These institutions will be used for cases of tuberculosis and of nervous and mental disease which require a long time for rehabilitation.

Chemists Fear New Dry Bans.—The counsel for the National Wholesale Druggists' Association, W. L. Crounse, before a recent meeting at the Chemical Club in New York City declared that the Volstead amendments would stop the manufacture of necessary medicines. He alleges that alcohol is being denied to reputable pharmaceutical manufacturers and wholesale druggists and, at the same time, permits have been issued to 4,000 persons not on record as users of alcohol before prohibition, and who are now employing it as a basis for bootleg whiskey. Mr. Crounse asserts that many reputable manufacturers have had their alcohol supplies cut off for from two to six weeks by some subordinate in the bureau who decided that these firms were using more alcohol than he deemed necessary. Their requisitions have been denied despite the fact that they never have exceeded the permits and bonds of the houses in question. He says there are 3,600 medicinal preparations manufactured in the United States in which alcohol is a necessary ingredient.

Jewish Organization on Lines of Red Cross.—A special cablegram from Geneva to the *New York Times* announces the founding on June 23 of the Red Shield of David, a Jewish organization which will be managed on the same lines as the Red Cross, and which intends to work hand in hand with the League of Red Cross Societies and the Red Crescent. Several leading Jewish physicians, merchants, and philanthropists are at the head of the movement.

State Accused of Profiteering in Hospital.—The American Legion's investigating committee on insane and other mentally afflicted ex-service men now confined in the Manhattan State Hospital on Wards Island has requested the United States Senate and the authorities of New York State to conduct an inquiry with the object of putting an end to the alleged profiteering by the State through this institution. The committee is said to have found 200 ex-service men on Wards Island mixed in with permanently insane and hardened cases under conditions which make it practically impossible to give them any special treatment. The committee alleges that the State is paying only 90 cents a day per man, although the United States Government is paying the State $2 a day for each government inmate. The committee urges the erection of the proposed Creedmoor Hospital on Long Island.

Wins Damages for Diabetes.—A jury before the Supreme Court in Brooklyn recently upheld the claim of Mrs. Rose Cohen, that as the result of a collision between a truck of the Bacon Coal Company and a Gates Avenue car in Brooklyn, in 1919, she was injured in such a manner that diabetes developed and she became an invalid and lost seventy pounds. The jury gave a verdict of $12,000 against the coal company. During the trial Sir William Osler was quoted to prove that diabetes could be caused by shock.

Drive for Volunteer Hospital.—General Ballington Booth announces that he will begin a drive in September to raise $500,000 for the Volunteer Hospital. William G. McAdoo will act as advisory chairman of the drive.

Antityphoid Vaccination for Vacationists.—The New York City Department of Health calls attention to the danger of exposure to typhoid fever during the vacation season and urges physicians throughout the city to persuade their patients to submit to immunization against typhoid before starting on their vacations. The vaccine may be obtained, free of charge, at the Department of Health for use by physicians, or the Department will immunize any individual, free of charge, at any of its clinics.

Sir **Robert Jones** of London, England, was awarded the honorary degree of Doctor of Science by Harvard University at its commencement on June 23.

Dr. Alexis Carrel has been elected a national associate of the French Academy of Medicine. Under the rules of the academy there may be only twenty national associates, all of whom have heretofore been residents of France.

Lieutenant General Dr. Otto von Schjerning, former Surgeon General of the German Army, died in Berlin on June 29.

Dr. Juan Fernando of the Philippine Public Health Service, has spent the last six months in making an intensive study of the methods used in the New York State Department of Health.

Dr. Malcolm F. Lent has tendered his resignation as Director of the Division of Tuberculosis of the New York State Department of Health, to take effect July 1. He intends to practise his specialty at Saranac Lake, N. Y.

Dr. J. M. Fernandez has been appointed assistant professor of ophthalmology in the University of Havana.

Gift to New York University.—The Rockefeller Foundation has contributed $35,000 to New York University to increase facilities for teaching preventive medicine and sanitation at the University and Bellevue Hospital Medical College.

Charitable Bequests.—Among the many recipients of bequests under the will of the late Mrs. Elizabeth Milbank Anderson are the following: The Children's Aid Society and the National Committee for Mental Hygiene, each $100,000; the Association for Improving the Condition of the Poor, New York, $200,000; Henry Street Settlement and the New York Hospital, $50,000 each; The Adirondack Cottage Sanitarium and the State Charities Aid Society, each $25,000.

Industrial Research Laboratories.—In the forthcoming revision of the *Bulletin of the National Research Council,* Number 2, research laboratories in industrial establishments of America are to be described. Only 300 such laboratories were listed in the first edition, but it is hoped that several new names will appear in the revision and that a more nearly complete reference list will become available. The Council requests information from directors of

research who have not already supplied it. The following data are wanted: Name and address of the firm and address of laboratory; name of director of research; number of laboratory staff (classified as chemists, engineers, bacteriologists, etc.); approximate proportion of time spent on research; chief lines of research; unusual features of equipment; research laboratory space; date of organization of research laboratory and annual expenditure for research. Confidential information is not desired. These data should be furnished as promptly as possible to the Research Information Service, National Research Council, 1701 Massachusetts Avenue, Washington, D. C.

New Quarantine Chief in the Port of New York.—Surgeon Samuel B. Grubb of the United States Public Health Service has been detailed as Chief Quarantine Officer of New York, succeeding Surgeon Leland E. Cofer, who has been relieved on account of ill health. Dr. Grubb is a graduate of the College of Physicians and Surgeons of Columbia University. He entered the Public Health Service on May 17, 1897.

A Bust of Morton for the Hall of Fame.—Acting on the suggestion of Dr. S. A. Knopf, the Associated Anesthetists, composed of seven different societies of anesthetists, have started a movement to place a bust of Dr. William T. G. Morton in the Hall of Fame on October 16, the seventy-fifth anniversary of the first public demonstration of ether anesthesia. Subscriptions may be sent to Dr. F. H. McMechan, Lake Shore Road, Avon Lake, Ohio.

Cape Town Swept by Influenza.—Influenza is sweeping through the Eastern Provinces of South Africa and many thousands of persons are reported to have fallen victims to the disease. The disease is most virulent in the town of Ultenhage, twenty miles northwest of Elizabeth.

International Fight on Cancer Planned.—The first direct result of America's radium gift to Madame Curie is the decision by the Franco-Anglo-American League for Prevention of Cancer, following conferences with M. Regaud, director of the biological laboratory at the University of Paris Radium Institute, to initiate a great international educational campaign. All Paris will be placarded with instructive posters in terms that can be understood by all telling how to recognize the first symptoms of cancer and advising sufferers to submit immediately to an examination by experts. The Radium Institute will develop a special free clinical service to carry out the league's idea and is relying on the American radium to provide the treatment.

Druggists Charge Law Discrimination.—At their annual meeting in San Antonio, June 17, the members of the Texas Pharmaceutical Association, by a rising vote, pledged their support to the National Association of Retail Druggists in the fight to be launched in the near future against alleged discrimination shown to retail druggists in the enforcement of the national prohibition act. The druggists are protesting because they have the greatest difficulty in securing permits to withdraw alcoholic liquors from government warehouses for legitimate medicinal purposes, while manufacturing concerns are given a free hand in withdrawal permits, in spite of the fact that it is generally known that the "medicine" they manufacture is to be sold as a beverage.

Physicians' Office Building.—The Herter residence on the southeast corner of Madison Avenue and Seventieth Street, New York, has been purchased for $200,000 for the site of a building to contain only offices for physicians and surgeons.

The American Electrotherapeutic Association will hold its Thirty-first Annual Meeting in Washington Hotel, Washington, D. C., Sept. 7th to 19th. Dr. Byron S. Price is President; Dr. A. Bern Hirsh, Secretary. This year, the meeting in addition to the scientific program will give two hours daily, to the practical demonstrations of how to use equipment to secure certain definite therapeutic results. Among those who will give demonstrations are Dr. Frederick de Kraft, general diathermy; Dr. Edward C. Titus, cerebral diathermy and the use of vacuum tubes with static current; Dr. Frank B. Granger, galvanic and sinusoidal current; Dr. Wm. Benham Snow, static current in the treatment of arthritis; Dr. Mary Arnold Snow, mechanotherapy, in the treatment of abnormal blood pressure; Dr. Howard T. Plank, active rays in the treatment of malignancy; Dr. Frederick H. Morse, the alternating currents. For scientific program, address Dr. A. Bern Hirsh, 71 W. 94th St., New York City; for details as to hotel accommodation, exhibits, entertainment for the ladies, address Dr. Elnora C. Folkmar, 1730 Eye Street, N. W., who is chairman of the Washington committee.

Medical Veterans of the World's War of the Missouri Valley and the Southwest will hold a joint session in Kansas City, October 25 to 28, 1921. A four day meeting is planned with clinics in the hospitals in the mornings and scientific sessions at which papers will be read in the afternoons. Five sections will hold sessions, comprising medicine, surgery, obstetrics, eye and ear, and genito-urinary. On October 24, the "Mid-Western Association of Anesthetists" will be organized and present a program. Communications may be addressed to Dr. F. H. Clark, Secretary of the Southwestern Association, Oklahoma City, Okla.

Tuberculous Children Sleep in Parks.—Tuberculous children from Westminster council schools have a class in St. James Park, London. In this class both health and education are considered. All the lessons take place in the open air, milk is provided for the children, and an hour's sleep is part of the daily routine. This siesta is taken in a sleeping bag on the park lawn, and serves not only to provide a beneficial rest but prevents the children from coming in contact with other children.

Drive for American Hospital in Paris.—A campaign is in progress in Paris to raise a fund of 5,000,000 francs to be used to increase the number of beds in the American Hospital in Paris from thirty to one hundred. Subscriptions on the first day amounted to 75,000 francs. Mrs. W. K. Vanderbilt gave the first subscription of 60,000 francs. It is the intention of the hospital directors to set aside one-third of the beds and make them available to any American who is unable to pay for hospital treatment.

Medical Society Elections.—THE CONNECTICUT

STATE MEDICAL SOCIETY, at its one hundred and twenty-ninth annual meeting, held in Hartford, May 19-21, 1921, elected the following officers for the ensuing year: *President*, Dr. Charles C. Godfrey, Bridgeport; *Vice-Presidents*, Dr. Leone F. LaPierre, Norwich, and Frederick P. Braden, Essex; *Secretary*, Dr. Charles W. Comfort, Jr., New Haven; *Treasurer*, Dr. Phineas H. Ingalls, Hartford.

THE HOWARD COUNTY (MO.) MEDICAL SOCIETY, at its annual meeting held in Fayette, May 15, elected the following officers for the ensuing year: *President*, Dr. W. M. Dickerson, Armstrong; *Vice-President*, Dr. W. E. Williams, Fayette; *Secretary-Treasurer*, Dr. R. H. Williams, Fayette.

THE BUFFALO (N. Y.) MEDICAL AND SURGICAL LEAGUE, at its annual meeting held May 18, 1921, elected the following officers: *President*, Dr. Frank Kleckner; *Vice-President*, Dr. Edmund P. Reimann; *Treasurer*, Dr. George C. Clark; *Secretary*, Dr. Charles Bethune.

THE OKLAHOMA ECLECTIC MEDICAL ASSOCIATION, at its annual meeting held in Oklahoma City, May 18, 1921, elected the following officers for the ensuing year: *President*, Dr. L. H. Henle, Claremore; *First Vice-President*, Dr. P. L. Neblitt, Erick; *Second Vice-President*, Dr. G. S. Petitt, Oklahoma City; *Third Vice-President*, Dr. E. G. Massinglee, Sapulpa; *Secretary*, Dr. T. C. Leachman, Woodward; *Treasurer*, Dr. William King, Oklahoma City.

THE STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA, at their annual meeting held in Boston, June 2, 1921, elected the following officers for the ensuing year: *President*, Dr. Eugene R. Kelley, Boston; *Vice-President*, Dr. Oscar Dowling, New Orleans, La.; *Secretary-Treasurer*, Dr. R. M. Olin, Lansing, Mich.

THE SCHUYLER COUNTY MEDICAL SOCIETY, at an adjourned annual meeting held in Watkins, June 2, 1921, elected the following officers for the ensuing year: *President*, Dr. Albert Warren Ferris, Glen Springs; *Vice-President*, Dr. R. M. Clark; *Secretary*, Dr. R. C. Baker; *Treasurer*, Dr. D. M. Scutt.

THE ALUMNI ASSOCIATION OF THE COLLEGE OF MEDICINE, SYRACUSE UNIVERSITY, at its annual meeting held at the university, June 11, 1921, elected the following officers for the ensuing year: *President*, Dr. Herman G. Weiskotten; *Vice-President*, Dr. W. D. Johnson, Batavia; *Secretary*, Dr. Carlton F. Potter, Syracuse; *Treasurer*, Dr. Albert G. Swift, Syracuse.

THE NATIONAL TUBERCULOSIS ASSOCIATION, at its annual meeting held at the Waldorf-Astoria, New York, June 15-17, 1921, elected the following officers for the ensuing year: *President*, Dr. James Alexander Miller, New York; *Secretary*, Dr. George M. Kober, Washington, D. C.; *Treasurer*, Henry B. Platt, New York.

THE CONNECTICUT HOSPITAL ASSOCIATION, at its second annual meeting held in Meriden, June 1, 1921, elected the following officers for the ensuing year: *President*, Dr. Harold W. Hersey; *Vice-President*, F. L. Hutchins, Norwich; and Sister Alice, Superintendent of St. Vincent's Hospital, Bridgeport; *Secretary*, Miss Alice Hunter, Superintendent Grace Hospital, New Haven.

Obituary Notes.—Dr. WALTER BERNARD WINCHELL, for thirty-five years a practising physician of Brooklyn, died on June 18, at the age of sixty-three years. He was graduated from the New York Homeopathic Medical College in 1886, and had been connected with the staffs of the Peck Memorial, Cumberland Street, and Brooklyn Nursery and Infants' hospitals, and the Brooklyn home for consumptives.

Dr. SAMUEL B. RUBY of Union City, Indiana, died at his home on May 16, at the age of sixty-six years. He was licensed to practice medicine in Indiana in 1897.

Dr. MOSES REGINAL POLLOM of Thorntown, Ind., died on May 13, following an operation for brain tumor. He was a graduate of the Medical College of Indiana, Indianapolis, in 1904. He was president of the Boone County Medical Society in 1920.

Dr. ELIZABETH LAIN of Santa Rosa, Cal., died in a local hospital on May 17, at the age of fifty-six years. She was graduated from the Hahnemann Medical College of the Pacific in 1897.

Dr. CHARLES F. MCCARTHY, formerly of Franklin, R. I., died at his home in Winchester, Mass., on May 19, at the age of fifty-one years. He was graduated from the Long Island College Hospital in 1890.

Dr. THOMAS P. ALLEN of Pembroke, Ky., a graduate of the University of Louisville in 1884, died suddenly of heart disease on May 16, at the age of sixty-two years.

Dr. EDWARD BENNETT ROSA, a well-known research worker, chief physicist of the Bureau of Standards, Washington, D. C., died suddenly on May 17, at the age of sixty years. He was instructor in physics at the University of Wisconsin and professor of physics at Wesleyan University before becoming chief of the Bureau of Standards. He did notable work in science and electrical engineering and developed the physical side of the respiration calorimeter with Professor W. O. Atwater.

Dr. JAMES E. BROOKS of Blowing Rock, N. C., formerly a practitioner of Greensboro, died suddenly on May 20, at the age of fifty-seven years. He was one of the prime movers in the establishment of the State Sanatorium for Tuberculous Patients at Montrose, N. C.

Dr. JAMES L. SUDDARTH of Washington, D. C., for many years a member of the faculty of the Columbia and George Washington Universities, died at his home on May 25, at the age of eighty-one years. He was a graduate of the Georgetown University in 1868, and a member of the Medical Society of the District of Columbia. He served as an officer under Stonewall Jackson during the Civil War.

Dr. EDWARD ELIAS MATHER of Williamstown, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1871, died on May 19, at the age of seventy-seven years.

Dr. E. H. THOMAS of Argenta, Ill., a graduate of the College of Physicians and Surgeons, New York, in 1883, died at his home May 22, at the age of sixty-one years.

Dr. OSCAR DAVIS, a former health officer of Galveston, Texas, a graduate of Fort Worth School of Medicine in 1898, died suddenly in a local hospital, on May 25, at the age of fifty-two years.

Dr. WILIAM MANDES MARCKS of De Soto, Kan., a graduate of the University of Pennsylvania,

in 1861, died at his home on May 25, at the age of eighty-two years.

Dr. ARGUS B. SWISHER, a graduate of the Miami (Ohio) Medical College in 1882, died at his home in Marysville, Ohio, on May 24, at the age of sixty-seven years.

Dr. GILBERT INGALS of Mayfield, N. Y., a former resident of Gloversville, N. Y., died at his home on May 25, at the age of sixty-nine years.

Dr. JAMES F. MEEK of New York and South Norwalk, Conn., a graduate of McGill University, Montreal, Canada, in 1875, died at his home in South Norwalk, on May 29, at the age of seventy-three years. He was on the staffs of the Manhattan Eye and Ear Hospital, the Northern Dispensary, the West Side German Dispensary, and the New York Throat, Nose and Lung Hospital, and made numerous contributions to the literature of ophthalmology. He was secretary of the Norwalk Medical Society.

Dr. EVELINE P. BALLINTINE of Rochester, N. Y., a graduate of the University of Michigan in 1877, and former resident of Leroy, N. Y., died in a Rochester hospital on May 18, at the age of sixty-nine years. She was in charge of the psychopathic division of the hospital since its organization in 1904.

Dr. CHARLES S. VALCOUR of Nashua, N. H., a graduate of the Baltimore Medical College in 1895, died after a prolonged illness at his home, on May 22, at the age of forty-nine years.

Dr. ASA P. TAYLOR, a graduate of the Medical College of Chicago in 1878, died suddenly of heart disease in his office in Lexington, Ky., on May 22, at the age of sixty-four years.

Dr. GEORGE R. SPRATT of Coatesville, Pa., a graduate of the University of Pennsylvania in 1864, died following a stroke of apoplexy on May 23, at the age of eighty-two years.

Dr. RUFUS G. WILLIAMS of Dallas, Texas, a graduate of Tulane University, New Orleans, in 1870, died on May 23.

Dr. JESSE ALBERT BOLIN of Philadelphia, Pa., a graduate of Jefferson Medical College in 1881, and Coroner's physician in 1910, died on May 27, at the age of sixty-five years.

Dr. ALBERT E. BLOUGH of Marietta, Pa., died at his home on May 26, at the age of forty-six years. He was graduated from Medico-Chirurgical College, Philadelphia, in 1904.

Dr. A. L. SWINTON, a graduate of the University of Michigan in 1899, died suddenly of heart disease, at his home in Charlevoix, Mich., on May 24, at the age of forty-four years. He was mayor of Charlevoix at the time of his death.

Dr. JOHN MACDARMID, former mayor of De Land, Fla., died suddenly on a train near that place on May 23, at the age of fifty-one years. He was graduated from the Southern Medical College of Georgia in 1891.

Dr. JOHN S. MENDEL of Trevorton, Pa., died suddenly on May 26, at the age of sixty-one years. He was graduated from Jefferson Medical College in 1887.

Dr. BENJAMIN RUSH HOYT of Detroit, Mich., a graduate of the University of Michigan in 1872, died in a local hospital on May 20, at the age of seventy-two years.

Dr. BACHE MCEVERS EMMET of Ridgefield, Conn., a graduate of the College of Physicians and Surgeons, in 1867, formerly professor of gynecology in the College of Physicians and Surgeons, New York, died on May 27.

Dr. CHARLES F. FURRAY, a retired physician of Omaha, Neb., died suddenly at his home, on May 19, at the age of fifty years. He was a graduate of the Creighton Medical College of the University of Nebraska.

Dr. WILLIAM T. JOHNSON, a graduate of the Missouri Medical College, St. Louis, in 1894, died at his home in Eldorado, Ill., on May 24, at the age of fifty-four years.

Dr. E. R. HUTCHINS, a former Des Moines physician, at one time a professor in Jefferson Medical College, died at Lake Okoboji on May 26, at the age of eighty years.

Dr. HERMAN VOSS, a former practitioner of Milwaukee, a graduate of the University of Leipsic, died in Racine, Wis., on May 27, at the age of sixty-six years.

Dr. JOSHUA D. JANNEY died at Riverton, N. J., on June 15, at the age of ninety years. He was graduated from Starling Medical College in the class of 1865.

Dr. DWIGHT DUDLEY of Endicott, N. Y., died after a prolonged illness on May 19, at the age of eighty years. He was graduated from the College of Physicians and Surgeons, New York, in 1864, and practiced medicine for many years in Maine, N. Y.

Dr. ALLAN G. NEATHERY of Farmersville, Tex., died suddenly on June 2, at the age of fifty-nine years. He was graduated from the Memphis Hospital College of Medicine in 1888.

Dr. THOMAS C. DOYLE of Orangeburg, S. C., died following a stroke of apoplexy on June 3, at the age of fifty-five years. He was graduated from the University of Maryland School of Medicine in 1889.

Dr. FRANK A. PALMER, formerly of Ilionite, N. Y., died of pneumonia at his home in Mechanicsville, N. Y., on June 1, at the age of sixty-one years. He was graduated from the Albany Medical College in 1882.

Dr. CHARLES TEUBNER, a graduate of New York University Medical College in 1885, died at Oxnard, Cal., on June 8, at the age of sixty-five years.

Dr. JOSHUA D. JANNEY of Roverton, N. J., a graduate of Starling Medical College in 1865, died on June 15, at the age of ninety years.

Dr. GEORGE F. BUTLER of Chicago, died of heart disease on the train while returning from Boston on June 21, at the age of fifty-one years. He was a graduate of Rush Medical College in 1889, and the author of several medical and other books.

Dr. HERBERT E. NOBLE of Toledo, Ohio, a graduate of the Detroit Medical College in 1879, died at his home on May 29, at the age of sixty-six years.

Dr. RICHARD KALISH died at his home in New York City on June 21, at the age of sixty-seven years. He was graduated from Bellevue Hospital Medical College in 1875. He was a fellow of the American College of Surgeons, a member of the American Medical Association, and the New York Academy of Medicine. He was consulting ophthalmologist to the Knickerbocker, City, Sea View, St. Johns, and Long Island City hospitals.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, June 10, 1921.

Dentistry and Public Health.—A bill to amend the Dentists' Act was introduced into the House of Commons on May 4, last. But before explaining the provisions of the bill it will be well to describe briefly the situation as regards dentistry at the present time in this country. The great value of good teeth and a clean mouth in preventing disease and in maintaining good general health has become a matter of common knowledge within the past few years. While the influence of the condition of the teeth and mouth upon the health may have been somewhat exaggerated by a considerable number of medical men, there is no doubt that many serious illnesses may be partly induced or influenced for the worse by diseased teeth. It is not long ago that the practice of dentistry consisted mainly in the extraction of teeth and the provision of artificial substitutes. Conservative dentistry, the object of which was the preservation of the teeth, brought it into relation with general medicine. From this upward progress of dentistry two advances were made: The institution in England of a special course of training, and the granting of a license in dental surgery by the Royal College of Surgeons of England, and the second step forward was the passing of the Dentists' Act in 1878, which created a register of dentists under the control of the General Medical Council and made illegal the use of the titles "dentist" or "dental practitioner" by unregistered persons. It was deemed by those who were responsible for the drafting of the act and by Parliament that prohibition of title would be sufficient means of distinction between the qualified and the unqualified, and a criterion by which the public could judge. From that point of view the act has been a failure, for the opportunities for evasion without definite contravention of the act are manifold and obvious. Only a very small proportion of the public knows and appreciates the difference between the qualified and the unqualified, and the evils associated with practice by the latter have increased so rapidly in recent years as to have become a source of real danger to the community. The number of dentists admitted to the register by virtue of the possession of a qualification has only about balanced the loss by death or retirement, so that the total has remained nearly stationary. On the other hand, unqualified practitioners have increased by leaps and bounds. This state of affairs led to the appointment of a Departmental Committee to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists' Act. This committee issued a report in 1919 which emphasized in vigorous language the danger to the public and the degradation of the profession associated with the practice of dentistry by incompetent persons subject to no professional control. The bill just brought forward is founded upon and follows closely the recommendations of the report so far as they are concerned with registration and control. The main provisions of the bill all turn upon the first section, which states: No person shall, unless he is registered under the Dentists' Act of 1878, practice or hold himself out, whether directly or by implication, as practising or being prepared to practise dentistry for fee or reward.

Honors for Medical Men.—Among the honors conferred on the occasion of the King's birthday are Commander of the Order of the Bath for Llewellyn Southworth Lloyd, Assistant Secretary to the Department of Scientific and Industrial Research since its formation. Knighthoods for Arthur Keith, M.D., F.R.C.S., LL.D., Hunterian Professor and Conservator of the Royal College of Surgeons; Thomas Lewis, C.B.E., M.D., F.R.C.P., D.S.C., F.R.S., Hon. Consulting Physician since April, 1918, to the Ministry of Pensions; Sidney Russell Wells, M.D., B.Sc., M.R.C.P., M.R.C.S., Vice-Chancellor of the University of London, Representative of the University of London on the General Medical Council, and F. Conway Dyer, M.D., ex-President of the College of Surgeons, Ireland, Lieut.-Colonel, R.A.M.C., and Operating Surgeon to King George V Military Hospital in Dublin, Hon. Surgeon to Lord-Lieutenant of Ireland, Chairman of House of Industry Hospitals, H. M. Inspector of Anatomy in Ireland.

Report on Postgraduate Medical Education in Great Britain.—The report of the Athlone Committee, appointed to consider the question of postgraduate medical education in Great Britain, is to be issued soon. Of course, the subject is of the first importance, and is one that has been referred to frequently in these letters. The existing state of affairs with regard to postgraduate medical facilities in Great Britain is very unsatisfactory. It is the great desire of medical men of this country, and particularly those of London, to attract American physicians and surgeons here for postgraduate training. Before the war the great majority of these betook themselves to Berlin and Vienna, where opportunities were given them which were lacking in London or in any of the British medical centers. As said before, it is the desire of the medical profession in this country to induce postgraduate medical students from America to train in the British medical schools and hospitals. However, up to the present time there has been no coordinated effort to offer opportunities, equal to those offered in Germany, for postgraduate medical study. A few men have worked hard with this object in view, but they have not been adequately supported. It is hoped that the new report, which is completed and only awaits the approval of the Minister of Health, will point the way to a better state of affairs. In order that proper facilities for this kind of medical teaching may be provided a special hospital, in which teaching is confined to postgraduate students, is necessary. Moreover, the Ministry of Health is expected to cooperate with though not to dominate, the work. The London medical schools are among the best in the world and clinical material abounds. Money and organization are alone required to make a success of the scheme. It hangs fire, and the point may be emphasized that, unless steps are promptly taken

to make of London a great medical postgraduate center, the chance of doing so will disappear, never to return.

Industrial Disease.—The prevention of industrial disease through the instrumentality of the joint industrial councils has somewhat escaped attention in this country. Many of the councils have set up safety and welfare committees to investigate and report on industrial disease, conditions of work, and the administration of welfare regulations. In the boot and shoe trade the Welfare Committee's recommendations included prohibition of underground workrooms in any new works and after a period of three years in any existing work places; insistence of cleanliness of windows, floors, walls, and taps in all work places; provision of adequate and suitably shaded artificial light, of washing accommodation and first-aid equipment. In the pottery trade 27 firms have complied with all the recommendations made by the council, 40 with six of them, 30 with five, 18 with four, and 22 with three. Dr. E. Collis, the Professor of Preventive Medicine at the University College, Cardiff, and Doctor Legge of the Home Office are among the experts who have given help by addressing the councils.

Bone-Forming Foods.—Dr. Edward Mellanby, Professor of Pharmacology at the University of Sheffield, lectured at the Royal College of Surgeons, London, on June 6, concerning some actions of foodstuffs in the production and treatment of disease. Dealing with elements of diet-aiding and preventing the proper calcification and growth of bones and teeth, the lecturer said that up to the present time the idea that you could feed a child so that it could digest anything had never been previously considered. Food was becoming more and more manipulated, and so we ate more and more manufactured foods, manufacturers seeking to flatter our tastes. We were ignorant as to food, but we should be able to tell a mother how to feed a child so as to obtain certain results. The factors in the diet of children affected not merely bones and teeth, but had their influence in other diseases. He explained that there was more calcium in the bones of dogs fed on suet and butter than in those fed on lard. According to the diet given to dogs, one obtained good or bad calcification. He next drew attention to the antirachitic action of fats, of which the best were cod-liver oil, butter, and suet; peanut, lard, cottonseed, and rape oil were only moderately good for calcifying processes. Vegetables contained a smaller quantity of vitamines than animal fats. Bread was a potent factor in the development of rickets; this had been ascertained by experiments made with dogs. Meat with all the fat off had an antirachitic effect, while the contrary was the case with bread, which made rickets worse.

Society for the Prevention of Venereal Disease.—The second annual meeting of the Society for the Prevention of Venereal Disease was held at the house of the Royal Society of Medicine on June 6, last. Lord Willoughby de Broke, who presided, said that venereal disease was still proceeding at an alarming rate and was a grave public danger, in spite of official policy, which consisted of recommending chastity and advising the infected to go to a doctor. But exhortation had failed, and a new departure was absolutely necessary. It might take the form of compulsory measures, but the objection was that these were highly contentious, and involved legislation and consequent delay. In the last few days the Ministry of Health had committed itself, in a circular, to a statement that it was the duty of all individuals who had incurred risk of infection to cleanse themselves thoroughly and immediately to diminish the risk. This, Lord Willoughby urged, affirmed the society's policy of self-disinfection. The society had been at pains to persuade the Ministry of Health to alter the Act of 1917, so that chemists might sell the necessary disinfectants. The Government, however, said they could not give official support to self-disinfection as a policy, and he wondered how far this attitude was due to political considerations. The right policy for the society was to welcome the frank admission of the Ministry of Health and to approach the Minister with a view to securing the sale of proper disinfectants, accompanied by proper instructions. If the Government would not take the responsibility of issuing such instructions, the proper body to do so was that society, which would undertake to recommend what should be sold, and would be responsible for the accompanying instructions. He moved a resolution recommending formal application to the Ministry of Health for sanction of the preparation and sale, under the society's control, of materials for self-disinfection. The resolution was seconded by Lieutenant-General Sir Francis Lloyd and Lady Askwith. The work of the society was recounted in a report read by the Hon. Secretary, Mr. Wansey Bayly, who stated that the number of county and borough councils that had adopted the society's policy had increased from 12 to 20.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 23, 1921, clxxxiv, 25.

1. Congenital Malformations of the Vertebræ. Nathaniel Mills.
2. Principles of Posture, with Special Reference to the Mechanics of the Hip-Joint. Mabel Elsworth Todd.

1. Congenital Malformations of the Vertebræ.—Nathaniel Mills classifies congenital malformations of the vertebræ under the categories of defects in development, changes in type, and changes in relation. These abnormalities are held to be of quite common occurrence, as exemplified in the plates of one hundred consecutive cases of scoliosis from the *x*-ray files of the New York Orthopedic Dispensary and Hospital. In this series there were thirty-eight instances of defects in development, sixty-five instances of change in type, and thirty-nine instances of change in relation.

Journal of the American Medical Association.

June 25, 1921, lxxvi, 26.

1. Defects in Our Obstetric Teaching. John Osborn Polak.
2. The Treatment of the Toxemias of Early and Late Pregnancy. Edward P. Davis.
3. Homonymous Hemianopia as an Early Symptom of Brain Tumor: Report of Case. Tom Bentley Throckmorton.
4. A Criticism of Hospital Laboratory Examinations. Ralph G. Stillman.
5. Syphilitic Iritis: Its Racial Incidence and Its Association with Secondary Syphilis and with Neurosyphilis. Ernest L. Zimmermann.
6. Fasciolopsis Buski Infestation. W. C. Sweet.
7. Separation of Tetanus Antitoxin from Associated Protein. W. N. Berg.

8. Radium Emanations in the Treatment of Goiter: Preliminary Note. Wallace I. Terry.
9. Undescended Cecum and Vermiform Appendix: Report of Cases. A. F. Jonas.
10. The Toxicity and Trypanocidal Activity of Sodium Arsphenamine. Jay Frank Schamberg, John A. Kolmer, and George W. Raiziss.
11. A Nontechnical Course in "Anatomy and Physiology of Disease" for Undergraduate College Students. W. H. Manwaring.

2. The Treatment of the Toxemia of Early and Late Pregnancy.—Edward P. Davis holds that statistics regarding recovery from the toxemia of pregnancy, whether early or late, are misleading. No one can accurately estimate the resisting power of the patient or the virulence of the toxins. When symptoms have subsided and the patient is apparently safe, complications may develop which may end life. Under any reasonable method of treatment, a series of cases can be conducted with a low mortality, followed by a group of cases in which no method of treatment is of much value and where the mortality becomes excessively high. Practically speaking, the most important points concerning the subject are the familiar facts that pregnant patients require special care; that the toxemia of pregnancy, early or late, is serious, demanding hospital service; that in a well-appointed hospital, prompt and efficient treatment can be given, guided by clinical observation and laboratory examinations, and that the mother's chance for recovery depends on early diagnosis, prompt and thorough treatment, and the avoidance of whatever may be depressing to the vital forces.

5. Syphilitic Iritis: Its Racial Incidence and Its Association with Secondary Syphilis and with Neurosyphilis.—Ernest L. Zimmermann bases this communication on a series of eighty-four cases of acute syphilitic iritis observed in the syphilis department of the Johns Hopkins Dispensary between 1917 and 1921, and thirty-five cases observed in the syphilis clinic of the Baltimore Eye, Ear, and Throat Hospital during 1920. These cases were thus divided according to race and sex: thirteen white males, thirteen white females, fifty-five negro males and thirty-eight negro females. In the former clinic 4400 syphilitics were examined during the four-year period, of whom 2600 were negroes. There were twenty cases of acute syphilitic iritis among the white patients and sixty-four among the negroes, an incidence of 1.1 per cent. in the former and 3.2 per cent. in the latter. Fournier estimates that from 3 to 4 per cent. of syphilitics develop iritis. Boeck found 139 cases of iritis among 2344 syphilitics, an incidence of 5.37 per cent. That these results are so much higher than those in the writer's series is explained by the fact that the modern syphilis clinic, owing to the recent advances in diagnosis and treatment, includes a much greater number of asymptomatic syphilitics. Among the 228 white patients with early secondary syphilis in the Johns Hopkins Clinic there were four, or 1.76 per cent., with acute iritis; among the 279 negroes, iritis occurred in thirty-six, or 12.9 per cent. From the observation of these cases the writer concludes that both in early and secondary syphilis and subsequently in the course of the disease, the negro is more liable to iritis than is the white man. Iritis occurs in more than 10 per cent. of all cases of early secondary syphilis in the negro, and is most often associated with follicular syphilides. Abnormalities in the cerebrospinal fluid of partially treated syphilitics with iritis occur with no greater frequency than in the fluids of treated patients who have not had iritis.

10. The Toxicity and Trypanocidal Activity of Sodium Arsphenamine.—Jay Frank Schamberg, John A. Kolmer and George W. Raiziss summarize their observations on this subject as follows: 1. The highest tolerated dose of sodium arsphenamine for white rats by intravenous injection was found to be from 212 to 215 mg. per kilogram of weight. The average tolerated dose of arsphenamine was 105 mg. and of neoarsphenamine, 200 mg. per kilogram. 2. The smallest trypanocidal doses of sodium arsphenamine varied from 16 to 24 mg. per kilogram of weight; the smallest trypanocidal dose of arsphenamine was 5 mg., and of neoarsphenamine, 9 mg. per kilogram. 3. The therapeutic dose (dosis curativa) of sodium arsphenamine was from eight to thirteen times less than the highest tolerated dose (dosis tolerata) which expresses the therapeutic index of this compound. The therapeutic dose of arsphenamine was twenty-one times less than the tolerated dose, and the therapeutic dose of neoarsphenamine was twenty-two times less. 4. Therefore, while sodium arsphenamine possesses the low toxicity of neoarsphenamine, it is much inferior to both arsphenamine and neoarsphenamine in trypanocidal or curative activity. 5. The true gage of a remedy is expressed by its chemotherapeutic index, *i.e.* the relation of the curative to the toxic doses.

The Lancet.

June 4, 1921, cc. 23.

1. The Relation of Heart Disease and Pregnancy. Sir James Mackenzie.
2. A Clinical Lecture on the Surgery of the Pituitary Gland. A. J. Walton.
3. A New General Anesthetic: Its Theory and Practice. R. L. Mackenzie Wallis and C. Langton Hewer.
4. Chaulmoogra Oil in Leprosy and Tuberculosis. The Successful Treatment of Leprosy by Injections of Soluble Preparations of the Fatty Acids of Chaulmoogra and Other Oils and the Bearing on the Tuberculosis Problem. Sir Leonard Rogers.
5. A Case of Jaundice from Late Salvarsan Poisoning. John Elliott.

3. A New General Anesthetic: Its Theory and Practice.—R. L. Mackenzie Wallis and C. Langton Hewer describe the manufacture of and clinical results from the use of a new anesthetic known under the trade name of "Ethanesal." Their investigations showed that certain ketones in ether were largely responsible for the anesthetic properties of the ether. Good anesthetic ethers, free from aldehydes, mercaptans, etc., when treated with finely divided permanganate, yielded a pleasant smelling residue instead of the evil smelling residues previously obtained. This residue proved to contain ketones, and these compounds appeared to be the essential element in the production of a food and safe anesthetic. The mixture of ketones proved to be very potent, and it was necessary to use a volatile solvent. In view of the readiness with which ordinary ether can be purified, this compound was selected as the solvent. Into this pure ether the mixed ketones were placed in varying proportions, and the mixtures so obtained were found to be capable of producing anesthesia. The anesthetic action was enhanced if the mixed ketones were first treated with carbon dioxide and ethylene. The ketones used comprise those in the middle of the series, and a loose chemical combination between these substances and the carbon dioxide and ethylene apparently results. In attempting to purify the ether, therefore, the discovery was made of the importance of certain impurities—the ketones. This opens up a wide field for further investigation, and much further work is necessary before it can be said that the ideal general anesthetic has been obtained. From their clinical experience in 250 cases, on 200 of which they have detailed reports, the writers found that this agent is less toxic than chloroform or ether, and the safety margin is greater than with ether. It is less irritating to the respiratory passages than ether, and consequently there is less risk of subsequent bronchitis and pneumonia; the induction of anesthesia is also rendered easier. Postanesthetic vomiting is less than with chloroform or ether. The taste and smell noticed afterward by the patient are very much less than with ether, and are generally absent.

British Medical Journal.

June 4, 1921, i. 3153.

1. A Defence of the Thesis That "The Opportunities of the General Practitioner Are Essential for the Investigation of Disease and the Progress of Medicine." Sir James Mackenzie.
2. Infective Arthritis and Allied Conditions: with Special Reference to Etiology and Treatment. W. H. Wilcox.
3. Coccygeal Fistulæ. J. F. Lockhart-Mummery.
4. Acute Osteomyelitis of the Long Bones in Children. Alex Mitchell.
5. A Case of Idiopathic Muscular Dystrophy. H. S. Carter and W. Fleming.
6. Artificial Pneumothorax. Clive Riviere.

2. Infective Arthritis and Allied Conditions: with Special Reference to Etiology and Treatment.—W. H. Wilcox, in discussing the etiological factors concerned in the many forms of chronic rheumatism of doubtful origin, takes into consideration the relative importance of sex, age, race, family history, mental strain, and

debility, trauma and physical strain, exposure to cold and wet, pregnancy and parturition, disease of the nervous system, faulty metabolism, rheumatic fever, and infective causes. The only forms of arthritis to which he gives special discussion are rheumatoid arthritis, arthritis deformans, osteoarthritis, and chronic villous arthritis, each of which is in all probability due to an infective cause of nonspecific origin. In looking for the cause of infective arthritis one must consider infection from teeth, intestinal infections, tonsils and adenoids. Treatment is indicated by the revelations of thorough investigation as to causation. Vaccine treatment is of value, but it cannot be too strongly insisted upon that it must be accompanied by removal of the causal infections. Electrical treatment, massage, and diet are to be considered. The prognosis is favorable in early cases which are thoroughly investigated and treated along the lines indicated. In cases of long standing the inflammatory changes are often progressive in nature and removal of the primary cause may do little good because the infective process is being carried on by a secondary intestinal infection. In such cases everything possible should be done to remove both the primary and the secondary causes of infection, and when the signs of active inflammation in the joints have ceased measures should be taken to improve the mobility of the joints and muscular tone by massage and movements.

The Practitioner.

May, 1921, cvi, 5.

1. The Surgical Treatment of Neuralgia. Sir William Thorburn.
2. The Plaintiff—A Psychological Study. Sir John Collie.
3. Rodent Ulcer: Its Treatment by X-Rays and Allied Measures. Francis Hernaman-Johnson.
4. Dried Milk as a Food for Infants. Robert J. Blackham.
5. The Diagnosis and Treatment of Cancer of the Larynx. F. Holt Diggle.
6. Recent Public Health Work. Joseph Priestley.
7. Makeshifts in Practice. J. G. Watkins.
8. Tracheal Diphtheria. Trevor A. Lawder.

1. The Surgical Treatment of Neuralgia.—Sir William Thorburn uses the term "neuralgia" in its widest sense. It connotes no pathology and no etiology, but merely indicates pain in the distribution of one or more nerves, not due to any obvious gross lesion; in fact, he uses it in the sense in which it is commonly employed in general practice, and even by the laity. This being so, it is necessary in the first pace to realize that such pain may be due to very varying conditions, by no means all of which call for surgical treatment; and the first essential in connection with treatment of any kind is an accurate diagnosis, if such can be made, of the real cause of the neuralgic pain. For purposes of convenience he divides the varying types of neuralgia into five groups: 1. Neuralgias due to certain *general conditions*, probably toxic in their nature, such as anemia, malaria, gout, rheumatism, and syphilis. None of these call for surgical treatment. 2. Cases due to *pressure upon nerves*, in the great majority of which surgery will call for consideration. If an accurate diagnosis is made, the question of treatment will follow almost as a matter of course. 3. Neuralgias associated with *locomotor ataxia*, sometimes with other parasyphilitic diseases of the nervous system. These are placed under a separate group because the pain is often severe, very long-standing, and calls for a somewhat special line of treatment. 4. Neuralgias due to *intraneural lesions*. Under this category, among others, come cases of causalgia, which became familiar during the war. The writer's strong feeling is that in all cases of persistent neuralgia in which one is reasonably confident that the lesion lies within the nerve trunk, the proper course to pursue is to expose the trunk as far as possible from end to end. 5 "*Ganglionic neuralgia*," socalled, provisionally, on the assumption that the essential lesion lies not within the nerve trunk, but in the ganglion with which such nerve trunk is associated, the two outstanding instances being trigeminal neuralgia and postherpetic neuralgia. To deal with the last first, there is a reasonable presumption that persistent neuralgia after herpes is due to a lesion of the posterior root ganglion of the nerve concerned, and that division of the posterior roots involved, with or without removal of the ganglia, ought to cure the condition. Of trigeminal neuralgia the writer has had many complete and certainly permanent cures by removal of the Gasserian ganglion.

4. Dried Milk as a Food for Infants.—Robert J. Blackham sums up the position of dried milk as a food for infants. 1. *Comparability with Fresh Milk.* Some authorities, including numerous French and Belgian doctors, regard it as *un véritable aliment de choix*, and consider it superior to sterilized cow's milk or even humanized cow's milk. Others regard it as a temporary diet, to be given for a short time when other foods disagree. In most cases, increased experience with the product has led to greater confidence in its employment. 2. *Nutritional Value.* The French writers consider dried milk safer than town milk, and of equal nutritional value. They regard it as specially suitable to supplement breast feeding. 3. *Digestibility.* All investigators have found it better tolerated than other foods in digestive troubles. Goodhart and Still say: "The chief virtue in dried milk lies in the fineness and softness of the curd, which is so much more digestible than fresh milk. Some infants, that cannot digest even peptonized milk, thrive on dried milk." 4. *Suitability for Warm Weather.* The French authorities and most municipal infant welfare centers have found it of special value in warm weather. 5. *Use in Pathological Conditions.* In his experience, dried milk has been of special value to infants who have been doing badly, especially among the poorer classes.

American Medicine.

April, 1921, xxvii, 4

1. The Ulcer Syndrome without Ulcer. Alfred C. Croftan.
2. A Brief Review of the End-Results in the Surgery of Gastric and Duodenal Ulcers. Louis Frank.
3. The Production of Specific Results with X-Ray and Other Physical Modalities in Pulmonary Tuberculosis. Jefferson Demetrius Gibson.
4. The Odyssey of 1,000 Children. Herbert McKay Coulter.
5. Contributions to the Study of Narcotic Addiction as a Disease. A. S. Horovitz.
6. Ventilation and Humidity. Adam H. Wright.

1. The Ulcer Syndrome without Ulcer.—Alfred C. Croftan emphasizes the points that many gastric ulcers run their whole course to hemorrhage, perforation, accidental discovery at autopsy or in the course of laparotomy, or to spontaneous cure, without any symptoms whatever, and that, on the other hand, the whole syndrome may be present without the ulcer. In interpreting the results of treatment one should be careful in speaking of a cure. As the diagnosis remains uncertain in a large proportion of the cases, so does the cure. One sees too many "healed" ulcers to have much faith in the permanency of the cure unless by surgery. The majority of the cured ulcer cases, in the writer's opinion, were ulcer syndrome patients without ulcer and not ulcer patients at all.

Western Medical Times.

May, 1921, xl, 11.

1. Uterine Fibroids Complicating Pregnancy. Aime Paul Heineck
2. The Proposed Tax on Sales. Frank Parker Stockbridge.
3. Referred Pain and Pain by Extension in Visceral Disease. W. H. Foreman.
4. The Feeding Problem in the Light of Modern Investigation. H. Booker Mills.

3. Referred Pain and Pain by Extension in Visceral Disease.—W. H. Foreman, in the fifth of this series of contributions dealing with pain, states that an intimate relation exists between somatic and visceral structures through spinal and sympathetic nerves, mediation occurring in the cord, the reflex being in either direction. The great mass of stimuli, and especially visceral stimuli, are never adequate to reach consciousness, and are only concerned in unconscious reflex influence. The nerve synapses constitute a natural barrier between visceral and somatic structures and the conscious mind; this is evident in visceral structures. This natural barrier of inhibition is broken down in organic or functional disease of the viscera or nerve centers by increasing the strength of the stimuli or lowering the threshold of nerve resistance. Reflexes occur over the parasympathetic system in the same manner as over the sympathetic and spinal systems.

Bulletin Médical.

March 23-5, 1921, xxxv, 13.

Progress of Our Knowledge of Diphtheria.—This issue is devoted wholly to articles on diphtheria. The first is by Martin and Loiseau and is limited to bacteriology. Not long ago, say the authors, it was regarded as almost too simple a matter to make the diagnosis of the disease from the presence of the bacillus. Even a novice could swab the throat and in 24 hours show a culture on coagulated serum of a Gram-positive bacillus which indicated the exciting cause of the disease. This, however, has become a small part of the laboratory man's activities, for the problem has been extended to the examination of smears from the healthy with special reference to healthy carriers and here the trouble began; for numerous microorganisms have continued to confuse the student and now only an accomplished bacteriologist can make the differentiation. Culture media, staining agents, agglutination tests, have to be made the subjects of intensive study. It has become evident that among undoubted diphtheria bacilli, numerous normal variations occur although the effort to isolate these varieties does not lead to practical results. Metachromatic granulations and polar corpuscles have received a good deal of attention in connection with the degree of virulence, but without definite results. Other criteria have also failed, as the production of acid in a carbohydrate medium. In this connection comes up the subject of facultative anaerobiosis of the true diphtheria bacillus. The typical organism being either long or medium, a question of the day of great importance deals with the existence of the short bacillus of some authors—is this a true morphological variant? The authors answer this question in the negative. A subject whose throat exhibits only the short bacillus is not a carrier. Darré discussed the diagnosis of a typical diphtheritic angina. He described in succession catarrhal and pultaceous forms, lacunar and herpetic forms, and in the same connection the socalled cryptogenetic form in which the throat may appear normal. This form is usually treated late and hence its recognition is a matter of great importance. In some of these cases membrane may be found on the posterior aspect of the soft palate, while in others diphtheria is masked by an apparent catarrhal or lacunar angina. The author devotes a good deal of space to what he terms the erythematous form. While some anginas occupy the entire anginal region others are restricted to a single locality. Simple erythema may be of either kind. In certain cases the symptoms are limited to slight discomfort on swallowing with a little swelling at some point in the throat; with these minimal symptoms, which are apt to be encountered in adults and large children, the appearance of a lymph-node reaction may cause suspicion of diphtheria. The pultaceous deposit, which may or may not be present in these anomalous cases, bears little resemblance to a false membrane but it is a fact that every transition is found between this kind of deposit and the firmest diphtheritic membrane. To go more thoroughly into the subject of cryptogenic diphtheria the author states that the original deposit may be in the nasopharynx, in Luschka's tonsil. The presence of the Klebs-Loeffler bacillus may give rise to the question "has a simple angina occurred in a bacillus carrier, or can the latter alone set up the picture of simple angina?" The author holds the latter view.

La Presse Médicale.

April 9, 1921, xxix, 29.

Melanodermas of the Addisonian Type.—Sézary states that the symptom of melanoderma was what led Addison to investigate the disease which bears his name. This with the special asthenia was indeed almost sufficient for diagnosis. But Addison was bothered to find it absent in certain cases in which the suprarenal cortex was practically destroyed, and on this account expressed the view that there might be a nervous component to explain the exceptional case. Schmidt of Rotterdam succeeded in showing that the lesions of the cortex had some destructive action on the solar plexus so that it was thought probable that the pigmentation might be due to the associated nerve lesions. Today we recognize two distinct processes, a destruction of the cortex and hypoadrenia, which is responsible for an autointoxication, and a neurogenic syndrome under which belongs the melanoderma. In other words, it has not been possible to connect melanoderma with hypoadrenia. Can we account for it on the other hypothesis of lesions of the sympathetic? As far back as 1866 Jaccoud invoked the sympathetic to explain the pigmentation, but his reasoning was insufficient for this purpose. Gradually, through the labors of numerous investigators the thesis was placed that any irritation of the solar plexus and semilunar ganglia would if sufficiently powerful give rise to pigmentation of the skin and mucosæ (Chauffard). The deposit of pigment is only an overaction of a normal process. Presumably it is not different in its nature from the racial pigmentation of the negro and dark races in general. The Addisonian presents an acquired instead of an hereditary pigmentation. Given the predisposition, different factors will cause the hyperpigmentation. We cannot state to what extent, if any, it is a defense reaction and to what a sign of inferiority. The latter seems the more likely to suit the conditions. There may also be some kinship with senile pigmentation. Certain experiments have shown that depreciated nutrition will determine an accumulation of melanine in the epidermis. In not a few cases opotherapy has caused the pigment to fade and even to disappear, and in syphilis of the adrenals with pigmentation, the action of antisyphilitic remedies has produced the same result. But despite the activity of the sympathetic in the production of melanoderma, not only is the mechanism far from clear, but we know that the pigmentation may occur without any neurotic component whatever. The positive per cent. is at least 73, but this leaves a large margin without a neurogenic component. We must, therefore, to solve the mystery, study cases of melanoderma of the Addison type, in which both adrenals and sympathetic are intact. One type of these is of hepatic origin, beginning with the socalled "liver spots," while another is of thyroid origin. As far as known the liver and the thyroid, respectively, in such cases, are in a state of dysfunction or insufficiency. Jointly, then, there is evidence of an endocrinic type. Melanoderma *per se* has no diagnostic value but must be studied along with its concomitant symptoms. In extreme melanosis from lousiness, the adrenals may be found organically diseased, showing that the normal tendency to pigmentation is increased.

Finska Läkaresällskapets Handlingar.

January-February, 1921, lxiii, 1-2.

Sex and Pathology.—Ehrstrom gives an interesting account of the sex ratios in the incidence of disease. It is of course problematical how much of this influence is really sexual and how much due to mode of life. The material comes from various sources including personal statistics. The author first lists the affections in which the ratio of incidence favors the male. Gout leads off with the sex ratio of 40 to 1, while at the other extreme are appendicitis and nephrosclerosis with 3 to 2. With male sex strongly predominating we find Thomsen's disease, hemophilia and color blindness with 10 to 1; Leber's disease gives 6 to 1, and progressive muscular atrophy 5 to 1. In four affections the ratio is 3 to 1 in favor of the male—emphysema, hay fever, chloroma, and Hirschsprung's disease. The ratio of 2 to 1 is seen in diabetes mellitus, bronchial asthma, hemeralopia, paralysis agitans and hereditary nystagmus. In one affection in which the male predominates —arteriosclerosis—no exact figures are given. Proceeding now to the affections in which the female leads we find that chlorosis tops the list, no ratio being given, while Heberden's nodes is also without figures, the two affections being almost peculiar to women. Of actual statistical ratios vasomotor neuroses lead with 20 to 1, while at the other extreme is migraine with 3 to 2. Basedow's disease affects women in the proportion of 15 to 1, osteomalacia in 10 to 1, arthritis deformans in 6 to 1, myxedema and hysteria 5 to 1, ordinary goiter 4 to 1, gallstones 3 to 1, scleroderma 3 to 1, endemic goiter 2 to 1, and chorea minor 2 to 1.

Book Reviews.

THE HUMAN ATMOSPHERE. (The Aura). By WALTER J. KILNER, B.A., M.B. (Cantab.), M.R.C.P. (London), late Electrician to St. Thomas's Hospital, London. New York: E. P. Dutton & Co., 1920.

THIS is an enlarged and amended edition of the same work brought out in 1911 by the Rebman Company, which was then sold with the necessary screens for adjusting the vision. When the eye has been adjusted by looking at fair daylight through a flat cell containing a solution of dicyanin, the author claims that it is possible to distinguish three or four layers of some kind of emanation surrounding the body. This varies with age, sex and health and, by the use of complementary color screens, it is possible to distinguish variations in color and texture which have a diagnostic value in disease. The author considers this a manifestation of light and believes that it consists of rays shorter than violet, of which the human eye, unless specially sensitized, does not take cognizance. He tries to obtain some kind of order in relation to these phenomena of apparent luminosity and he gives his personal experience with a great many cases through a long period of years.

INSTINCT AND THE UNCONSCIOUS. A contribution to a biological theory of the psychoneuroses. By W. H. R. RIVERS, M.D., D.Sc., LL.D., F.R.S., London. Cambridge University Press, 1920.

THIS is a work which well repays careful study by the psychologist and the psychopathologist. Clinical psychology needs to be harmonized with the whole body of biological and physiological facts and knowledge, and the results expressed in clear and special language. Here a trained observer and psychologist is interpreting facts with greater detachment and a wider view than the special psychologist from the clinical side. Dr. Rivers considers especially the biological function by which experience passes into the region of the unconscious. This he calls "suppression," and shows that it occurs without the intervention of volution, and that it really is a specially complete form of forgetting. He limits the unconscious to experiences and complexes of this kind which are not to be brought into the field of consciousness by the ordinary processes of memory or association. Every living process in the animal involves, not only activity directed to a special end, but the inhibition of tendencies to activities of other kinds. Here the author differs from the followers of Freud (not Freud himself), and he asserts that the main factor in life is not self-reproduction or sex, but self-preservation. Dr. Rivers has as his central contention that the same biological principles operate at the psychological levels of development as at the sensorimotor and reflex levels. Where Dr. Rivers differs from Freud most widely is in the matter of the "censorship." The book must be read in order to appreciate the argument; but it is a timely protest against the exaggerated conceptions of the differing schools. One main contention is that suppression is a normal and salutary process and that some buried complexes are only to be brought to the surface with danger to patients.

A SYNOPSIS OF SURGERY. Illustrated. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). Surgeon to the Bristol General Hospital; Consulting Surgeon to the Cossham Hospital; Lecturer on Surgery at Bristol University; Examiner in Surgery, University of London. Fifth Edition. Price, $3.00. New York: William Wood & Company, 1921.

IN this well-known synopsis the reader will find an admirable epitome of the main facts in surgery. It is assumed that a student has already read through a standard textbook, and that he is anxious to summarize and systematize his knowledge. If used for this purpose the book will prove of the greatest value; but it is useless as a short cut for the beginner. The special arrangement of headings and indented margins, together with the different kinds of type, enables the reader to see the scope of any subject at a glance. Special sections are inserted dealing with the difficulties of diagnosis in certain regions, and also with the special examination of these parts. The new edition contains the main results of the War Surgery, and also a few additional illustrations, but the increase in size is but slight. The paper, print and general makeup of the volume leave nothing to be desired.

OLD AT FORTY OR YOUNG AT SIXTY. By ROBERT S. CARROLL, M.D. New York: The Macmillan Company, 1920.

THIS is one of the many small books which have been written to attract the attention of those out of health or of those who wish to preserve or increase what they have. It is a guide for those who wish to help themselves. Among the many it is distinguished by common sense and is eminently sane and workable. It deals on physical, mental, and spiritual lines in the restoration of the balance of all the vital factors and the application of self-control. It would save the busy practitioner a good deal of time if he were to take this book and mark it as part of his instructions for his patient to follow, for the disadvantage is that the inculcation of principles, such as this and similar books contain, must be supplemented by their application to individual cases.

A COMPEND OF DISEASES OF THE SKIN. By JAY FRANK SCHAMBERG, A.B., M.D., Professor of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania; Fellow of the College of Physicians of Philadelphia; President of the American Dermatological Association, etc., etc. Sixth edition. Revised and enlarged, with 119 illustrations. Philadelphia: P. Blakiston's Son & Co.

THIS little compend is well known. In its revised form it retains the features which made it popular on its first appearance, notably the tables of differential diagnosis and the sections on treatment. Except in the chapter on syphilis, this edition differs but little from the previous one. Some of the "derivations" are capable of improvement, especially those which are decorated with the weird printers' Greek.

ANÆSTHETICS. Their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S. Member of the Royal College of Physicians; sometime President of the Society of Anæsthetists; Member of University College; Consulting Anæsthetist to University College Hospital and to the National Hospital for Paralysis and Epilepsy, Queen Square, and to the Royal Dental Hospital of London; late Anæsthetist to King George Hospital, and Administrator of Anæsthetics and Lecturer in University College Hospital. Sixth edition. Philadelphia: P. Blakiston's Son & Co., 1920.

THIS standard work on anesthetics has been thoroughly revised and brought in line with recent advances. Two important new sections are those dealing with shock and hemorrhage, and the author has provided a brief summary of the various theories of shock and of the necessary treatment before, during, and after anesthesia. Other additions include the subjects of angioneurotic edema, massage of the heart, posture of the patient, anociassociation, local analgesia and spinal anesthesia. The book begins with a brief historical sketch, and closes with an important chapter on the medicolegal aspects of the administration of anesthetics. The general arrangement of the chapters necessitates some overlapping and repetition, but this is not a disadvantage. The practitioner will find in this volume all that he needs on the subject of anesthetics; and the carefully writen descriptions of methods of administration will impress upon him the fact that general anesthetics have their dangers as well as their blessings.

PATIENT'S HANDBOOK ON THE TREATMENT OF DIABETES MELLITUS. By THOMAS W. EDGAR, M.D., Boston: Richard G. Badger, 1920.

THE aim of this booklet is the cooperation of the patient with his physician through intelligent understanding of the details which he is instructed to carry out. The author states that he is not in accordance with the present mode of treatment, but with exceptions and cautions, the treatments which he lays down for use are those which are usually followed; and he suggests that he is using a serum and a medicinal infusion of his own discovery. The diet tables are comprehensive and useful. But in essence the book is for use in the author's own practice.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held April 25, 1921.

THE PRESIDENT, DR GEORGE GRAY WARD, JR., IN THE CHAIR.

Report of the Comitia Minora.—This body recommended that in view of the fact that the Professional Guild of Kings County had begun proceedings seeking to enjoin the Commissioner of the State Narcotic Commission from enforcing the regulations issued in December, 1920, no further action should be taken in that matter by the society at the present time. Another recommendation instructed all delegates to the State Society to oppose any measures favoring the establishment of health centers and to instruct delegates to the A. M. A. to oppose resolutions having for their object the furthering of the health center plan.

These recommendations were adopted.

THE COMITIA MINORA, sitting as a reference committee on the resolutions of Dr. Byron C. Darling, submitted at the meeting of March 28, 1921, which provided for a comprehensive survey of medical practice in the United States, the establishment of a weekly news organ, and the appointment of an executive secretary in common for the State and County societies, reported that it had considered these resolutions, and had recommended that no action be taken thereon for the following reasons: (1) To undertake a survey of medical practice as outlined in the resolutions would require an appropriation beyond the means of the society. (2) The matter of a news organ was now pending before the committee on civic policy. (3) The office of executive secretary for the State society was created by the last House of Delegates; the income of the society did not warrant such increased expenditure.

This recommendation was adopted by the society.

Resolutions Opposing Proposed Amendment of Volstead Act.—Dr. J. P. DAVIN introduced a resolution, which was read by the secretary, to the effect that whereas an amendment to the Volstead act was about to be proposed to prevent the manufacture, sale, and prescribing of malt alcoholic beverages, long used medicinally by physicians, thus nullifying the right of the physician under existing law to prescribe alcohol by denying its use in this form; and whereas, up to this time, there had not been presented to Congress any scientific or authoritative exposition of the principles underlying the use of alcohol in medicine upon which to base these measures, "Therefore, be it resolved, that the Medical Society of the County of New York respectfully petition Congress to defer action on the amendment now demanded by the certain religious, lay, and political bodies until the medical profession has had an opportunity to pass upon this measure in a scientific session at the meeting of the American Medical Association soon to be held at Boston."

Factors in the Causation of Symptoms of Enteroptosis.—Dr. DUDLEY ROBERTS made this presentation, which consisted in a lantern-slide demonstration. From the standpoint of enteroptosis he divided individuals roughly into two types: (1) Those with short lungs, a wide costal angle, almost transverse stomach, and short, broad abdomen, and (2) the opposite type, with long lungs, a narrow costal angle, more or less ptosed stomach, and long abdomen. Both of these types might be normal functionally. The idea that corsets were responsible for enteroptosis in women had been discounted in recent years, for while women no longer wore corsets enteroptosis was still common. The impression that only thin people were enteroptotic was also a mistaken one, for many fat women had distinctly narrow costal angles and ptosed viscera. In some enteroptotic people the colon was low and there might be a long-loop sigmoid, and yet these organs might functionate well. It was possible that people of the broad-chested type might acquire enteroptosis by habits of relaxation and bad posture. Such sagging of the viscera was very apt to occur in those of sedentary habits. It was not so much a question of the position of the abdominal organs as of their musculature. Loss of muscle tone interfered with peristaltic activity and therefore favored stasis. In view of these facts the idea that everybody who had a stomach low in the abdomen should be operated upon was absurd. Dr. Roberts then discussed possible effects of the nervous mechanisms controlling the abdominal viscera and referred to the possible influence that the endocrine system might exert through the sympathetic nervous system. He thought it rather difficult to realize how some abdominal disturbances, as, for instance, an acute diarrhea, could be dependent upon the endocrine system. Briefly summed up, the factors concerned in the production of enteroptosis and its accompanying symptoms might be said to be: (1) General maldevelopment of the muscular system. (2) Faulty posture. (3) Psychoneurotic manifestations. (4) Imbalance of the nervous system, either vagotonic or sympatheticotonic, possibly associated with endocrine dysfunction. (5) Visceroptosis and atony. (6) Complicating pathology. Enteroptosis brought on by impairment of the muscular system might be due to overwork, worry, underfeeding, or wasting disease. Such cases were relieved by diet, rest, improvement in the general nutrition, gastric support, and sometimes pregnancy. It was evident that medical procedures were likewise applicable to those cases which were due to faulty posture and to endocrine dysfunction. In the presence of psychoneurotic manifestations it was often difficult to say whether these were a primary or a secondary factor. These patients frequently complained of right quadrant discomfort and were often not relieved either by general treatment or by appendectomy. Colonic stasis, Dr. Roberts was inclined to believe, was much less frequent than they had been accustomed to think. The group of enteroptoses due to adhesions, adventitious bands, membrane, etc., was a comparatively small one. It was extremely important that enteroptotic patients be studied with the idea that they were suffering from symptoms, not because the organs were low in the abdomen, but with the idea that something else was causing the symptoms.

The Recognition and Correction of Enteroptosis in Children.—Dr. CHARLES GILMORE KERLEY stated that as the result of a study of 91 cases of chronic gastrointestinal disturbance found to be due to mechanical agencies they had been able to draw certain definite conclusions. The symptom-complex in these patients was very much alike. They showed malnutrition, had persistent or recurrent gastrointestinal disorders, in which gastric retention was often the main factor in the causation of the disturbance. The habitually poor appetite in these children was due to the fact that the stomach did not empty itself before the next meal. In this connection Dr. Kerley brought out the point that in the feeding of children the forcing of large quantities of milk after giving solid food was a mistake often leading to dilatation of the stomach and retention. He had also noticed that almost all of these children had been treated for acidosis. In the dilated stomach there was defective muscular tone and hypermotility. In the vomiting child they had found that vomiting, whether recurrent, habitual (daily), or occasional, was associated with the ptosed stomach which was mechanically difficult of emptying and showed hypermotility or hypomotility with pylorospasm, the last being a frequent indirect factor in causing an emptying of the stomach through vomiting, the spasm apparently being due to causes operative elsewhere in the gastrointestinal tract, as dilatations and sacculations in the cecum, sigmoid, etc. The first step in the treatment of these patients with ptosed stomachs was a properly fitting support; other important factors in the treatment were rest after meals and allowing the stomach to empty itself before food was ingested. The great need of these children was proper nutrition, and how to bring this about was often a difficult problem. Dr Kerley emphasized strongly the fact that many cases of enteroptosis in adults had their origin in congenital defects or were due to causes operative in early life rather than to wearing corsets. Dr. Kerley illustrated his talk with lantern slides showing various forms of ptosed stomachs in children and other anomalies in various parts of the intestinal tract.

Medical Measures for the Relief of Enteroptosis.—Dr. ARTHUR F. CHACE discussed this phase of the subject.

He stated that Glenard's conception of enteroptosis was an essentially anatomical one. Since his time we had come more and more to think of this disease in terms of disordered function, and to consider its medical problems from the standpoint of disordered physiology and chemistry. Enteroptosis was accompanied by extreme retardation of peristalsis at certain points, such as the stomach, duodenum, the ileum, the cecum, and the flexures of the colon, resulting in localized stasis. The symptom-complex of enteroptosis had come to embrace gastric stasis, ileal stasis, cecal stasis, and colonic stasis. These conditions produced substantially the same subjective symptoms; the objective symptoms depended upon the part affected. In order to obtain relief of enteroptosis, it was necessary to go back of the anatomical defect and to ascertain the cause that had produced the condition of lack of muscular tone and nerve force. Invariably this cause lay in some fundamental disturbance in physiology. The displacement of the stomach or cecum had relatively little bearing upon the production of symptoms. The important question was "Does the organ function normally?" Before instituting any form of medical treatment, it was imperative to determine the etiological factor in a given case. A thorough search should be made to see if there were any lack of balance in the internal secretions. Oftentimes there was deficiency in the secretion of the suprarenal gland; sometimes there were evidences of vagotonia—disorders of the thyroid, pituitary, or adrenal secretion—and these cases must be thoroughly studied to see if any benefit might be derived from the use of glandular therapy. The prophylactic treatment should begin in childhood by giving attention to the general rules of hygiene and avoiding faulty posture and fatigue, and by supervision of the diet so as to prevent overloading of the stomach and constipation. In women particular care should be taken following childbirth, to induce the abdominal muscles to regain their normal tone by means of properly fitted belts and by exercise. In the general treatment in addition to glandular treatment, if such were necessary, subnutrition and toxemia must be overcome. It was necessary to correct the toxemia before one could expect the patient to assimilate sufficient nourishment to overcome the lowered nutrition. To this end stasis must be overcome regardless of its location. Saline catharsis must be resorted to at first, and sometimes good results had been obtained by flushing the entire tract by duodenal irrigations giving 500 c.c. of a 4 per cent. sodium sulphate solution directly into the duodenum through a duodenal tube daily. Where the stasis was more marked in the colon results might be obtained by high colonic irrigations, using normal saline in the average case, and a 3 per cent. solution of sodium bicarbonate where there was much mucus. It was unwise to continue irrigation more than a few days. Following irrigation the function of the bowel might be restored by giving retaining enemas of sweet oil at night and a diet which would make the contents of the bowel soft, bulky, and moist. This end might be attained by adding to the diet preparations of mineral oil, agar-agar, flax-seed compounded with agar-agar, emulsions of agar-agar and mineral oil, psyllium seeds, bran, fruit, and vegetables. At first it was necessary to have the vegetables very carefully prepared and administered in small amounts to avoid the formation of gas. As soon as the toxemia was broken up the stools became normal, and the urine free from indican, then an effort was made to have the patient gain in weight, by means of forced feeding, which accomplished two purposes—it increased the serum albumen and serum globulin content of the blood causing the body cells to be bathed in the most nutritious fluid possible, and, secondly, it caused a gain in weight, increasing the intraabdominal fat. This, in turn, raised the intraabdominal tension, forcing the organs up to more nearly their normal position. It was advisable to give small amounts of food often. By the addition of fats and carbohydrates to the diet the patient could be given one thousand to fifteen hundred calories more than the maintenance diet. In cases of nerve exhaustion it was wise to carry out a dietetic regime in bed. The patient should rest one hour after each meal with a warm, moist dressing over the abdomen. The foot of the bed should be elevated about 6 inches, and in severe cases of gastroptosis it was wise to have the patient lie on the right side to facilitate emptying of the stomach. In severe cases it might be necessary to give the stomach a complete rest of several days by feeding the patient through the abdominal tube. In order to establish normal tone in the atonic parts of the digestive tract systematic exercises were necessary. The most important ones were bending movements combined with deep breathing exercises, taken systematically and stopped short of fatigue. They might be supplemented by massage, particularly of the vibratory form, special attention being paid to the affected part. The general nerve tone should be improved by hydrotherapy—cold douches followed by vigorous rubs. Electricity and massage were very poor substitutes for exercise. Much attention must be paid to the restoration of normal muscular tone. In ambulatory cases, pending the development of the abdominal muscles some form of support was necessary. Relief was afforded by the application of adhesive plaster in such a way as to elevate the abdominal organs and to increase the intraabdominal tension. In women a properly fitted corset or belt, or a combination of the two, in which there was even support applied to the lower part of the abdomen and no downward pressure in the upper part of the abdomen, afforded relief, but should be regarded as a crutch to be used only temporarily, until the abdominal muscles could be properly developed, and in older patients in whom it was too late to have a proper muscular development. Iron, arsenic, and strychnine were valuable aids in treatment. At times they might be given advantageously hypodermically. In order to prevent recurrence patients should be warned against constipation, anemia, and allowing their muscles to become flabby. This necessitated careful attention to their diet and habits of exercise.

Surgical Problems Associated with Enteroptosis.—Dr. ALFRED S. TAYLOR made this contribution. He said he quite agreed with the opinion that mere position had relatively little to do with function and that operative procedures were contraindicated in enteroptosis that could be relieved by medical and hygienic measures. There was no reason why enteroptosis *per se* should cause disturbance of function. Dr. Taylor then spoke more particularly of his personal experience with some 70 cases of enteroptosis, many of them showing complicating factors. In a large number of these a relief of the complicating factor relieved the symptoms from which the patient was suffering. For instance, there might be a condition at the pylorus which, if relieved by an appropriate operative procedure, would relieve the symptoms. Dr. Taylor described various types of bands, membranes, and angulations, and referred to the description of these anomalies by Harvey in the *Annals of Surgery*, June, 1918. He explained the mechanism by which these acted to interfere with function. Sometimes if these bands and membranes were sufficiently long and flexible they caused no symptoms and no functional disturbance; in other cases they were responsible for the symptoms which could only be relieved permanently by dealing with their cause. Dr. Taylor said he was particularly interested in Dr. Kerley's presentation because his theory of the origin of these gastroenteroptoses was quite in keeping with the findings in the cases he had operated upon. In about 20 per cent. of this series of 70 cases there was an associated chronic appendicitis. The best means of differentiating between the cases due to adventitious bands and membranes and those having a physiological basis was by a study of the slides. In these cases symptoms were frequently relieved by a plastic operation. About 75 per cent. of the cases in his series had been received by appropriate operative interference.

Dr. C. WARD CRAMPTON expressed his appreciation of the comprehensive discussion of the subject in the foregoing papers. He distinguished four types of ptosis, namely, (1) visceral; (2) skeletal; (3) circulatory; (4) emotional—which usually occurred together. Three of these forms of ptoses were well known, but circulatory ptosis was not. It was a symptom of asthenia characterized by a failure of the systolic pressure to rise on assuming standing position and accompanied with an undue increase in pulse rate. With reference to the treatment of ptosis, exercise was

always considered of value, but various forms of exercise and their different uses and results were not so commonly recognized in practice. They were given as follows:

(1) *Abdominal exercises* for (*a*) strengthening, (*b*) increase in tone, and (*c*) shortening of the flat muscles of the abdomen. (2) *Abdominal massage* and automassage from a variety of movements. (3) *Cervical exercises* for strengthening, toning, and shortening the posterior muscles of the neck with a view to keeping the crevical spine straight and suspending the thorax. (4) *Dorsal exercises*, particularly for the deeper longitudinal dorsal muscles, avoiding contraction of the rhomboideii. (5) *Thoracic exercises* for the intercostal diaphragmatic development. (6) *Organic physiological exercises* for circulatory and general alimentary stimulation and improvement in metabolism. (7) *Recreation* for organic effect, time consumption, and correction of mental asthenia.

Dr. WILLIAM A. DOWNES said he knew of no subject which held so many pitfalls for the surgeon as enteroptosis. He agreed with Dr. Roberts and Dr. Taylor that the symptoms of which these patients complained were seldom due to the condition itself. It was his conclusion that enteroptosis uncomplicated was a medical and not a surgical disease. He had in the past employed the various "pexies," but he felt that with a few exceptions he had not been quite fair to the patient. In certain types of cases, as in obstruction at the terminal duodenum due to drag of the mesentery, by doing a duodeno-jejunostomy he had obtained some very gratifying results. If the cases were properly selected and there was a real mechanical difficulty one might then accomplish a great deal. Most of these patients were nervous, irritable people who were hard to treat and to handle, and unless one was absolutely certain that he was making a correct diagnosis it was a serious error to have them undergo a difficult and often an unnecessary operation. To advise operation with the idea that one might possibly find a band was not always a justifiable procedure. In many of his seventy cases Dr. Taylor said he had removed a pathological appendix; Dr. Downes wondered if that might not account for the good results. Dr. Downes asked Dr. Taylor how many cases in which he had found bands he had reoperated. It had been his experience in reoperating for conditions in the upper right quadrant, even where he had simply removed the gallbladder and there was no drainage, that adhesions had reformed out of all proportion to those present before the operation.

Dr. MAX EINHORN said that he had been interested in this subject for thirty years, and he was glad to say that he fully agreed with almost all the speakers tonight. Twenty-five years ago many physicians did not agree with him. Now views had changed, he was glad to say. Methods of diagnosis had changed, and since the advent of the *x*-ray anybody could see that enteroptosis was of very common occurrence. Dr. Einhorn called attention to the fact that in his first paper on this subject he had said that enteroptosis could exist in people who had no symptoms and that it was compatible with health, and his contention was that the reason we found disease so commonly associated with this condition was because enteroptotic people were easily upset, they were upset very much easier than normal persons. That was the reason why so many people of this type showed dyspepsia, hyperchlorhydria, achylia-gastrica, cholecystitis, etc. Returning to the subject of treatment, Dr. Einhorn said that formerly there were few who dared say this type of cases should not be treated surgically while now everyone agreed with regard to this point. The underlying principle of treatment in these cases was to put plenty of good food into the body, as many of these patients suffered from undernutrition. Now that everybody realized this better results on the treatment of enteroptosis could be expected. A comfortable support, while not absolutely necessary, was a great help, and exercise was also a very essential part of the treatment. There was no doubt that some enteroptotic people required surgery, but then there was some other factor present that could not be removed medically. One feature not brought out this evening was that sometimes patients suffered from dyspnea and in a number that difficulty was due to prolapse of the liver and sometimes of other organs, but principally of the liver.

The way to recognize that variety of dyspnea which could be easily cured was that while a man with asthma felt better when up and about these patients felt better when lying down and suffered from dyspnea when up and about.

Dr. DOUGAL BISSEL said his interest in this subject was chiefly surgical, and it was from this standpoint he proposed to discuss it. *First*, could the stomach be permanently fixed? *Second*, could it be fixed to advantage; relieving the symptoms of which the patient was compaining? *Third*, could the stomach be permanently fixed without sequelæ more disturbing than the original condition for which the operation was performed?

Could it be fixed? The answer to this question depended, first, upon the character of operation employed; second, upon the individual operator and the thoroughness with which one carried out the technique.

Could the stomach be fixed to advantage? The answer to this question was given by Dr. Roberts in the several patients whose *x*-rays before and after operation he had showed at this meeting, and in many other patients upon whom Dr. Bissel had successfully operated, some of whom were previously under the care of distinguished members within his hearing.

Could the stomach be permanently fixed without sequelæ, etc.? This question could also be answered in the affirmative. Though it had been his misfortune in a limited number of patients to fail to secure the full improvement desired, yet in no instance, so far as he had been able to ascertain, had the patient been left in a worse condition than before the operation. Failure in an individual case should not condemn operative procedure. Success in an individual case proved what could be done.

Dr. ROBERT T. MORRIS called attention to a point not brought out during the evening, namely, the frequent association of enteroptosis with other stigmata of degeneration, such as the high, arched palate, defects of various structures, etc., making it evident that enteroptosis was but a part of the general picture of degeneration. In regard to surgery in these cases, he said that during the last thirty-five years he had changed his mind many times. He had done all the "pexies" and had now reached the conclusion that they were mostly wrong. When the colon dropped because of a relaxation of the peritoneal supports it dragged upon the nephrocolic ligaments and pulled one or both kidneys out of Gerota's pouch. Operation in such a case was wrong, gained nothing permanently, and was not desirable. In some cases the kidney might make torsion of its vessels and nerves, and the ureter become angulated. The semilunar ganglia might be disturbed enough to give rise to gastric crises. In such a case operation upon other organs certainly did no good unless the kidney was fixed; also a ten minute operation for fixation of the kidney was sometimes desirable when the kidney had its own set of real symptoms. The "pexies" for the relief of gastroptosis were for the most part measures of the past. Following almost any "pexy," there might be a gain in weight and temporary well-being. If one wanted to report good results following enteroptosis operations he should report his operations very quickly.

Dr. ANTHONY BASSLER said that of course an enteroptotic kidney with Dietl's crises should be anchored. Dr. Roberts was right when he stated that no diagnosis of ptosis should be made on low position of the organs alone. If, however, there was peristaltic deficiency, errors of secretion, structure, makeup, or posture, causing functional disturbance or symptoms, then diagnosis of enteroptosis might be warranted. He thought Dr. Kerley's dictum of retention in children should be carried on through the adult ages because it was the one main characteristic in adult stomachs with ptosis trouble. One difficulty in this was the practice to employ the six-hour method of estimating retention, whereas *x*-ray men should use a four, four and one-half, or five-hour test, although not a few showed a retention of six hours. He believed that at least one-half the ptosis cases in adults had chronic toxic gut conditions, and the symptoms were very likely to return if this was not corrected. Dr. Bassler asserted that his position was somewhat different from that of Dr.

Chace in that he did not think it was necessary to clear up the gut condition first but to treat the ptosis first and handle the gut condition afterward. He thought a fair estimate would show that 31 per cent. of enteroptotic conditions had endocrine disturbance, 20 per cent. pathological conditions other than ptosis, and that 69 per cent. of all cases had a definite neurological condition. He had observed the results of seventy-nine operations for ptosis alone, not for associated conditions. These had been followed for over a year and but two were better. He believed, as Dr. Chace said, that this subject of ptosis was an individual matter; there were no general rules. On the average it took him four or five months to do any sort of a job on a ptosis case, a job that would stand strain and last. He did not think that any case that had a recurrence of symptoms could be considered to have been cured. One test, which to him was very interesting, was the one in those instances in which the results were good and one found that the stomach, not supported when the patient was in the erect position, rode higher than when the patient was in the prone position. He considered such a result as confirmatory of a real cure.

Dr. FENTON B. TURCK said the papers of the evening had covered the subject of enteroptosis very completely, so far as the textbook descriptions went, and they all said practically the same thing, namely, that enteroptosis was a metabolic disease, and they brought out the fact that one of the symptoms was fatigue—fatigue of the entire body as well of the gastrointestinal tract. But they did not go back of fatigue as a symptom and show how this fatigue was produced and how it affected the organism. The speaker's researches on the subject showed that fatigue had its inception in the cellular activities of the body, resulting in cell autolysis and the production of metabolites. He had further shown that this cellular autolysis was not due to microbic action, but was caused by the toxins of the tissues themselves. Dr. Kerley had done a beautiful piece of work in showing how enteroptosis frequently began in early life, and had shown that fatigue and disordered metabolism had a part in producing this condition, but the underlying cause had not been touched upon. Dr. Turck then referred to his experimental work on shock, in which he had shown that shock was due to tissue autolysis and the production of metabolites which were instrumental in producing gastric dilatation fatigue and dilatation. Foreign investigators had confirmed this finding and were agreed that shock was due to the metabolites of tissue poisoning. This having been proven, the logical treatment was by the injection of tissue extracts containing the specific antibodies for fatigue which could always be traced to tissue destruction. The reason that the young patients as well as the older ones suffered from atony and dilatation was not because of greater increase of the production of tissue extracts acting as toxins, but because there was frequently a diminished production of the normal resistance (the normal antitoxins), and no progress could be made in the treatment until these normal antibodies were supplied to the individual case showing this deficiency. Rest alone was not sufficient. What was needed was not drugs to palliate the symptoms, or surgery to tear out the fatigued organs, but to restore to the individuals their required normal antibodies, or what was popularly designated the normal "resistance." These normal antibodies directly neutralized the fatigue toxins which generated from the tissues. Dr. Turck had shown that atony and dilatation of the gastrointestinal tract did not occur by any means whatsoever until the tissue extracts were liberated from the tissues in excess of the normal antibodies present in the organism. Dr. Turck called attention to his method of toxin-antitoxin treatment with tissue extracts and the antitoxins produced by injecting animals (horses) with human metabolites, fatigue toxins, or tissue extract. This produced a curative serum which neutralizes the fatigue toxins. He preferred to call the tissue toxin "*Cystost*," and the antitoxin "Anti-Cystost."

Dr. A. S. TAYLOR, in closing the discussion, said that if the dictum were laid down not to operate unless one were sure of the diagnosis he would like to know how many surgical cases would be operated upon. In gallbladder cases if one had to be absolutely sure of the diagnosis very few gallbladders would be exposed. With increasing experience they were becoming able to make diagnoses with increasing accuracy. In his series of cases of enteroptosis accuracy of diagnosis had been fairly high. In fifty of these seventy cases the operation had been performed at periods ranging from two to seven years, and in about 75 per cent. the symptomatic cures were almost perfect.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE SURGICAL CLINICS OF NORTH AMERICA. February, 1921. Volume 1. Number 1. 259 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

THE PRINCIPLES OF IMMUNOLOGY. By HOWARD T. KARSNER, M.D. and ENRIQUE E. ECKER, M.D. 309 pages with illustrations. Published by J. B. Lippincott Company, Philadelphia.

THE HEALTH OF THE INDUSTRIAL WORKER. By EDGAR L. COLLIS, M.D. and MAJOR GREENWOOD, M.D. 450 pages with illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

THE ORIGIN AND PROBLEM OF LIFE. By A. E. BAINES. 97 pages with illustrations. Published by E. P. Dutton & Company, New York.

GERMINATION IN ITS ELECTRICAL ASPECT. By A. E. BAINES. 185 pages with illustrations. Published by E. P. Dutton & Company, New York.

SIXTEENTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE MANHATTAN STATE HOSPITAL TO THE STATE HOSPITAL COMMISSION FOR THE YEAR ENDING JUNE 30, 1920. 64 pages with illustrations. State Hospitals Press, Utica.

DIE BEDEUTUNG DER VERSCHIEDENARTIGEN STRAHLEN FUR DIE DIAGNOSE UND BEHANDLUNG DER TUBERKULOSE. Von Dr. RUBEN GASSUL. 72 Pages. Verlag von George Thieme, Leipzig.

DE L'ANAPHYLAXIE À L'IMMUNITÉ. By MAURICE ARTHUR. 361 Pages. Published by Masson et Cie. Paris.

VERÖFFENTLICHUNGEN der Robert Koch-Stiftung zur Bekämpfung der Tuberkulose. Ban 11 Heft 3. 195 Pages. Verlag von George Thieme, Leipzig.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints Volume XXXVI. 589 pages with illustrations. Published by the Rockefeller Institute for Medical Research, New York.

HUMAN HEREDITY, by CASPER L. REDFIELD. 107 Pages. Published by Heredity Publishing Company, Chicago.

RADIANT ENERGY AND THE OPHTHALMIC LENS. By FREDERICK BOOTH. 226 pages, with illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

TREATISE ON FRACTURES. By JOHN B. ROBERTS, M.D., and JAMES A. KELLY, M.D. 755 pages with 1,081 illustrations. Published by J. B. Lippincott Company, Philadelphia.

FOUNDATIONS OF PSYCHIATRY. By WILLIAM A. WHITE, M.D. 136 Pages. Published by the Nervous and Mental Disease Publishing Company, New York.

THIRTY-SIXTH ANNUAL MEDICAL REPORT OF THE TRUDEAU SANATORIUM. 846 Pages.

KONSTITUTIONS AND VERERBUNGSPATHOLOGIE. Von HERMANN WERNER SIEMENS. 229 pages, with illustrations. Verlag von Julius Springer, Berlin.

BLOOD PICTURES. By CECIL PRICE-JONES, M.B. (Lond.). With 5 colored plates and 3 illustrations in the text. Second Edition. Published by William Wood & Company, New York.

A TEXT-BOOK OF PATHOLOGY. By ALFRED STENGEL, M.D., and HERBERT FOX, M.D. 1111 pages, with 509 illustrations. Price, $8.50. Published by W. B. Saunders Company, Philadelphia.

MEDICAL ELECTRICITY, RÖNTGEN RAYS, AND RADIUM. By SINCLAIR TOUSEY, M.D. 1337 pages, with 861 illustrations. Price, $10.00. Published by W. B. Saunders Company, Philadelphia.

Miscellany.

NEW BOOKS AND OLD.

IX.—Guerini's History of Dentistry.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

In 1909 the National Dental Association brought out through one of the larger publishers, Guerini's History of Dentistry. If your library has neglected this subject, lose no time in getting this valuable work, for the earlier essays on the history of dentistry are difficult or impossible to obtain. Perine, Dexter, and Cigrand are among the Americans who have devoted some time to this subject, while McManus in his introduction, mentions the work of Duval, Fitch, Carabelli, Snell, Linderer, and Harris among the foreign writers. In German, the Geist-Jacobi *Geschichte der Zahnheilkunde*, Tübingen 1896, and in French Lemerle's *Notice sur l'Histoire de l'Art Dentaire*, may be consulted but these works are scarcely available even in the larger libraries. The year after the appearance of Guerini's book, C. R. E. Koch's three volume History of Dental Surgery was published at Fort Wayne, Indiana. Another book of value, unfortunately out of print, is one issued some years ago by the S. S. White Dental Company. It is to be hoped that they will reprint it in the near future.

Among the earliest dental prescriptions are those in the Ebers Papyrus which is supposed to have been written in 1550 B. C., although the material for it must have existed from much earlier times. Caries and ulcerations are mentioned and various prescriptions given. There seems to be some doubt if the gold fillings occasionally reported in mummies were really put there during the life of the individual but there can be no doubt that at very early times, teeth from others persons were wired to adjacent ones to replace those lost. Guerini believes that the early Egyptians were as far advanced, if not farther, than any of the other earlier peoples who practiced dentistry.

When our author comes to the Hebrews he is able to give some interesting quotations, for while no dental medicine or surgery occurs in the Bible, there are numerous references to teeth, over fifty, but varying in the different translations. They go to show that while the early Hebrews probably suffered little from dental disease, they had nevertheless a proper appreciation of the value of good teeth. For example Guerini quotes the following:

> 23. Thou shalt give life for life.
> 24. Eye for eye, tootl for tooth, hand for hand, foot for foot.
> 25. Burning for burning, wound for wound, stripe for stripe.
> 26. And if a man smite the eye of his servant, or the eye of his maid, that it perish; he shall let him go free for his eye's sake.
> 27. And if he smite out his manservant's tooth or his maidservant's tooth; he shall let him go free for his tooth's sake. (Exodus—xxi: 23 to 27.)

The early Hebrews were not blind to the beauty and whiteness of the teeth: "Thy teeth are like a flock of sheep that are even shorn, which come up from the washing; whereof every one beara twins, and none is barren among them" (Song of Solomon iv:2). Numerous passages attest the fact that the soundness of the teeth was considered necessary to force and vigor. David says: "Arise, O Lord; save me, O my God: for thou hast smitten all mine enemies upon the cheek bone; thou hast broken the teeth of the ungodly" (Psalm iii:7), and in another place we find this sweetly pleasant prayer: "Break their teeth, O God, in their mouth" (Psalm lviii:6). Solomon uses broken or decayed teeth to symbolize weakness, "Confidence in an unfaithful man in time of trouble is like a broken tooth and a foot out of joint" (Proverbs xxv:19). The effect of acid substances on the teeth is alluded to several times, thus Solomon, "As vinegar to the teeth, and as smoke to the eyes, so is the sluggard to them that send him" (Proverbs x:26), and Jeremiah says, "In those days they shall say no more. The fathers have eaten a sour grape, and the children's teeth are set on edge. But every one shall die for his own iniquity; every man that eateth the sour grape, his teeth shall be set on edge" (Jeremiah xxxi:29 and 30).

We may pass over the consideration of dentistry among the Chinese except to call attention to the fact that acupuncture was a favored therapeutic measure in dental disorders. In this point Guerini says:

> There are twenty-six points of election upon which to carry out puncturing used as a remedy against toothache. There are also six other points of election for pains in the gums. One would naturally be disposed to believe that these points of election would be situated in proximity to the teeth. Instead, many of them are situated in distant parts of the body—for example, in the elbow, in the hands, the feet, the vertebral region, the coccyx, and so on. However, about half of them are to be found in the labial, maxillary, and periauricular regions. The puncturing of every point of election is almost always indicated for the cure of not only one but several, and, indeed, very often many maladies; for example, the puncture carried out on the point of election, *kin-tche*, situated at the outer extremity of the bend of the elbow, may be utilized in more than twenty-five morbid conditions; among which are pains in the arm, paralysis of the arm, edema of the whole body, excessive perspiring, vomiting, hematemesis, toothache, boils, gastralgia, hemiplegia, and even cholera!

Associated with puncturing is cauterization, as the site of the puncture is usually treated by means of the moxa. This is done with a kind of soft vegetable substance obtained from the leaves and dried tips of the artemisia. This is pressed into the shape of a small cone. A coin with a hole in it, as are the coins of China, is then pressed over the area to be treated. The cone of moxa is placed in the hole of the coin and then lighted. It burns slowly without excessive heat and produces a small circumscribed blister, without the production of much, if any, pain.

A short chapter is devoted to customs relating to the teeth such as dyeing them black or filling up the interdental spaces with gold leaf, or gilding the teeth, or coloring them red or other colors. The author might have gone on to a description of the present day custom of many Americans who seem to prefer gold teeth in place of the usual substitutes and to other vagaries including the actual setting of diamonds in the fillings.

Hippocrates gives numerous references to the development of teeth and to their diseases, but little is given concerning the care of the teeth. Guerini

has selected a large number of illustrative passages, only one of which we need quote as it shows as usual the remarkable clinical knowledge of the old father of medicine: "When a person has an ulcer of long duration on the margin of the tongue, one should examine the teeth on that side, to see if some one of them does not, by chance, present a sharp point." It took the medical profession many many centuries to come to a full realization of this advice, and even today there are undoubtedly large numbers of cancers that might have been avoided if irritation from dental deformities had been eliminated.

From the Greeks it is but a step to the dental art among the Etruscans and Guerini figures a number of interesting things such as dentures in terra-cotta, which the Etruscans used to present to their divinities as votive offerings. He also shows teeth crowns and appliances to support artificial teeth, after the manner of the bridge work of the present day and also appliances which were apparently designed to support some purely ornamental artificial substitute for the lost tooth.

The Romans were also familiar with dental disorders and large numbers of dental appliances and instructions have been preserved in many museums. Celsus gives extensive directions regarding carious teeth, fractures of the jaw, ulcers and the like. Guerini gives also a number of quotations from Pliny, full of directions for the use of various herbs and some other suggestions such as:

Apollonius writes that a very efficacious remedy for pains in the gums is to scratch them with the tooth of a man who has suffered a violent death. It is considered very beneficial for toothache to bite off a piece from wood which has been struck by lightning, and to touch the sick tooth with it; but whilst biting off the little piece of wood, it is necessary to keep both hands behind the back.

The Roman writer Martial speaks very clearly of artificial teeth which, judging from the quotations from his works, were designed so that they could be put on or off with great ease, which is good proof of the high state of dentistry in the Rome of his time, and Horace, in one of his satires, speaking of two old witches who had been put to flight, says:

You would have laughed to see those two old witches running toward town losing in their flight, Canidia her false teeth, Saginia her false hair.

Scribonius Largus, physician to the Emperor Claudius, whom he accompanied to England in the year 43, devotes a chapter of his book to the cure of toothache. Among other things he advises:

Violent toothache may be calmed in various ways, viz., with mouth washes, masticatories, fumigations, or by the direct application of fitting medicaments. It is beneficial to rinse the mouth frequently with a decoction of parietaria or of cypress berries, or to appiy to the tooth the root or the seeds of the hyoscyamus wrapped up in a cloth, and dipped from time to time in boiling water, or to chew the protulaca (purslane), or to keep for some time its juice in the mouth. Suitable also against toothache are fumigations made with the seeds of the hyoscyamus scattered on burning charcoal; these must be followed by rinsings of the mouth with hot water; in this way sometimes, as it were, small worms are expelled.

Tooth pastes and various washes and mixtures to be applied to carious or aching teeth were all well known in Rome long before the time of Galen. It was natural that Galen, writing as he did on everything, should have devoted a considerable attention to the teeth. Like many others of the early writers he was not inclined to recommend the extraction of teeth with forceps.

I have not space to quote the many interesting quotations collected by Guerini but the method of ridding one's self of toothache as suggested by Gnaeus Marcellus Empiricus, who lived in Bordeaux at the end of the fourth century may be cited:

Whilst in the open country, one must take a frog by the head, open its mouth and spit into it, then having begged the animal to take the toothache with it, must replace it on the ground and let it free. To remove loose teeth easily, it is necessary to keep in reserve some juice of black ivy mixed with a little green oil; in case of necessity, the nose of the patient must be anointed with it, and after having drawn a deep inspiration, he must put a little stone between his teeth, and stay with his mouth open, inclined a little forward, so as to let all the morbid humor flow out, which sometimes flows very abundantly and even may reach to three herminae. Having afterward rubbed the nose with pure oil, and washed the mouth with wine, the teeth will be free from every pain and may be very easily pulled out.

During the middle ages medicine moved to the East and with it dentistry, but the great Byzantine and Arabian physicians apparently added little to what was known before. The actual cantery was used and Abulcasis was apparently the first writer to consider cleaning the tartar off the teeth. Guerini quotes the following from the chapter "On the Scraping of the Teeth":

Sometimes on the surface of the teeth, both inside and outside, as well as under the gums, are deposited rough scales, of ugly appearance, and black, green, or yellow in color; thus corruption is communicated to the gums, and so the teeth are in process of time denuded. It is necessary for thee to lay the patient's head upon thy lap and to scrape the teeth and molars, on which are observed either true incrustations, or something similar to sand, and this until nothing more remains of such substances, and until also the dirty color of the teeth disappears, be it black, or green, or yellowish, or of any other color. If a first scraping is sufficient, so much the better; if not, thou shalt repeat it on the following day, or even on the third or fourth day, until the desired purpose is obtained. Thou must know, however, that the teeth need scrapers of various shapes and figures, on account of the very nature of this operation. In fact, the scalpel with which the teeth must be scraped on the inside is unlike that with which thou shalt scrape the outside; and that with which thou shalt scrape the interstices between the teeth shall likewise have another shape. Therefore, thou must have all this series of scalpels ready if so it pleases God.

Elevators were used in the extraction of teeth and also of splinters of teeth and bone, and crude dental saws of various shapes, as well as files, were frequently employed.

Dentistry, however, remained only a part of medicine practised by surgeons or by barbers or by persons in other occupations. Such writers in Europe as Guy de Chauliac included a considerable amount of material relating to dentistry and gave names to the various teeth.

It would take us too far afield to follow as Guerini does the various suggestions made by the writers in the thirteenth to the fifteenth centuries. With the revival of learning and the introduction of printing, contributions to dentistry, as to everything else, became more numerous. In Germany dentistry was in a crude state, practised by barbers, wander-

ing story tellers, magicians, even hangmen. These were generally forbidden to practice except at fairs but such prohibitions were perhaps broken as frequently as the Volstead Act is now.

One of the earliest books on dentistry was an anonymous work entitled *Zahnarcneybüchlein*, apparently first printed in 1530. This contains the description of cleaning carious teeth and filling the cavities with gold leaf. Another book of dental interest was written by Walter Hermann Ryff of Strassburg. His work was entitled "*Nuetzlicher Bericht, wie man die Augen und das Gesicht schaerfen und gesund erhalten, die Zaihne frisch und fest erhalten soll,*" or "Useful Instruction on the Way to Keep Healthy, to Strengthen and Reinvigorate the Eyes and the Sight. With Further Instruction on the Way of Keeping the Mouth Fresh, the Teeth Clean, and the Gums Firm." Ryff was the first to note the relation between disease of the teeth and the eyes.

Vesalius, Fallopius, Eustachius, and the other anatomists contributed much to the proper understanding of the development and the anatomy of the teeth, and Ambroise Paré brought the practice of dental surgery to the highest point that it had yet attained and figured a large number of dental instruments. I must refer the reader either to Guerini's abstracts or to the works of the great master himself for further details, but they are quite worth while looking up.

Additional works now began to be published with greater frequency, such as the work of the Spaniard, Francisco Martinez, who between fifty and fifty-seven published his "*Coloquio breve y compendioso sobre la materia de la dentadura y maravillosa obra de la boca, con muchos remedios y avisos necesarios, y la orden de curar y adreçar los dientes.*" "A brief colloquy and compendium on dentistry and the marvellous work of the mouth with many remedies and the necessary advice concerning the care and extraction of the teeth."

The second dental monograph in the German language was published at Frankfurt in 1576. It was the work of Adam Bodenstein von Carlstad. From this and others Guerini has gleaned sufficient to give one a pretty good idea of the state of dentistry in the sixteenth century. He also gives at some length, the story of the golden tooth, a curious myth which received quite as much attention as do similar things in our own day. In the sixteenth century there were distinct evidences that the dental science was to become separated from medicine and surgery and in the seventeenth century this becomes more marked, but still the dental contributions continued to be made by those celebrated in other lines. I can merely mention the work of Fabricius Hildanus, Johann Schultes, Nathaniel Highmore, and pass over a large number of other names, some well known and others scarcely ever seen in print. One gets a rather good idea of the thoroughness with which Guerini has gone over the early literature by the fact that he mentions the opinions of Walter Harris, a celebrated pediatrist of the latter part of the seventeenth century, whose life and writings I described at some length in a recent number of the Annals of Medical History.

The founder of modern dentistry was Pierre Fauchard. His celebrated work is entitled *Le Chirurgien Dentiste* (1728). Like all innovators, he had to suffer a great deal of envy and opposition.

About 1700 the dentists began to form a well defined class and in France examinations were necessary to be admitted to practice.

Guerini gives a very extensive account of Fauchard, who figured a large number of instruments which he devised, some of which are in use today with little or no alteration. Fauchard was a man of great ingenuity and originality. He not only did dental operations, made appliances to replace one or more missing teeth, but used various methods of filling cavities and was skilled in applying artificial crowns either to neighboring teeth or in the roots which he left. He even attempted to supply a complete denture but with rather indifferent success. He also manufactured artificial teeth and had them covered with enamel so as to resemble the natural object.

Guerini also gives some space to the well known contributions of John Hunter, "The Natural History of the Human Teeth," London, 1771, and "A Practical Treatise on the Diseases of the Teeth," London, 1778. These works and a few others bring the history of dentistry up to the end of the eighteenth century, where our author and we will leave it.

Psychoanalysis in France.—In the Bulletin of *Le Progrès Médical* for April 16, 1921, xlix, 16, is a notice of a Franco-Swiss translation of Freud's recent work on psychoanalysis. There is a preface by Claparède, devoted to Freud and his methods, in the course of which it is stated that the French have been the last to show an interest in the subject. The first announcement of the latter was received with hostility and a man like Pierre Janet, for example, does not seem to have grasped the inwardness of the subject matter. In all of the other countries the ideas of Freud have given an impetus to the study of psychology. In France he had for a long time but a single advance agent. Moricheau-Beauchant of Poitiers. Then others followed—Regis, Hesnard, Dupré, and Trepsat. Of the old psychologists Ribot alone showed himself more open to conviction than many of his juniors. But he adds that Paul Bourget, the novelist, has produced in Nemesis one of the most original psychological romances of the time, in which he introduces Freud's ideas. In Geneva a number of Franco-Swiss psychologists are Freudians, as Bovet, Morel, Flournoy, and de Saussure. Vodoz has applied psychoanalysis to the Song of Roland and to Victor Hugo's poem. But not all the Genevese are partisans of Freud, exceptions being Larguier des Bancels and Christin. The editor thinks that Claparède has exaggerated the ideas of ostracism and indifference of the French toward Freud. He shows that as far back as 1913 and 1914 there were favorable and even enthusiastic reviews in French periodicals and cites a dozen of them. It was only the abuse of the idea that was antagonized. A passage from Janet in 1919 is quoted as highly appreciative of Freud. When a man puts Freud in the class with Sir Isaac Newton and other men of genius, however, he must expect some dissent on the part of the public.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 3.
Whole No. 2645.

NEW YORK, JULY 16, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

SURGERY AMONG UNCIVILIZED RACES.*

BY J. RAWSON PENNINGTON, M.D., F.A.C.S.,

CHICAGO.

CORRESPONDING MEMBER, ROYAL SOCIETY OF MEDICINE, LONDON (SURGICAL SECTION)

To do justice to this subject would require many hours, so all I can expect in a short period is to make a landing—as the airmen say—here and there. Moreover, I shall not touch on mutilations, such as cutting off a joint or joints of the fingers as a mark of mourning; or amputation of the nose, common in some tribes of our Indians, for punishment of unfaithful wives.

Commencing then with minor surgery: Bleeding was apparently common and widespread; thus the first Spanish voyagers to Yucatan found it used there to cure all sorts of diseases. Cupping was also widely practised, either by simple suction with the mouth, or where the hollow horns of buffaloes and other animals were to be had, these served as cupping glasses. In Bhutan, north of India, oral suction as well as an ox-horn was resorted to, according to Laufer.

Acupuncture is said to be over 46 centuries old in China, and for my purpose can be alluded to for a moment. There are a great many favorite sites for the procedure, and manikins are made to show such sites. One still extant, made by order of the reigning emperor in A. D., 1027, has no less than 367. (I understand a few more have been added in the long interval.) There are nine sorts of needles, each with its special indications, arrow-headed, round, blunt, and so on. The indications duly set forth in a Chinese book dated 1717 (Thomson, Olpp).

It is probable that the cataplasms and other applications to wounds, etc., may have had some feeble antiseptic properties which had been found out empirically. The homeopathic principle—"like cures like"—was put into effect by the Hopi Indians in Arizona. When dealing with an inflamed surface, the increased temperature was thought to be due to fire, hence to counteract the effect the surface was sprinkled with ashes, charcoal, or other substances resulting from the action of fire. (A somewhat analogous practice among their neighbors, the Zuñi Indians of New Mexico, will be referred to later.)

For closing small wounds a rude suture of thorns inserted through the edges was in vogue, and in some tribes of tropical America, where the ants are of large—even enormous—size they were held against the edges of the wound, and when these were grasped by reason of the well-known pugnacious tendencies of these insects, the body was twisted off, leaving the adherent head to hold the edges in apposition. I would ask here, is it possible the formic acid has any curative properties?

Several years back a few cases were reported showing the matter-of-fact way in which the ruder races look on surgical conditions. The first occurred in a Navajo halfbreed in New Mexico, aged 30. On April 18, he was wounded by a .45 calibre bullet, which struck him on outer side of left leg and passed in through popliteal space (Figs. 1, 2). Nothing whatever had been done to check hemorrhage, and a cloth saturated with turpentine bound around the wound was the only local dressing. As necrosis ensued the man whittled off the dead flesh from time to time. At length, on Sept. 6, he was first seen by a physician (F. E. Hinch), and found in reasonably good condition, and, considering his only food had been the coarse diet of the natives, was well nourished. From four inches below the patella, the limb was entirely denuded of flesh, the only covering to the bones were scattered areas here and there, particularly on the foot. Amputation through the lower thigh being performed, was promptly followed by recovery. At the operation the femoral artery was found to divide into the tibials much higher than usual.

Not long after, two somewhat similar cases were reported by Thurston, an English army surgeon in India. The patients were both Hindus, though it is decidedly unlikely they will ever learn of my including them among "uncivilized races." (Here, as in one or two other places, I have not stuck very closely to my text so far as the "uncivilized" portion of the topic is concerned.)

The first Hindu, a man of 40, some four months prior to admission had a febrile attack thought to be malarial. On the tenth day a burning sensation suddenly developed in the right leg, with severe pain shooting down the sciatic. For a few days the pain grew worse, then slowly subsided, and in a week or so after the leg trouble made its appearance, the fever ceased. A month later blisters developed and persisted for three weeks, when the leg became painful once more with considerable itching. Four weeks previous to entrance sloughs appeared over the heel, then extended up the leg, and the foot mummified. The man pulled off the sloughs as they separated, until the condition as seen in picture was almost an exact duplicate of the halfbreed save for the different side of body. A successful thigh amputation was performed. No history of syphilis and no albuminuria, but the cardiac sounds were

*Read before Chicago Academy of Medicine, February 23, 1921.

weak, and the reporter believes the condition was due to embolism from a thrombus which formed in a weak heart during the febrile attack.

The second man, aged 50, entered hospital September 12. In the previous January, anesthesia of the finger tips made its appearance, then extended up about midway of forearm. In a couple of weeks a bleb between the thumb and index formed; this ulcerated, and the soft parts began sloughing off until only the bones were left. Late in April, after formation of the line of demarcation, the soft parts came away, then while the man was applying a native remedy of tree leaves, the bones too dropped off, after which the fever ceased. There was a specific history some 30 years previous, and at amputation through the elbow, the arteries proved to be thrombosed. Post-operative pneumonia delayed recovery.

Judging by the many bone-specimens, ancient and modern, from savages in all corners of the globe, which show fractures united with little or no deformity it is probable some rude support or splint had been applied. Neuburger believes the methods used for repair of broken weapons served in primitive times as a pattern for the treatment of fractures. The last survivor of the black inhabitants of Tasmania, died in 1876. In common with their neighbors to the North, the Australian blacks, they are generally regarded as the lowest in intellect of all humanity, yet they were in the habit of mashing up certain tree leaves there which became plastered together, and acted as a clumsy sort of splint. However, Dr. Hrdlicka, from his extensive observations among our own Indians, believes fractures and diseases of bone are less common among them than in the white race.

Several years ago, G. Elliot Smith, at that time professor of anatomy in the Egyptian Government School of Medicine, described what he appropriately terms "the most ancient splints." They were discovered in some rock-cut tombs of the 5th dynasty. Now there is great diversity of opinion among Egyptologists as to the approximate date of the ancient dynasties. One estimate puts this 5th one at B. C. 3500, another at 2625 B. C., but Smith observes that even taking the lowest estimate it makes the splints over 4500 years old.

The first set was on a girl of about fourteen years, with a compound fracture of the right femur about midway of the shaft. A piece of bone, two inches long and one-half inch wide, had been detached from the back of the shaft at the seat of fracture. Four splints had been applied, passing from just above the fracture to a point well below the knee. Each splint consisted of a slender piece of wood, sawn or roughly shaped with an adze, but not planed; these were then wrapped up by a carefully-applied linen bandage before being fixed to the limb. The splints were kept in position by two bandages, each tied in a reef knot, one above, the other below the knee. A large pad of linen just below the fracture was discolored by a rust-like stain, which on analysis yielded iron and was evidently produced by blood. Death apparently was not long delayed, for there is no evidence of any inflammatory or reparative action.

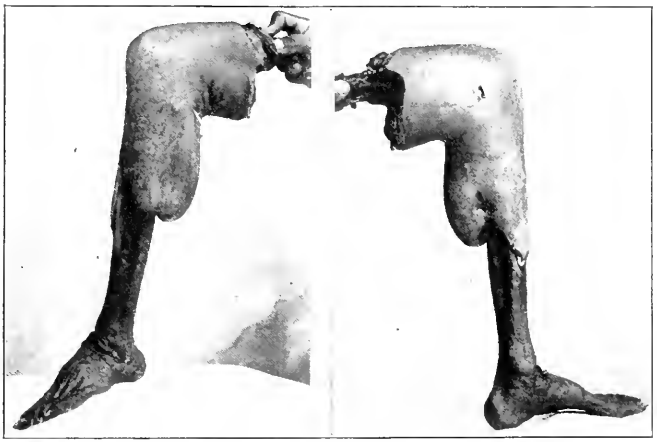


Fig. 1.—Navajo: wound of entrance. Fig. 2.—Navajo, wound of exit.

The Professor points out that a glance makes it obvious these splints must have been utterly useless as a support to the broken femur, or as a check to shortening. The only purpose could have been to fix the knee joint, thus ensuring some degree of rest to the limb. As might have been anticipated from a study of such splints, Smith's examination of a large series of ununited fractures of the femur from ancient tombs in Egypt, shows, as a rule, considerable shortening, displacement of fragments, as well as exuberant callus.

In the second set, a compound fracture of both bones of the left forearm, just about the middle of the shafts, had been cared for. The splint in this instance was of different construction, being made up of a complete tube of rough bark—thought to be acacia—with a bundle of straw or coarse grass. Again the injury was quickly fatal apparently, for there is no evidence whatsoever of any repair. In this case the bark had a natural curve which must

have adapted itself accurately to the contour of the limb.

The splints of the second case, writes Smith, present a marked contrast as to effective support, compared with the ones of the femur, and in over 100 examples of ancient healed fractures of the forearm studied by him, the results were excellent, many must have been compound, yet only one shows any signs of suppuration. This type of fracture, that is to say of both bones, has always been excessively common in Egypt from the earliest known prehistoric times to the present, and due to the custom of fencing with a heavy stick about five feet long, for both amusement and as a means of attack.

The intense conservatism of the Oriental is shown by the fact that shortly before Smith described a set of splints, found in a burial of the 7th century, A. D., similar to those just mentioned for the femur. Other instances of this conservatism were reported to him by an English army surgeon, and by his demonstrator of anatomy, an Egyptian native.

In 1903, the former accompanied some troops to Abyssinia, and among the patients who flocked to him for treatment there was a man with a broken forearm, equipped with splints exactly like those from Egypt 4500 years before. Smith's demonstrator informed him the use of such splints was still widely resorted to, though rapidly disappearing, owing to the increasing number of native medical men trained at Cairo by Western methods. In most villages the old women who act as bonesetters make a sort of mat with the stems of leaves from the date palm, which are laid side by side, and the limb is wrapped in them similar to the method in the second case above.

Among many other interesting observations, Smith alludes to a fractured patella set with splints, from a grave of the 7th century of our era. He also refers to a ludicrous affair showing the respect with which the remains of defunct royalty were regarded. The tomb of King Siptah of the 19th dynasty had been plundered, and during the despoilment the mummy had been stripped of its interminably long bandages and the right forearm fractured. Long, long after his death, the priests of the 21st dynasty had piously set the limb with splints and rewrapped the body.

Circumcision probably had its start in Egypt, and borrowed thence by the ancient Hebrews has become of well-nigh universal distribution. Among the Masai of Southeast Africa, the prepuce is not cut off, but divided and allowed to hang down, making a second glans penis as it were. The theory that circumcision began in warm climates as a hygienic measure, is severely jolted when we find it practised among the Loucheux Indians of Northern British Columbia, and the Dogribs further to the East, where, as the saying is, "it is six months winter, and six months late in the fall."

An extraordinary procedure is that of subincision found among the Australian blacks, and called in their jargon the "mika." This is an external urethrotomy, and another extraordinary feature is that members of our profession living on the spot do not agree as to the real purpose of the operation.

Stirling, for example, writes that subincision among the tribes visited by him is attended by much less ceremonial observance than in circumcision. "No reason," he adds, "can be elicited for either operation, save that it was done by their fathers and forefathers. I can find no support whatever that the specific object of subincision is to check procreation, as is so often alleged, though doubtless it may act in this direction . . . I heard of well authenticated instances of three, four, and even five in a family that were the offspring of subincised males."

On the other hand, Garson deriving his information from a Mr. Purcell, starts out with a definition of a mika as "a man upon whom artificial hypospadias has been practised for the purpose of preventing him having any family." Three types of this operation are met with: (1) The natives of W. Australia content themselves with making a small incision immediately in front of the scrotum and through the urethra. (2) In other portions (Diamantin River, etc.), the urethra being divided in front of the scrotum and again just short of the glans, is dissected out after additional grooves are cut along each side of canal. (3) The plan generally adopted is to place a narrow piece of wood along the dorsum of the penis, first beating the organ till it is benumbed. After the wood is in place, the skin is drawn back over it and a flint knife inserted into the meatus divides the canal back to scrotum. The operation finished, the organ is bandaged against abdomen, and if excessive inflammation occurs during the process of healing, dressings are applied either of some native clay, or crushed leaves of the eucalyptus tree. There seems to be no mortality.

"These operations are performed on youths at the age of 18 years and only upon a certain number of them, namely those who prove themselves indolent and the least useful members of their tribes."

Of these conflicting accounts it seems to me more credibility attaches to the one by Garson's informant; he had lived among the natives for a quarter-century, while Stirling made only two trips into Central Australia.

I now propose to discuss "trephining" so-called, at considerable length, both because the evidences of it are found in the New, as well as the Old World, and because it is the most serious operation I know of among the uncivilized races, with the exception of the cesarean section, from Uganda, Central Africa, reported by Felkin, the Scotch medical missionary in 1878.

The first example of prehistoric trephining was found in Peru in 1866, by our own Squier. In the left side of the frontal bone was a square opening, .58 by .70 inch. This was evidently done by a saw as shown by the four linear grooves. Now, with the exception of the precious metals, the Incas who inhabited ancient Peru, were only acquainted with copper, so the saw must have been of this metal, with a small amount of tin added which gave a cutting edge almost as hard as steel.

(A digression may be permitted here to the effect that long after iron had become the principal metal of everyday use in Europe, the majority of surgical instruments were still made of bronze. In looking over Vulpes' book showing the instruments discovered in the "Surgeon's House" at Pompeii in 1819, I was naturally much interested to find depicted a rectal speculum. The instrument fashioned about eighteen and one-half centuries ago is the same to all intents and purposes as the one from a surgical

instrument maker's catalogue of the present day [Fig. 3].)

Squier's specimen was brought to France, and excited much interest. Nélaton, the famous surgeon of that time, after examination thought the subject

FIG. 3.—Rectal specula: Pompeian to the left; one of the present day to the right.

had survived a fortnight. In a few years (1873) specimens were found in France itself, and since then in Belgium, Austria, Bohemia, Poland, Russia, Italy, Portugal, and the Canary Islands. On our side of the ocean, they occur in Bolivia, as well as the original site, but with the exception of some from Mexico, no further North (Lumholtz).

In some cases the individual survived as shown by the smooth edges of the opening, in others no trace of repair can be found. Some crania carrying double trephine holes, one made before death as proved by the smoothed-off apertures, while the other is post-mortem, or else the individual succumbed from the effects of the last operation, for no traces of repair are to be found. During our World's Fair, in Chicago, Dr. A. M. Muñiz, formerly surgeon-general of the Peruvian army, exhibited a remarkable series of these trephined skulls; of 1000 crania collected during several years, some 19 were trephined. In six instances the operation was evidently done for serious wounds, while in the remaining 13, there were traces of 18 different interventions, but not rendered necessary by trauma. Moreover, there were two specimens of double—and one of triple—trephining; the last specially interesting since all of the openings show traces of healing. One or two with four openings have been recorded from Europe.

The operation as shown by the crania was done in both sexes, and on children as well as adults and the aged. In some of the adults trephining was evidently done during infancy, for the intact side of the skull is better developed, and has encroached on the side with the opening. Most of the holes were made in the parietal bones, and the shape is elliptical, as a rule, the long axis measuring 1, 1½ or 2 inches. (In one specimen with a double hole, the sizes were 57 by 42, and 44 by 42 millimetres respectively.) But in the specimen with the silver plate found by Muñiz, the opening averaged an inch wide, and fully 4 inches long. Apparently the opening was always made through the hairy scalp.

As regards the modus operandi, the aperture was made by sawing or by scraping (Fig. 4), occasionally by combining these methods, and in some instances by cutting part way through and then breaking off the piece. Fortunately, some specimens have the marks left by the prehistoric operator, and give a clue to the probable workmanship. An example of this from a burial cave in France was carefully examined by the late Prof. Topinard, and he concluded the stone knife was grasped with the cutting edge at right angles to the skull, being brought in a circular manner and to the outer side, the knife slipped scoring the surface. Nothing daunted, the operator continued, the knife slipping frequently, especially as the incision was brought forward. When three-quarters of the incision to the outer side and behind were judged to be deep enough, the position of the hand and instrument was evidently changed, at first cutting obliquely forward from behind and from within out, then longitudinally from behind forward. The professor believes this longitudinal movement was the most difficult, since the edges are not clean cut, but rough. It is interesting to note also that most of the operation was done after death, for but a small extent had healed.

Several men have experimented with the actual tools of the stone age. Paul Broca, for example, in a puppy of 2 months, succeeded in laying bare the dura in 8 minutes and 15 seconds. Another investigator, once the soft parts in a dog were reflected, mapped out an elliptical opening, then scratched a furrow, slowly deepening this until the internal table was almost severed. With a piece of hard wood or bone as a lever, the fragment was forced off without producing any injury to the dura. The total time was 20 minutes and the dog suffered no ill-effects.

Muller, still another French observer, took a series of 11 human crania, scraping through in 4, and in the rest cutting out a round piece. Much more time was required to remove the circular fragment, over an hour, and in an unusually thick specimen just 5 minutes less than 2 hours. He discovered also it was more expeditious to map out a polygon first, next round off the angles, than to begin with a circle or an oval. Scraping was comparatively

FIG. 4.—Trephined skull (France); beveling probably done by scraping.

rapid, only 33 minutes elapsing before rasped through, again without injuring the dura.

Man must have been on the globe for a long time before he became expert enough to essay this operation. The relics and utensils found with such trephined skulls are all of the neolithic or polished-

stone era; I think none of the first stone age (the chipped-stone one) have been found associated. In fact of the three stages into which the polished-stone era is divided, these skulls are found only in the latest. Now from the standpoint of the mechanic arts considerable progress is in evidence, dwellings erected for security on piles driven into the lakes, and accessible from the shore only by an easily-defended causeway, or totally isolated and approachable by boats. These old-timers also had fishnets, ornamented pottery, and rude stone monuments. Nevertheless, a few skulls have been discovered dating from the bronze age, which immediately followed that of polished stone, and even the commencement of the iron age. To be sure as we shall find shortly, the trephining operation has survived here and there to our own time.

To assign an exact date to the relics of the stone age is decidedly conjectural. When dealing with these early times authors are prone to be generous, yes, extravagant, with their years Thus the elder Mortillet, a great authority in his time, placed the beginning of the polished stone age at 228,000 years ago, others put it at 30,000. The most modest conjecture I remember is 15,000 years ago. Suppose, however, that being in this year of grace 1921, we put it only as far previous to the Christian era, we have, it seems to me, a very respectable antiquity. What then was the reason for this far-off major operation? Was it therapeutic or thaumaturgic; or both or neither?

Several French authors assert the object was therapeutic. Some specimens have exostoses on the inner surface, they believe such bony outgrowths set up irritation of the cerebral cortex, and to relieve this focal irritation the skull was opened over the motor (or Rolandic) area. Other authors, also French, hence with the vivid imagination of our Gallic allies, believed they found evidence that there had been osteitis and similar bone lesions, therefore the diseased area had been removed for curative purposes. One of the latest of these, Canu, observes that the parietal bone of the left side was not operated on so often as its fellow, but he adduces no evidence why the exostoses or the rarifying osteitis should prefer this side. We know the whole vault of the cranium is nearly the same thickness, about 1/5 inch on the average, and it is quite likely that experience, that great teacher, had shown the parietal area was both convenient for access, as well as thin.

In some specimens traces of a fracture are to be seen at or near the opening, but there is no way to tell if this took place during the removal of the fragment, or whether the operation was done to treat the fracture. I should, of course, incline to the former view.

Lucas-Championnière, the celebrated Paris surgeon, interested himself for many years in this subject, and if I remember correctly it was while reading his last paper at the Academy of Medicine, that he was seized with his fatal apoplexy. In this communication he says in his opinion the prehistoric trephining is analogous to our decompression operations! This may be so, as a writer in this country observes, but it appears like stretching one's imagination unduly to believe that a savage, scantily clad in the skins of wild beasts, who lived in a cave, and ate his grandfather or his mother-in-law when food ran short, could know aught concerning the niceties of cerebral localization.

It seems to me the majority of anthropologists agree that such trephining was carried out for thaumaturgic purposes. The uncivilized races have generally looked on idiots, epileptics, or the insane, as supernatural beings. Witness Aaron Burr's travel alone through the hostile Indian tribes from the Mississippi to Virginia, early in 1807, from which he emerged unharmed owing to his being regarded by them as insane, therefore, under protection of the Great Spirit. Hence, as the early man may have reasoned, the wonderful properties could be transmitted by the bone fragments from individuals who had undergone trephining even after their death.

Accordingly, we find such amulets or "*rondelles*" as they are termed by the French, buried with persons whose own skulls are intact. As a matter of fact, they were counterfeited (Canu) in staghorn and even pottery by the John Alexander Dowies and Mary Baker Eddys of that epoch. Since pieces with only a portion of the healed area are common in the burial places, it seems they were regarded as equally powerful. Moreover, the "*rondelles*" have been met with having holes through them or notched on the edges so they could be fastened to the skins which served as clothing such as it was, and acting as ornaments as well. A curious discovery was made a few years since, the skull of an adult in which a piece, about 3⅓ by 1½ inches had been removed from the parietal, then replaced and had grown firmly in position. An early, yes! *very* early example of our practice of "replacing the trephine button." (Of course, where the aperture was scraped through, the bone would be reduced to powder, and none left to serve as amulets.)

About the beginning of this century a mummy was exhumed in Bolivia, in which a large flap of scalp had been raised from the occipital bone of the right side, no opening was made, however, as the bone was probably too thick. Hence another flap was raised also on the right side, and then a large aperture was made through parietal and frontal bones; through this the brain was removed and the cranial cavity stuffed with a mass of resin and other vegetable substances which was found still in place (Lehmann-Nitsche). This interesting circumstance recalls the method in use by the embalmers of ancient Egypt, that of breaking through the cribriform plate of the ethmoid, next extracting the brain through the nasal passages.

The South Sea islanders when first visited by white men were frequently in the habit of performing trephining by scraping with a flint tool, or with glass after they came in contact with Europeans. The aperture was then carefully closed with a piece of cocoanut shell, the precursor of our modern Cargile membrane, etc. Anybody who has ever seen a war club from these islands studded with jagged flakes of obsidian or shark's teeth, will readily believe there must have been many occasions for the exercise of their art by the primitive surgeons of the countries.

The Kabyles of Algeria, were another tribe who continued this practice until recent times; for that matter, so far as I know, they may keep it up even to this day. They used a rude sort of bone-drill, making several perforations, then connected the

openings by a cut made with an equally rude saw. In spite of the clumsy tools, the mortality was not high seemingly. One traveler encountered several men who had survived half a dozen operations at different times for various injuries. What an admirable piece of evidence for the healing power of Nature!

Mention of the cocoanut shell reminds me that one of the skulls collected by Dr. Muñiz, the one with the 4-inch opening had the hole covered in by a silver plate. This was still in place inside the wrappings and it had been fitted there so long there had been some absorption of the bone along the edges of the plate, proving the young adult had survived. The size of the opening is so great that the discoverer suggests several operations had been done in succession.

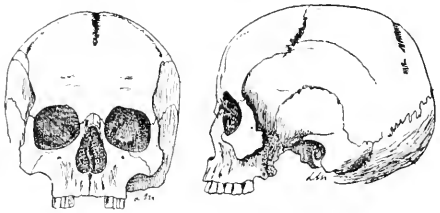


Fig. 5.—Skull showing the T-sincipital (France).

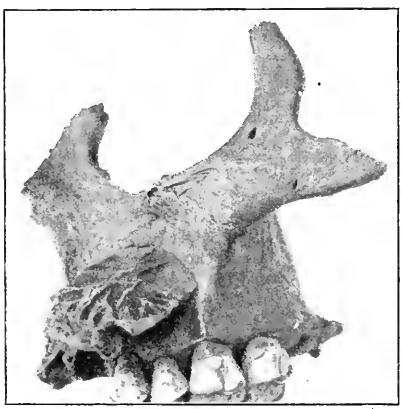


Fig. 6.—Maxilla of Indian (supposed to be of the mound-builders) with flint arrowhead embedded.

So much for trephining, I now turn to a queer mutilation, originating in this same polished-stone age, though to call it a "surgical" operation may be an unwarranted use of the term: This was described in 1895 by Manouvrier as the "*T-sincipital.*" As connoted by the name it is found on the vertex, always occupying the same position, and invariably of the same shape. The stem of the T starts in the midline, somewhat in front of the coronal suture, crosses it and continues some distance along the sagittal suture, where it is joined by the cross-piece of the T, extending down on each side about as far as the parietal eminence (Fig. 5). All the crania with this strange grooving on them which Manouvrier found were of females, though the ages differed considerably; he also calls attention to the fact that the lines follow these along which the hair is parted.

While barely perceptible in some skulls, the groove is deep in others. The deepest one from an aged subject, extended down $\frac{1}{8}$ inch laying bare the diploe, either from the wound itself or the resulting suppuration. On the other hand, the groove in the various specimens was not continuous, but invariably interrupted. Manouvrier believes this is important as proving the incision in the scalp was also interrupted, so as to leave bridges of intact skin. Another curious finding of his was that the ends of the branches of the T were very prominent, and as they always end in the same spot, even if the groove is not very prominent or is interrupted, the ends will be found in the usual places.

Our author could assign no reason for this strange scoring of the brain-box, but in the discussion something was said about the magic properties of the Greek T, or *tau*. Heavens and earth! the idea of such savages knowing anything about letters hundreds, maybe thousands, of years before the Greeks and their alphabet.

Reference has also been made (by Laloy) to Virchow's statement that during his youth in Pomerania, the insane were treated by applying antimony ointment to the head. Occasionally the ointment was left on too long, when great destruction of bone resulted, sometimes a perforation. Two specimens in the Anatomic Museum of Berlin, he said, were typical examples, the perforation in one being 1.8 by 1.6 inches, and in the other 1.8 by 4.5. It is hardly likely though, that our friends, the cave-dwellers, were acquainted with the destructive effects of Stibium. Another reference was to the prevalent custom in Central Asia of burning young children above the ears and along the vertex to ward off disease of the head (Zaborowski).

All the specimens found by Manouvrier were from an area to the Northwest of Paris, and somewhat limited in extent. But after his paper was published, it turned out that the same practice had been described by an English missionary only 21 years previous from the Loyalty Islands in the Pacific. Another instance, if any were needed, of the tendency of the human mind—even if of low development—to run in the same channels, though separated by incalculable ages.

The trephining of the Stone Age must necessarily have been done with pieces of flint—or some similar stone. On the tombs of ancient Egypt, the date about 2000 B. C., circumcision is shown as being done with flint or—at least—stone knives. You remember that a year or so ago, the surgeons in the hospital at Varna, Bulgaria, being without instruments improvised some cutting ones of flint knives. History repeats itself sure enough!

We owe many drugs to the savage—or uncivilized—races. I need only mention cinchona, hydrastis, jalap, koussoo, quassia and sarsaparilla; but we are not, I believe, indebted to them for any advances in surgery.

Medicine and surgery among such races are inextricably bound up with evil spirits, witchcraft and so on. Knowing nothing of etiology every sickness and death is caused by some magic, sorcery, etc. A striking example of this belief I borrow

from the account given several years back by the late Frank Hamilton Cushing: This well-known ethnologist lived for a long time among the Zuñi Indians of New Mexico; in fact he was a member of the tribe, having been initiated into the Macaw clan. He saw a man who had been thrown from his horse several months before, sustaining a contusion of the foot. At the time the operation was performed, the foot, together with the lower part of the leg, was swollen, to such an extent the skin was shining, except at the site of the original injury, where—to adopt Mr. Cushing's language—"a malignant and putrid sore" had developed. The medicinemen who were called in decided some of the muscles of the foot were dead or dying from the effects of the violence due to the fall, and were turning into worms. Operation was decided upon.

The outfit consisted of some sharp, thin flakes from the bottom of a glass bottle, and others of the volcanic glass (obsidian) so common there. These flakes were inserted into the split ends of pieces of cedar boughs to serve as scalpels. In addition there were provided willow bark, some bitter yellow roots, shredded cedar bark, scrapings from buckskin and old soft rags, lastly a bowl of fresh water, and another with infusion of willow bark. A T-shaped incision being made, the diseased tissue was

FIG. 7.—Lumbar vertebra with embedded flint arrowhead; from a burial cave in France

cut away by the glass—and obsidian—lancets, until the periosteum was laid bare. This as well was found discolored and inflamed, and was scraped away until the discolored portion was removed. The chief surgeon, as it were, filled his mouth several times with the willow bark infusion, and sprayed it over the field, after which the wound was dried. The incisions were next filled with gum from the piñon pine, finally bandaged up with strips of the rags. For the after-treatment, this comprised dressing the wound every day and dieting. The man was placed on "the freshest possible corn foods, and was for the first four days deprived of salt and all flesh food, and was thereafter until cured, for he recovered with amazing rapidity, denied all meat containing fat and other non-muscular tissue, since these as well as old seeds are supposed to be of themselves peculiarly liable to worm turning."

Mr. Cushing observes that while all the steps seem to have been conducted in strict accordance with modern surgical ideas, in reality they were a combination of empirical with thaumaturgic methods: The Zuñis believe that "good, fresh blood is the source of new flesh, and that water is the first source of the new blood of life itself, therefore, since the willow never lives apart from the springs or other continuous sources of water, it must contain within its roots the very source of life. An infusion of its roots and bark becomes brightly red," hence its use. The piñon gum is fine-feeding, therefore, purifying and maturing, while the yellow root is cooling and hardening, so their use is appropriate. Deep-seated worms must be the cause of the pain, hence, these must be got rid of to prevent their undue multiplication, which if not checked would cause death in time.

The Tibetans, according to Laufer, believe in lucky and unlucky days on which operations are to be performed.

I wish to state that the several pictures to be passed around are duly explained by their labels. The fragment of skull with the arrowhead embedded in it (Fig. 6), unfortunately has no history, even its locality is unknown. Evidently the wound was not fatal, though it may be the unfortunate victim was wounded sufficiently, possibly knocked down, to enable his antagonists to come up and despatch him. Or, he may also have been wounded in the chest or abdomen at the same time, as in the specimen in one of the pictures (Fig. 7).

In conclusion it becomes my pleasant duty to acknowledge my obligations to Dr. Berthold Laufer, Curator of Anthropology at the Field Museum of Natural History, for the loan of several German essays on Tibetan and Chinese medicine.

BIBLIOGRAPHY.

Canu, G.: "Trépanation Préhistorique et Rondelles Craniennes," Paris, 1908.

Championnière, J. Lucas: "Les Origines de la Trépanation Décompressive," Paris, 1912.

Cushing, F. H.: *Science*, August, 1897.

Felkin, R. W.: *Edinburgh Med. Jour.*, 1884, p. 928.

Garson, J. G.: *Med. Press*, February 21, 1894.

Hinch, F. E.: *Railway Surgeon*, October 19, 1897.

Hrdlicka, A.: "Handbook N. Amer. Indians," Washington, 1907 (Vol. I, p. 838).

Laloy, L.: *L'Anthropologie*, 1896, p. 103.

Laufer, Heinrich: "Beiträge z. Kenntnis d. Tibetischen Med.," Leipzig, 1900.

Lehmann-Nitsche, R.: *L'Anthropologie*, 1899, p. 726.

Lumholtz, C.: *Amer. Anthropologist*, December, 1897.

Manouvrier, L.: *Bull. Soc. d'Anthropologie*, May 2, 16, 1895.

Mortillet, G. de: "Dict. Sci. Anthropologiques," Paris, 1890.

Muñiz, M. A.: "Sixteenth Ann. Report Bureau of Amer. Ethnology," Washington, 1897.

Neuburger, Max: "History of Medicine," London, 1910 (Vol. I).

Olpp, G.: "Beiträge z. Med. in China," Leipzig, 1910.

Smith, G. Elliot: *British Med. Jour.*, March 28, 1908.

Squier, E. G.: "Peru," New York, 1877.

Stirling, E. C.: *Intercolonial Quart. J. Med and Surg.*, 1894-5, p. 224.

Thomson, J. C.: *China Med. Missionary Jour.*, December, 1892.

Thurston, E. O.: *Lancet*, May 20, 1905.

Topinard, Paul: *Bull. Soc. d'Anthropologie*, 1887, p. 535.

Vulpes, B.: "Illustraz. gli Strumenti Chir.," Naples, 1847.

Zaborowski, M.: *Bull. Soc. d'Anthropologie*, November 18, 1897.

31 NORTH STATE STREET.

Spontaneous Cure of a Perforated Gastric Ulcer.—Lapointe reports a case of this sequence from the practice of Lagoutte, but in the absence of operative or autopsy corroboration believes that the case will not be accepted as a record.—*Le Bulletin Médical.*

MEDIASTINAL SARCOMA.

WITH REPORT OF THREE CASES.

By REX DUNCAN, M.D.,

LOS ANGELES, CALIF.

MEDICAL DIRECTOR OF THE RADIUM AND ONCOLOGIC INSTITUTE, LOS ANGELES; CONSULTANT IN RADIUM THERAPY AND MALIGNANT DISEASES IN THE ORTHOPEDIC HOSPITAL-SCHOOL, LOS ANGELES; CHIEF OF THE DIAGNOSTIC GROUP FOR NEOPLASTIC DISEASES, LOS ANGELES COUNTY HOSPITAL.

THE purpose of this paper is to render a preliminary report of three cases of mediastinal sarcoma treated with radium. It may be permissible, however, to refer briefly to the frequency with which this disease occurs, and call attention to certain points incident to the diagnosis.

C. T. Herbert, in an exhaustive monogram covering the pathological anatomy of mediastinal sarcoma, reports the disease to have occurred in one in every 292 cases in the Victoria Park Hospital (a special institution for diseases of the chest), during the years 1908 to 1917, while in the period between December, 1915, and September, 1916, seven cases were found in 571 admissions. These figures include cases only on which a postmortem was made.

Though rather uncommon, this disease is of sufficient frequency to warrant a more thorough study and an earlier diagnosis, when treatment can be of most value.

Differential diagnosis should be made from aortic aneurysm, one of the most frequent of mediastinal tumors, Hodgkin's disease, tuberculosis, and syphilis. Primary may be differentiated from secondary tumors by a thorough examination, excluding the existence of malignancy elsewhere than in the chest. Benign tumors are quite rare and may exist for years with mild or no symptoms. They progress slowly, while malignant tumors advance more rapidly, death usually occurring in untreated cases in less than one year.

Examination with a laryngoscope and the esophagoscope, should be made to exclude laryngeal and esophageal tumors.

Primary mediastinal sarcoma arises in the lymphatic glandular structure of thorax and may attain considerable size before involvement of the adjacent structures occurs. Beginning in the glands, the new growth enlarges either by extension along the lymphatics to neighboring glands or by breaking through the capsule and invading the surrounding connective tissue, forming an irregular tumor which increases in size in the direction of least resistance. The growth may extend upward beneath the clavicles into the triangles of the neck or down around the large vessels and bronchi, without at first infiltrating these structures. Downward extension may displace the heart forward and to the left. Metastatic tumors may follow a course similar to primary growth.

Diagnosis can be made from the symptoms, physical findings, and the roentgenographic and fluoroscopic findings which are of the greatest value. The earlier symptoms are due chiefly to pressure varying somewhat with the location of the tumor. Dyspnea was the first and most prominent symptom in each of my cases. Pain is present, its character and acuteness depending upon the location of the tumor. Cough resulting from pressure on the respiratory apparatus was also an early symptom in each case, and hoarseness was present in two cases. Hemoptysis occurred in two cases. Loss of weight occurred in all cases. Cyanosis and venous dilation, particularly of the veins of the face, neck, and chest, and edema of the face constitute a prominent group of symptoms present in each of my cases.

Treatment.—Until recent years the treatment of these cases has been considered hopeless. Surgery has in a few cases afforded temporary relief of pressure symptoms but no cures. *X*-ray therapy has afforded little if any more success. The first, and by far the most encouraging results, were those reported by Burman in which he reports a series of cases treated with radium. It is essential for the proper treatment of these cases that a large quantity of radium or radium emanation be available.

A somewhat abbreviated report of my cases is as follows:

FIG. 1.—C. H. S., Case No. 1579, Plate 1, showing large mediastinal tumor before treatment

CASE 1579. (C. H. S. Age 45, White, Letter Carrier.) Patient first seen June 2d, 1920.

Complaint: Dyspnea, feeling of fullness in head on exertion, cough, backache and general weakness. Family history negative. Personal history and habits negative. Previous illness negative. December, 1919, patient noticed himself unable to carry load on account of fullness in head. Soon developed shortness of breath and cough, pain in middorsal region and swelling of neck and face. For the past two or three months appetite had been impaired, bowels constipated. Patient sleeps fairly well on right side, but unable to rest on left side or back. Unable to work or even take moderate exercise, though ambulatory. Has lost considerable weight.

Laboratory Examination: Wasserman negative, urine negative, R. B. C. 4,340.000, W. B. C. 6,000; Hem. 85 per cent., Polynuclears 77, small lymphocytes 15, large lymphocytes 3, transitional 5.

Physical Examination: Patient fairly well nourished. Hoarseness with persistent hacking cough, marked distention of veins of the neck, extending down over the chest and abdomen. Face swollen and edematous. Dyspnea on slightest exertion. Special examination of eyes, nose, throat, etc., negative. There was a slight bulging over the sternum. No evidence

of involvement of superficial lymphatics, no abdominal tumors nor evidence of involvement elsewhere. There was a well-defined area of dullness over the anterior superior portion of the mediastinum, extending downward continuous with the heart, which was pushed

Fig. 2.—C. H. S., Case 1579, Plate 2, showing partial absorption of mediastinal tumor four weeks after beginning treatment.

downward and to the left. Radiograph of chest demonstrated a large mediastinal tumor (See Fig. 1).

Treatment was begun June 2, on which date the patient received 19,400 millicurie hours of radium emanation, screened with 2 mm. of lead and 5 cm. of felt.

Fig. 3—C. H. S., Case 1579, Plate 4, showing complete absorption of mediastinal tumor

Approximately the same dosage was repeated at intervals of from one to two weeks during the following four months. There has been a gradual and consistent improvement of the symptoms and reduction in the size of the tumor (See Fig. 2).

Roentgenological and fluoroscopical examinations now show an entire absence of a tumor and reveals nothing abnormal in the chest (See Fig. 3). There has remained some venous congestion in the neck and some fullness of head upon extreme exertion. The patient has resumed work, however, and is feeling practically

Fig. 4.—G. A. S., Case 1371, Plate 1, showing large mediastinal sarcoma perforating the chest wall.

well. We shall continue this patient under observation with treatment at various intervals, and, while it is impossible to render a definite prognosis, we are quite optimistic regarding a permanent cure.

Case 1371. (G. A. S. Age 24, White.)

Complaint: Shortness of breath, cough and pain in the chest. Family history negative. Personal history and habits negative. Present illness: Patient enlisted in the Army Medical Corps in June, 1918. First noticed some swelling in chest in May, 1919. Examined by an army surgeon, who reported condition of no importance. Paid no more attention to it until November, 1919, when the patient first noticed some shortness of breath though the swelling had gradually increased. Several radiographs of the chest were taken and the tumor was aspirated, but no definite diagnosis was made until February, 1920, when a section was removed and diagnosis of sarcoma established. The patient was advised that he had but a few months to live

Fig. 5.—G. A. S., Case 1371, Plate 2, showing partial absorption of mediastinal tumor six weeks after the first treatment.

and was offered a disability discharge. He came under my observation February 9, 1920.

Laboratory Examination: Wassermann negative, R. B. C., 5,000,000; Hem., 95 per cent.; W. B. C. 6,000; Polynuclears, 87; Lymphocytes, 9; transitional, 4. Urine negative. Sputum negative.

Physical Examination: Well developed robust young man. Fairly well nourished. Dyspnea on exertion, slight cought, pain in chest, at times blood streaked sputum, voice husky, neck somewhat enlarged due to enlarged veins. There was present on the chest wall

Fig. 6.—G. A. S., Case 1371, Plate 3, showing total absorption of mediastinal tumor.

a tumor about 5 cm. in diameter and 3 cm. high, over the center of the right chondrocostal attachment of the third rib. Through the center of the tumor was a recent scar. Special examination of the mouth, ears, nose, and throat, negative. No involvement of superficial lymphatics, no palpable abdominal tumors nor evidence of involvement elsewhere.

Roentgenological examination confirming the physical findings, demonstrated a large mediastinal tumor, which penetrated the chest wall (See Fig. 4).

Treatment was begun February 11, at which time two platinum needles, each containing approximately 200 millicuries of radium emanation, were buried through the scar into the tumor mass. February 12 the same dosage was repeated, buried at different angles. February 15 to 27 the patient received several applications of approximately 20,000 millicurie hours each through various skin areas over the tumor. Applicator raised 5 cm. above the skin and radium screened with 2 mm. of lead and $^1/_2$ mm. of platinum. By the latter part of February there was a marked reduction in the size of the tumor and relief of symptoms.

During March, April, May, June, and July the patient received at various intervals of approximately two weeks dosage varying from 12 000 to 20,000 millicurie hours.

There was a continuous improvement in the symptoms and repeated physical and fluoroscopical examinations revealed a gradual absorption of the tumor, which by July 1 had entirely disappeared (See Figs. 5 and 6). The patient was able to resume work as a draftsman in August, has since married and is apparently in normal health.

The patient's present condition is a marked contrast to that at the time of coming under treatment, far more happy than the fatal prognosis rendered at the time of his army discharge.

Case 1643. (S. M. F. Age 65, White, Manufacturer).

Complaint: Pain in chest and neck, radiating down left arm, dyspnea, slight cough and general weakness. Family history negative. Personal history and habits negative.

Present illness: Seven years ago a small tumor was removed from outer condyle of right femur. Recurred at once and later right leg was amputated at thigh. Was apparently well until two years ago when patient noticed pain in left arm. Had various treatment without improvement. Patient came under my observation August 3, 1920.

Examination: Man past middle age, poorly nourished. Veins of neck markedly dilated. Marked irregular enlargement of thyroid gland, more prominent on right side. Though no distinct tumor could be outlined, there was a marked enlargement on both sides of posterior triangles just under the trapezius muscle, more prominent on left side.

Physical, roentgenological, and fluoroscopical examinations revealed an irregularly shaped tumor about 15 cm. in diameter, in the superior mediastinum extending under the clavicle (See Fig. 7). This is unquestionably a metastatic sarcoma involving the thyroid and mediastinal lymphatics.

Special examination, negative. Physical examination reveals nothing abnormal in the lungs. Heart slightly dilated, sounds regular and somewhat faint.

Treatment was begun August 5 and continued through September and October at intervals of from one to three weeks. From 10,000 to 20,000 millicurie hours were given at each application, the applicator being moved over various skin areas raised 5 cm. above the skin and screened with 2 mm. of lead and 0.5 mm. of platinum.

There resulted a prompt improvement of the symptoms, which have gradually subsided. Patient has gained in weight and strength. Pain, cough, and dyspnea have disappeared and the patient is enjoying practically normal health, enabling him to return to work on November 1. The mediastinal tumor has disappeared, also the enlargement in both posterior triangles of the neck. There is a marked decrease in the size of the thyroid and less dilatation of the veins of the neck.

The prognosis in this case is quite favorable and the improvement most gratifying. This case will also be kept under observation and will receive some additional treatment over the thyroid at intervals for some time.

Cases No. I and II, primary sarcoma of the mediastinum, in which involvement of the adjacent organs probably had not occurred, responded promptly to treatment and warrant a very favorable prognosis. Case III is a very interesting example of metastatic mediastinal involvement show-

Fig. 7.—S. M. F., Case 1643, Plate 1, mediastinal tumor extending into the triangles of the neck

ing the palliative and probable curative effect of radium therapy in these cases.

While it is too early to warrant any conclusions in the cases here reported, the great relief afforded by the appropriate use of large quantities of

radium is quite evident and there is reason to hope for a permanent improvement in some of these cases.

BIBLIOGRAPHY.

Herbert, C. T.: *Quarterly Journal of Medicine*, ii, 43.

Burnham, C.: *Journal of the American Medical Association*, lxix, 12, June, 1917.

CHRONIC NON-TUBERCULOUS LUNG DISEASE.

BY HORACE GREELEY, M.D.,

BROOKLYN, N. Y.

IN an article* which appeared in the April number of the *Journal of Laboratory and Clinical Medicine* an account was given of investigations into the bacteriology of the sputa of some thirty cases of chronic non-tuberculous lung disease. The specimens were obtained from patients of two large institutions for pulmonary tuberculosis (Sea View Hospital and Otisville Sanatorium) and from the practices of various New York and Brooklyn physicians. While the chief interest of the work described was the bacteriological evidence adduced that the higher fungi and yeasts isolated could develop into and grow as typical bacilli, and even coccoid forms, sufficiently shown for the purposes of this article by the accompanying illustrations, there was enough of clinical interest and importance to justify recapitulation here, especially since new and additional data are at hand in connection with the vaccine treatment of such cases.

Bacteriology.—As smear examinations of the sputum, in most of the cases, showed yeasts and forms suggestive of the higher fungi (moulds), a medium [lactic-acid-agar] was devised which would act selectively in the cultivation of such forms, and upon this plants were made from the various specimens, and cultures incubated at both body and summer (70°-80° F.) temperatures.

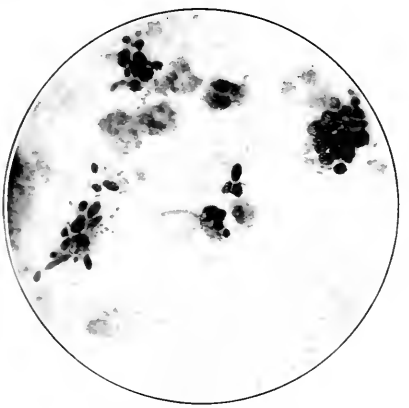


FIG. 1.—*Penicillium glaucum;* yeast bodies in sputum of Case XXIII. × 730.

In this way it was found that the sputa of fourteen of the cases contained the *Penicillium glaucum;* of two the *Mucor corymbifer;* of one, *Aspergillus fumigatus;* while that of thirteen cases gave (on culture) only yeast forms which, since we were unable to develop them into complete higher fungi, were classed together as "Aborted Fungi."

Quotations were given from various European

FIG. 2.—*Penicillium glaucum;* sporulating growth on slide. × 260.

authorities to show that the organisms in question were recognized as causes of disease, both in men and animals.

Clinical Character of Cases.—Cases With Physical Signs of Lung Infiltration: In six cases, varying from one to sixteen years in duration, physical examination of the chest was recorded as indicating infiltration of one apex; in two cases, of two and three years' duration, of both apices; in eight, of six months to eight years' duration, of one upper lobe; and in four, of from six months to nine years'

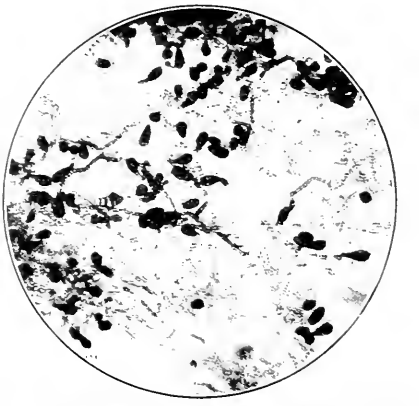


FIG. 3.—*Penicillium glaucum;* unusual mode of sporulating, conidia being contained in pods (sporangia); grown on slide. × 260.

duration, of both upper lobes. One case, of two years' duration, had a cavity at the right apex and some infiltration of both lower lobes. Most of these cases had shown, at one time or another, clinical manifestations similar to those of lung tuberculosis,

*"The Bacteriology of Chronic Non-Tuberculous Lung Disease," by Horace Greeley, M.D., and Mae Brereton.

but, almost without exception, of a milder type than would be associated with a tuberculous infection of similar extent. Expectoration was usually not so large in amount, nor so purulent and, very frequently, was of a type which may be described as

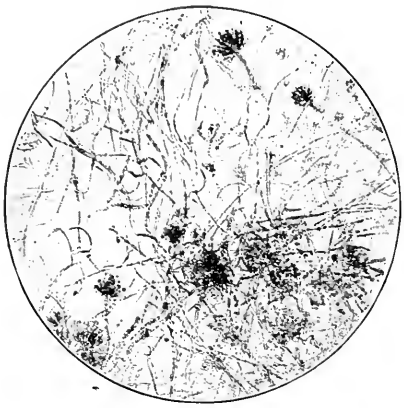


FIG. 4.—*Aspergillus fumigatus;* sporulating growth on slide. × 260.

watery with whitish flakes. As a rule, loss of weight was but slight, and fever and debility were rarely marked.

Chronic Bronchitis: Six of the cases had been classed by their medical attendants as chronic bronchitis (they had lasted one to twelve years) and were of patients of ages varying from 9 to 61. One of these, a boy of 9 years, showed evidence of slight fibrosis of the upper lobes and some swelling of the glands of the neck. He coughed considerably, showed but slight febrile reaction, little loss of weight, but considerable debility, which progressed

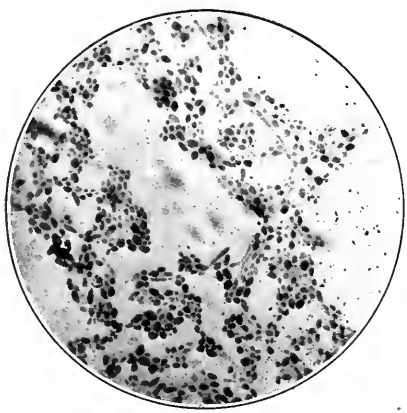


FIG. 5.—Aborted fungi, yeast form and a few branchings from Case XII (*a*). × 520.

sufficiently to cause his death after nine months.

Acute Bronchitis: Two cases of severe acute bronchitis, limited to three weeks, were included, since their sputa had been examined for the causative agents with interesting results.

Bronchial Asthma: Three cases, of from five to sixteen years' duration, of typical bronchial asthma are included in the series (only two of these were mentioned in the article alluded to).

Diagnosis.—The diagnosis of chronic non-tuber-

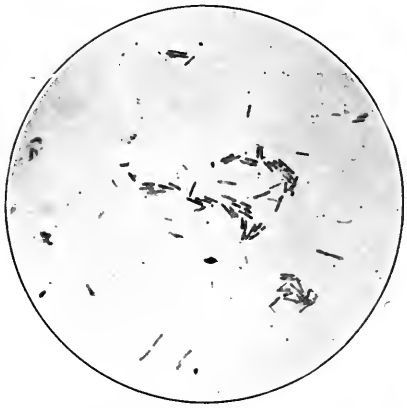


FIG. 6.—Branchings (now bacillary in form) only; this culture, Case XII (*b*), was the result of replanting branchings from culture of Case XII (*a*) by taking only the fringed edges of the colonies. × 520.

culous lung disease was made, in the cases in question, as the result of numerous (as many as forty-two in one case) recorded sputum examinations for tubercle bacilli, which had resulted negatively; and by the finding of organisms (fungi) known to be capable of causing such lesions.

In detecting such organisms in the sputum, while their presence could often be noted on smear examination, their identification always, and sometimes even their demonstration, required special cultural procedures.

Treatment.—In making a diagnosis of non-tuberculous fungoid lung disease treatment is greatly facilitated, since one is then free to push medication, as by the iodides (reported as having often been used effectively in these conditions), a procedure which would be considered dangerous with tuberculous lung disease. Besides this, autogenous vaccines may be made and prove beneficial. Some idea of the effect of such vaccines in these cases may be gained from the following case reports:

Penicillium Glaucum Vaccine.—To one case (Sea View Hospital) Dr. E. S. McSweeney gave eight doses, running from 0.055 to 0.4 c.c. of a suspension of 3,000,000,000 organisms, at a time, over a period of two months. As the injections gave rise to marked local and general reactions (including increased cough, expectoration, and fever) they were stopped. The specific reactions elicited may be regarded as confirming the bacteriological diagnosis.

An apparently successful use of an autogenous vaccine made of this organism was reported by the attending physician (Dr. J. M. Raub, Brooklyn). By it, apparently, the patient, a houseworker, 61 years of age, who had suffered from chronic bronchitis for twelve years, was entirely rid of her symptoms.

Mucor Corymbifer Vaccine.—One of the cases from whose sputum this organism was isolated was a man of 60 years, weighing 186 pounds. His physician (Dr.

O. M. Leiser, New York) had treated him for bronchial asthma for sixteen years, but he had developed a very severe cough at the time I examined his sputum. An autogenous vaccine was made, but I was informed no reaction nor improvement followed its use.

Aborted Fungi Vaccine.—Two cases are quoted: S. R., a man of 54 (patient of Dr. Charles M. Fisher, Brooklyn) had suffered from severe chronic bronchitis for eight years. On several occasions, Dr. Fisher says the patient developed a low grade bronchopneumonia, and altogether was greatly debilitated by the illness—*blood pressure*, 95. The patient was given 12 c.c. of an autogenous vaccine containing 2,000 million blastomycetes (yeasts) in 1 c.c. and 12 c.c. of a similar vaccine, which, besides the blastomycetes, contained three other organisms grown from his sputum, over a period of several months. Although reactions were not noticeable, Dr. Fisher says the patient made great improvement, cough and expectoration being reduced to a minimum, and blood pressure rising to 120, with commensurate return of strength and well being.

R. H., a woman of 31 (patient of Dr. Frederick M. Albers, Brooklyn), had suffered from severe attacks (confining her to bed for weeks) of bronchial asthma during some eight years. An autogenous vaccine (containing blastomycetes, 90 per cent.; micrococci, 10 per cent.) was made, and 12 c.c. given over a period of some weeks, with complete amelioration of the condition. There was, at least, one marked reaction after injection. Patient experienced a slight recurrence, recently, which lasted two days.

While I have records of other cases of chronic bronchitis and bronchial asthma in which vaccines were made, and considerable improvement, or even cure effected, as no attempt was made to identify the organisms found, the cases do not fit here.

The vaccine treatment of chronic non-tuberculous lung disease, including chronic bronchitis and bronchial asthma, should be effective, and confidence is felt that, if physicians will bear in mind the cardinal principles of vaccine therapy, success will attend well regulated treatment. A vaccine is only a stimulant to the natural curative powers and therefore results depend, not upon the injected material, but upon that which may be produced in response to its action. Therefore, we must look to the reactions which follow an injection for indication that such production is under way, and the size of doses and intervals between them must be regulated according to the effects of previous injections.

In such conditions as we have under consideration it is suggested to start with a dose of 500 million organisms, and then, at the end of three days, consider the size and time of the next dose. If a distinct local (at the point of injection) reaction, with definite swelling and redness follows the injection, this evidence of the desired stimulation renders it unnecessary to increase the dose at all, or certainly to not over 10 per cent. Reinjections had best never be made until 24 hours after the subsidence of all reaction—this usually brings them around every three days; and the same interval had best be allowed when there is no reaction. Noticeable focal reactions (heaviness over chest, increased or diminished cough and expectoration) and even constitutional manifestations, such as elevation of temperature, may occur, and indicate a maximum stimulation. Such reactions had best be followed by reduction in doses.

In case no reaction is elicited by a dose, the next had best be increased 25 per cent., and so on. In case a patient persistently fails to react—say after the initial dose of 500 million has been increased tenfold—the administration of potassium or sodium iodide, to the extent of 15 to 30 grains a day, may be tried in conjunction with the vaccine, since it seems that iodine arouses the reactive mechanism.

It is claimed that good results may follow vaccine treatment without noticeable reaction, but those cases showing the latter certainly make the greatest improvement.

140 CLINTON STREET.

ROENTGENOGRAPHIC TECHNIC WITH BUCKY DIAPHRAGM.

BY WILLIAM H. DIEFFENBACH, M.D.,
A. J. BARKER SAVAGE, M.D.,
AND
LOUIS FOX, M.D.
NEW YORK.

IN the MEDICAL RECORD of March 19, 1921, we published a preliminary report of the technic developed at Broad Street Hospital with the Bucky diaphragm, and further laboratory experimentation has added to the data which we desire to present with a few

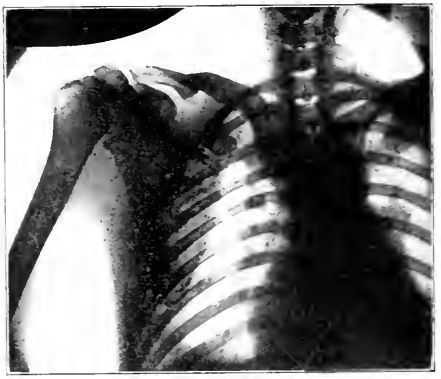


FIG. 1.—Shoulder joint.

electrotypes of pelvic and other films to demonstrate the value of this procedure.

The general points of technic are as follows:

1. Distance from tube to upper surface of Bucky diaphragm, 28 to 34 inches; the former in slender and the latter in stout persons.
2. Milliamperage—7 to 10 M. A.
3. Spark gap—3½ to 4 inches.
4. Tube—Coolidge-radiator type.
5. Bucky diaphragm.
6. Double intensifying screens and duplitized films.

The *variable* factor, with the above practically standardized methods, is the question of time of *exposure* of the films.

After testing a large number of films the following is our table of exposure as used at Broad Street Hospital:

Skull	8 to 10 seconds
Sinuses	10 to 15 seconds
Vertebræ cervical	6 to 8 seconds
Vertebræ dorsal and lumbar	15 to 18 seconds
Lateral spine	20 to 25 seconds

Pelvis and hip	18 to 20 seconds
Shoulder	4 to 7 seconds
Thorax	3 to 5 seconds
Elbow	3 to 5 seconds
Wrist and hand	2 to 4 seconds
Femur	4 to 7 seconds
Kneejoint	4 to 7 seconds
Tibia and fibula	3 to 5 seconds
Ankle and foot	3 to 4 seconds
Gall-bladder studies	6 to 10 seconds
Urinary tract	10 to 15 seconds

FIG. 2.—Pelvic area.

Calculi appear to be slightly enlarged with hazy border, but by firm immobilization and slightly lowering the distance a sharp detail is secured.

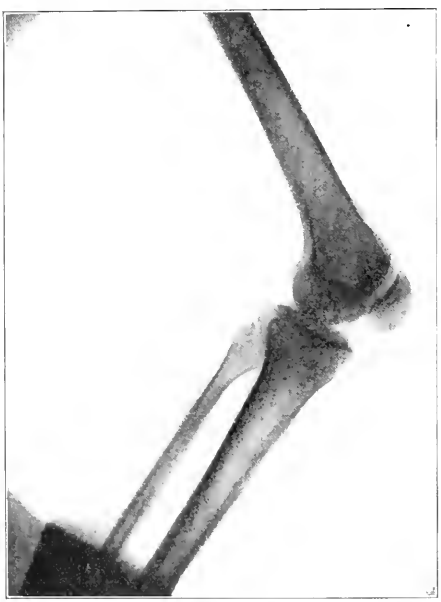


FIG. 3.—Knee joint.

We do not use the Bucky method in gastrointestinal exposures, as the old methods are quite satisfactory in every respect. In fact, the longer exposures of the Bucky diaphragm would be a drawback for detail.

The principal advantage of this technic appears

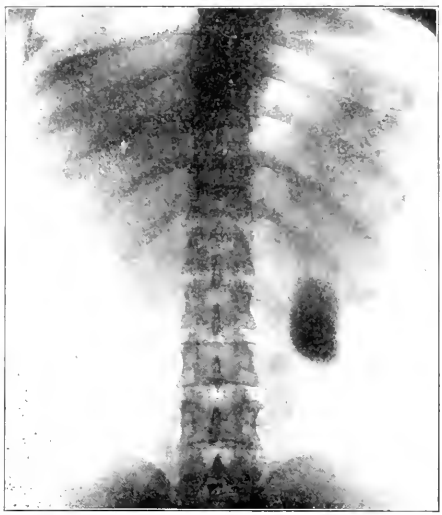


FIG. 4.—Calculus in the kidney.

to be its application in all osseous lesions and studies and its particular and unique value is in heavy tissue work such as the pelvic and hip exposures. Here large areas can be successfully taken on one film 14 x 17 with uniform detail. The whole pelvis, with both hips, can be demonstrated on one plate with even shadows.

In the small bones and small joints the use of the Bucky diaphragm method seems superfluous, as the old methods as a rule give excellent results, but in the large joints and heavy tissues the new method as outlined presents a decided step forward in Roentgen technic.

In the technic of the Bucky diaphragm beginners are advised to test the mechanism before exposure, and when ready for the film exposure start the grid for a few seconds before exposure and keep same going a second or two after exposure.

The senior writer desires to thank his colleagues, Dr. Savage and Dr. Fox, for the many hours spent in the development of the exact technic as outlined in this brief résumé.

50 CENTRAL PARK WEST.

Bovine Aphthous Fever Not Transmissible to Man.—Leclainche reports the discovery by Lebailly that the bovine aphthous fever is not transmissible to mankind, while human aphthous fever is likewise not transmissible to bovines. Although it has been taught since 1834 that human beings can contract foot and mouth disease from the milk of affected cows, Lebailly has succeeded in throwing serious doubt on this statement. —*Le Bulletin Medical.*

THE DELETERIOUS EFFECTS OF THE BROMIDE TREATMENT IN THE DISEASES OF THE NERVOUS SYSTEM.*

By EDWARD LIVINGSTON HUNT, M.D.,

NEW YORK.

IN this paper I wish to discuss the dramatic and disastrous symptoms which result from the use of the bromide salts in the treatment of nervous diseases. By these I do not mean the rash, the cachexia, the feebleness, and the depression, but the confusion, the restlessness, the violence, and the syndrome of symptoms resembling mania and paresis.

Bromide is a remedy so constantly used and so constantly abused that it will not be out of place first to call to your attention just what are its effects upon the nervous system.

"Bromide," according to Hare, "affects the brain, cord, and peripheral nervous system. It slows the development of thought, decreases the excitability and power of the motor cells of the brain, and is a distinct depressant to the mental and intellectual portions of the cerebral cortex. Upon the cord it exerts a marked sedative effect so that reflex action is decreased and the motor pathways are depressed. Motion is maintained after sensation to pain and reflex action is lost. In this way damage is done without either patient or physician being alive to the fact. It also depresses the peripheral parts of the sensory nerves."

The results upon the peripheral nervous system are slight and infrequent as compared with those upon the cord and these in turn are neither so severe nor so frequent as are those upon the higher centers. The areas of the cortex are very greatly depressed, as Bastedo has proven by his experiments. He found that in the case of a bromidized dog it was impossible to produce convulsions by the artificial stimulation of those cortical areas.

There are several conditions in the nervous system in which the bromide salts are used. It would take much more time than I have at my disposal this afternoon to consider each one. I propose, therefore, to say a few words about some of the most frequent. I shall speak of the use of bromide in the following eight conditions: (1) Epilepsy, (2) toxic cases, (3) mental conditions, (4) traumatic and arterial conditions, (5) cases requiring long continued use of the drug, (6) alcoholic cases, (7) cases with an idiosyncrasy, (8) cardiac cases.

1. *Epilepsy.* It has long been recognized that there are certain types of epilepsy in which the use of bromide aggravates both the irritability and restlessness preceding the seizure as well as the depression following. Observers have reported cases of idiopathic epilepsy of long standing in which the administration of even moderate doses of bromide controlled the convulsions but substituted for them confusion, furor, violence, kleptomania, delusions, and homicidal tendencies. Weir Mitchell described such a case in 1887. The patient was an epileptic of many years' duration. Inasmuch as moderate doses had reduced the attacks, the attending physician reasoned that larger ones would stop them. As a result the bromides were increased until the patient was taking 150 grains a day. The patient became thoroughly intoxicated, the eyes partly closed, the sphincters relaxed, and the jaw dropped, emitting a constant drool of saliva. The major symptoms ceased but the minor ones increased. The mind became profoundly affected so that the patient was hard to arouse, indifferent, and imbecilic. Allen Starr reported another such case in 1896. His patient, under the administration of moderate doses of bromide, developed symptoms of violence and mania. In this instance a withdrawal of the drug produced a complete cessation of the maniacal phenomena with a return of the epileptic seizures.

I have seen the same condition. A young man, who had suffered from epileptic convulsions for many years, required 60 grains a day of the bromide salts to arrest the attacks. If he continued this dosage over a long period of time he would become confused, irritable, unreasonable, and violent. On one occasion he attacked a fellow workman. So soon as the bromides were reduced his mental symptoms abated.

It is in keeping with these facts that Shanahan, the superintendent of the Craig Colony, makes this statement in regard to the use of bromide in the treatment of epilepsy, that "bromide, when properly given, with due attention to combating the evil effects, brings about material improvement in *carefully selected* cases of epilepsy."

It seems to be the epileptic cases of long standing which show an especial antagonism to the excessive use of the bromides. I believe that the irritability of temper displayed by these long-standing epileptics is as much, if not wholly, due to the constant and excessive use of bromides as it is to the disease. In the administration of bromide in epilepsy, therefore, one should exercise caution, judgment and moderation. A patient should never be saturated, and the presence of unusual irritability, confusion, or violence should be the signal for a decrease in the dosage. At the present time when luminal has given such brilliant results in controlling the convulsions of epilepsy, it would seem that the administration of bromide in this disease would soon become obsolete.

2. *Toxic Cases.*—The toxic and exhaustion cases react unfavorably to the administration of bromide. They are suffering from lowered resistance and impaired nutrition, therefore, what to an ordinary individual might be an average dose of bromide, becomes to one of these patients a dangerous dose. A careful investigation and an exhaustive history of these patients will prove that in nearly every instance the mental symptoms of confusion, delirium, and mania, either made their appearance shortly after the administration of bromide, or were greatly aggravated by it. I remember one such patient where fatigue and insomnia were followed by sedatives, hypnotics, and finally steady and progressive doses of bromide. Shortly after the patient was said to be developing a psychosis with symptoms of confusion, irritability, restlessness, mania, and suicidal tendencies. In this connection I might mention the post-operative cases. These have slightly lowered resistance, amorexia, weakness and insomnia. To help them bromides are given, at first in small, later in large doses. At the

*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn, May 4, 1921.

end of a few days maniacal symptoms appear. I can recall two such post-operative cases, seen in two of the best known hospitals in New York. These patients had been unable to sleep. After the first night, when morphine had been given, resort was had to bromide. The dose had been gradually increased until maniacal symptoms appeared. It is not uncommon for physicians to administer forty grains of bromide four or five times in twenty-four hours and to continue this for several days. Such dosage invariably ends in symptoms of bromidism. A short time ago I saw a post-operative case that had been given 1400 grains of bromide in one week. All of these patients developed the same type of symptoms—confusion, delirium, delusions, great restlessness, and violence. The onset of the maniacal symptoms appears to be sudden and as is always reported "the symptoms became worse in spite of 60 grains of bromide given every night."

3. *Mental Cases.*—Mental cases are susceptible to bromide intoxication. This is due to the fact that these patients are suffering from a long drawn out condition, that their nervous system is vulnerable, that their resistance is lowered, and that their cerebral circulation is poor. The anxiety, restlessness, and insomnia so frequent in mental conditions has required the constant administration of sedatives and, therefore, these patients are mildly toxic. Bromide is frequently given in these cases, at first in small and finally in large doses. As the symptoms fail to abate the dosage of the bromide is increased and as the symptoms augment is again increased. Finally a condition of bromidism is induced on top of the existing mental condition.

I remember not very long ago seeing a patient who was very confused, delusional, and restless. She had a foul breath and coated tongue, there was a tremor of the hands, the gait was ataxic, and the Romberg symptom was present. The pupils were sluggish and dilated. She was garrulous and incoherent. Naturally, the tentative diagnosis was paresis. She was sent to a hospital for diagnosis. The blood and spinal fluid were reported negative. I decided to keep her under observation. Her confusion began to subside. She became less tremulous and less talkative. There was evident improvement. In a few days more she began to walk and the Romberg symptom disappeared. In two weeks this patient changed completely. All her paretic symptoms disappeared. A careful investigation, together with admission on the patient's part, revealed the fact that she had been depressed for months and unable to sleep. She had obtained a prescription for bromide, which she had taken constantly whenever she felt nervous, and gradually had become intoxicated.

4. *Traumatic and Arterial Conditions.* — I have had no personal experience with traumatic cases and bromide dosage. Weir Mitchell, however, cited a case of a man injured in a railway accident, who took bromide to relieve insomnia. His physician advised him to stop and later on, thinking that he had obeyed him, prescribed small doses of bromide. Soon the patient developed irritability of temper, confusion, and violence. It was not for some time that it was discovered that he was getting the double dose of bromide. A complete stoppage of all drugs caused an abatement of his symptoms and a return to a normal state.

It is to be expected that patients suffering from arterial changes would be peculiarly susceptible to bromide as they are to all kindred drugs.

5. *Bromidism from long continued use of bromide, after the discontinuance of the drug.*—There are a certain number of instances in which the diagnosis of bromidism is made and, even after the drug is stopped, the mental symptoms persist. These cases are confusing. The reasons for their occurrence are twofold: (1) the slow elimination of bromide, and (2) the fact that bromide is stored in the tissues in depots so that long after the drug has been stopped, the patient is still being intoxicated as he is drawing upon his bromide reserve. So slow is the elimination of bromide that it has been discovered in the urine a month after the administration of the drug has been stopped. Simankowsky found traces of it in the urine of a dog four months after stopping bromide.

6. *Alcoholic Cases.*—Alcoholics are susceptible to bromide intoxication. They of course are already toxic, have poor circulation, and suffer from lowered resistance. The drug should be given them with great caution. It is, however, constantly administered, both in large and frequent doses. Two years ago I saw a patient in a maniacal condition, noisy, confused, and violent. She had been drinking slightly but over a long period of time. Finally, when depression and insomnia developed, she consulted a physician, who prescribed bromide. She had the bottle constantly refilled and whenever tired or depressed took a teaspoonful. Gradually there developed confusion, violence, mania, and then delusions. Her condition was not recognized. It was impossible to know that she had been taking the bromide, so to quiet her, more bromide was given. This patient became more noisy and violent than any of the other bromide cases that I have seen. She became suicidal and at one time swallowed a large diamond ring. There were no untoward symptoms and the ring was passed and recovered two days later. Withdrawal of all medication from this patient resulted in a complete recovery.

7. *Idiosyncrasy.*—There are, of course, certain persons who display an idiosyncrasy to bromide. These develop the same train of symptoms. Just why one man can take forty grains daily and another cannot is difficult to explain.

8. *Cardiac Cases.*—Da Costa first called attention to the fact that while the bromides do not generally disturb the circulation they may do so when certain functional failure of heart force exists. In a few of these cases of chronic heart disease not only do small doses of bromide depress and enfeeble the heart, but if long continued cause the paretic symptoms so common in this condition.

The symptoms of bromidism are therefore twofold: (1) Physical and (2) Mental.

1. The *physical symptoms* are the rash, the coated tongue, and fetid breath, constipation, cachexia, feebleness, an excessive flow of saliva, and, if the condition is aggravated, an ataxic gait, a loss of patellar reflexes, tremor, and an ataxic speech.

2. The *mental symptoms* are restlessness, insomnia, depression, later excitability, confusion, delusions, and hallucinations.

The conclusions to be reached from this little study are

1. That bromides are very far from harmless.
2. That their prolonged administration will give rise to both physical and mental symptoms, the latter a condition akin to paresis.
3. That they tend to aggravate the irritability and mental deterioration in long standing cases of epilepsy.
4. That toxic cases develop more rapidly upon the administration of bromide.
5. That circulatory, traumatic, and arterial cases are peculiarly susceptible to their administration.
6. That bromide may mask the symptoms of mental disease just as thoroughly as does opium in surgical conditions.
7. That mental and alcoholic cases are peculiarly susceptible to bromidism.

41 EAST SIXTY-THIRD STREET.

SOME UNUSUAL OBSTETRICAL AND GYNECOLOGICAL CASES.

BY LUCIUS FELIX HERZ, PH.B., M.D.

NEW YORK.

ASSISTANT GYNECOLOGIST, NEW YORK POST-GRADUATE HOSPITAL.

In 1916 I was called to see a young woman of twenty who had fallen in a faint. I found her seven months pregnant, and found that she was a primipara with an extremely rigid cervix. A specimen of urine boiled solid. The patient had had vomiting and dizzy spells for several weeks. I sent her into the wards of a maternity hospital, where she passed out of my control, although I kept in touch with the case. Accouchement forcé was performed. The cervix was dilated with difficulty, and packed. Delivery of a dead child occurred forty-eight hours later.

I consider that the operation of choice in this case would have been a cesarean section, and this for three reasons: Firstly, the chances of a living child are far greater. Secondly, the toxemia would be stopped more rapidly. Even the difference of a day might mean the difference between recovery and not. Thirdly, maternal morbidity is far less in a cesarean section. In an accouchement forcé, deep tears of the cervix are common; they may run into the lower uterine segment, or laterally into the broad ligament, or they may even cause a true rupture of the uterus with extremely probable maternal death. As for postoperative pneumonia, that chance must be risked. As a matter of fact this particular patient subsequently developed a postoperative pneumonia, following the slight amount of anesthetic she received when her cervix was dilated. She would undoubtedly have developed it also with a cesarean operation, but the majority of patients would not develop pneumonia, as the toxemia would be recognized earlier, and either benefited by palliative means or operation performed before the toxemia became so great. Toxemias are now greatly benefited by endocrines, but that is a new story, and we were not using them at the time this case occurred.

In September, 1920, I was called to see a primipara who presented a frank breech. Attempts to deliver as a frank breech were without avail, owing to the resistance of the soft parts, and the only partial engagement of the breech. This was then pushed back, Pinard's maneuver was performed, and a breech extraction followed, with the regrettable mishap of a fractured femur, but a live baby. As the fetal mortality in breech cases is 10 per cent., an occasional fetal morbidity must be expected. The fracture was treated in a plaster cast, in the frog position, and united without deformity.

In January, 1921, I had two cases of compound presentations, both showing an arm well extended with a head partly engaged. The first patient was a primipara. Attempts to replace the hand and arm were without avail, so I had an assistant anesthetize the patient, performed a version, brought down the feet, and delivered her of an eight-pound child without complication. The second patient was a para IV, and was giving birth to triplets. The first child was a simple vertex, the second a shoulder and vertex, but as it was an extremely small child, and the second and third sets of membranes had ruptured within a minute of each other, I delivered the child with the arm extended, and gave the mother five minims of pituitrin, as she had no labor pains with the first child. The child was delivered readily without complication, as also was the third child. As none of the triplets exceeded five pounds in weight, it was perfectly safe to deliver a compound presentation as such, in this case.

In March, 1921, I was called in to see a para III, who was four months pregnant and had had uterine hemorrhages for the past two months. She had had two previous deliveries by cesarean section, on account of a generally contracted pelvis. At the last operation, performed by a well known gynecologist, the tubes were ligated, and the patient was assured that she could not again become pregnant. She had had one attack of pleurisy, and had also had an operation for osteomyelitis of the tibia. I prescribed some codeine for her, and left orders to be kept informed as to her condition. A day after she was first seen, she aborted, and was attended by her mother who is a midwife. I was called in after all was over, and found the abortion complete. I am very dubious about the sterility of the midwife's technique, and disclaim all responsibility for the complications that followed. Five days after the abortion, the patient had a violent chill, followed by a temperature of 106°. The pulse was 120, and subsequently 145. Examination of the lungs were negative. I regarded the case as septic, and sent the woman into one of our general hospitals. She developed a bilateral lobar pneumonia a few days later, and this was followed by an empyema. A thoracotomy was performed. She continued to be septic, and a blood transfusion was performed. Shortly afterwards, she died.

The patient's husband blames the surgeon who had attempted unsuccessfully to sterilize her, for her condition, as he would have used precautions against conception otherwise. While this operation for sterilization was unquestionably improperly done, the true blame should be upon the midwife for improper technique. Undoubtedly the gynecologist who operated upon her ligated and cut the tubes close to the cornua of the uterus and the tiny stump of one of the tubes was still able to functionate. The proper way to perform this operation, of course, is to take out V-shaped portions of the uterine cornua with the tubes, ligate the tubes, and repair the uterine defect with mattress followed by simple sutures.

In March, 1921, I was called to see a para II, who was seven months pregnant, and was having a moderate uterine hemorrhage, having had had a similar one two weeks before. The cervix was soft, and admitted two fingers. The head was not engaged, but a boggy substance was distinctly felt. I diagnosed the case as one of placenta previa, and advised her to go to a hospital. She followed my advice, and I no longer had control of the case, but kept in touch with her. A version accouchement forcé was performed with delivery of a dead child.

I was the fourth physician called to examine this patient, and according to her statement the first to recognize her condition. The rest considered it a threatened abortion. It is surprising

that cases of placenta previa should so often go unrecognized, when we know that this condition is the most frequent cause of hemorrhage before delivery in the second half of pregnancy. Again, as to the proper treatment for this condition, I consider caesarean section the operation of choice for the same reasons that I have enumerated in the case of toxemia first described, and for the additional reason that severe and often fatal hemorrhages may occur during an accouchement forcé. What may appear to many people as a radical procedure, is frequently more conservative when properly done, than so-called conservative treatment.

On May 24, 1921, I was called by a midwife, to see a case she was unable to deliver. The woman was a para II, who had been in labor for forty-eight hours. The child was in the right occiput posterior position, and showed marked evidence of malformation. The fontanelles were obscured by a large meningocele, the size of an adult head. The features and ears, however, could be readily made out. Delivery by forceps was impossible as they would slip off. Version was impossible. Craniotomy was decided upon, and owing to the poor home surroundings, the child was delivered in Nursery and Child's Hospital, where the meningocele was perforated, and the child then readily delivered. The child showed a congenital absence of the right arm, webbed fingers on the left hand, a large meningocele as noted, six nostrils, a marked hare lip, and club feet.

I am reporting these cases to demonstrate that obstetrics is not always a simple matter, but frequently involves more responsibility than major surgery.

A woman of thirty-eight consulted me for a psychopathic complication associated with beginning menopause. She had had three children, normal deliveries. Menstruation had always been regular, every twenty-eight days, moderate in amount, painless, and of five days' duration, except the last three periods, which lasted only two days. The last one was two weeks before the onset of her psychopathic symptoms. She had the usual hot flashes of the menopause, and besides these had irresistible impulses. She would arise at three A. M., when fully awake (she could sleep very little), and wander through the house, and even into the street, in her night dress. She had strong desires to fling herself out of the window. She had an insight into her condition, and stated to me that she felt herself "going crazy," and was willing to go into a psychopathic ward, if I thought it necessary. I prescribed tablets of ovarian extract, each grain v., and tablets of thyroid extract each gr. i, both to be taken three times daily, and after taking these for five days she had a brief mentrual period, with immediate relief from her psychopathic condition. A month later she came to my office, and said she felt well in every respect. I considered it best, however, to continue the ovarian extract at the same dosage, and to give a reduced dose of thyroid, gr. 1/6, three times daily for some time to come.

My work in Bandler's clinic has convinced me of the efficacy of endocrine therapy in this condition, and in many others, which I cannot describe here, but which Bandler has described in considerable detail in his recent writings.

441 West Forty-fourth Street.

Uremia Without Nitrogen Retention.—The occurrence of terminal uremia in subjects with sclerotic kidneys without evidence of nitrogen retention has been seen by Brouardel and Renard. This case violates Widal's laws of the relations between nitrogen retention and uremia and apparently defies explanation. Edema was also absent.—*La Presse Médicale.*

AN UNUSUAL CASE OF MALIGNANCY.*

By EVERETT M. ELLISON, A.M., M.D.,

WASHINGTON, D. C.

CLINICAL ASSOCIATE IN MEDICINE, THE GEORGE WASHINGTON MEDICAL SCHOOL.

THE following case presents several points of interest which would seem to make it worthy of record.

Mrs. O. P. H. was born in the District of Columbia of a Danish father and an Italian mother on December 19, 1860. Her father died at 70 from tuberculous laryngitis, her mother at 65 from cerebral carcinoma. One maternal aunt died at 68 from cancer of the liver. Her two brothers died, one at 2 and the other at 30, from pulmonary tuberculosis. Her husband, a native of Virginia and a civil engineer by occupation, died at 57 from organic heart disease in 1912.

In 1891, at 31, our patient gave birth to triplets, one of whom was still-born. The other two are living and in good health at the present time. This labor was most tedious, and her recovery was quite slow. Her second and final pregnancy was terminated in 1897, when her third daughter now living and in good health was born. Early in this puerperium, she developed double mammary inflammation with suppuration which lasted for several weeks. Her general convalescence was long-delayed.

In 1898, our patient discovered what her family physician called a wen, located between the nipple and the upper margin of the right breast, which he advised her to let alone and forget. This mass was and remained for a long while about the size of a hen's egg, was superficial and readily movable. It gave no subjective symptoms whatever until 1905, when it suddenly became somewhat larger and painful.

She then went to Dr. Emory W. Reisinger, who looked upon the tumor with suspicion but was inclined to consider it non-cancerous. After keeping it under observation for about three weeks, during which Dr. Reisinger was seriously impressed by the rapidity of its growth, he called Dr. Henry D. Fry into consultation, who did not hesitate to recommend early operation. She was soon admitted into Dr. Fry's Sanitarium, where he performed a simple amputation of the right breast. Her recovery from this operation was rapid and quite satisfactory.

Mrs. H. passed through her climacteric at between 40 and 47 without incident, except for this operation at 45.

On April 27, 1919, fourteen years after this amputation, during which period she had been in apparently splendid health, she called me in to examine her left breast, which had lately become rather hard and painful in and close about the nipple. While in her bath a very few days previously, she had by chance first observed this condition. My tentative diagnosis was acute mastitis, for which simple local treatment was prescribed.

After one week, no manifest change in the condition having taken place, I called Dr. J. Wesley Bovee into consultation. He concurred in my tentative diagnosis and recommended the "let alone" treatment for a few days. As the same signs and symptoms were present at the end of another week, our patient was admitted into Columbia Hospital, and there a radical amputation of the left breast was performed by Dr. Bovee on May 12.

The specimen was sent to the Army Medical School for examination. It is stated in their report of May 23, "There is no tissue anywhere in all the specimen that can be recognized either macro- or micro-scopically as breast tissue." Their diagnosis was: "Metastatic carcinoma in lymph glands, fat and muscle tissue." The patient was discharged from the hospital in fair condition on May 31, the incision being slow to heal in the upper arm.

On June 20, I wrote to Dr. Howard A. Kelly of Baltimore for his advice as to the administration of radium in this case for prophylaxis. He replied that this

*Read before the Medical Society of the District of Columbia, February 16, 1921.

would probably be of great value, provided metastasis had not already taken place within the thorax.

On July 8, Dr. Thomas A. Groover made *x*-ray pictures of her chest and reported that he had found "No evidence of abnormality of heart, great vessels, lungs, nor of the mediastinum."

Mrs. H. went to The Howard A. Kelly Hospital for four radium treatments as follows:

August 19—1,028 mgs. for 40 min. applied to neck and breast.

August 29—3,398 mgs. for 25 min. over five areas of breast.

October 16—3 692 mgs. over neck, axilla, and shoulder, 60 min. to each area.

November 13—3,159 mgs. for 80 min. over four breast areas.

In the meantime, her left chest and arm had gradually become quite hard, swollen, and painful. It was readily observed that her condition was constantly growing worse and that the radium had signally failed to prevent recurrence or extension. It now became necessary to administer morphine in gradually increasing doses, and our patient went the usual way of such cases, suffering the agonies of death many times over until the end came on June 15, 1920.

It is a moot question whether the tumor of the right breast in this case was malignant. The patient, in talking with me, claimed to have had absolute assurance from Dr. Fry that it was benign. However, the head nurse at his sanatorium, claiming to remember the case perfectly well, declared very positively a few days ago that this tumor was, in Dr. Fry's opinion, according to his definite statement made at time of operation, unquestionably cancerous.

The patient's daughters have the facts in mind well enough to state without question or qualification that the right breast mass of 1905 (so far as *they* could see) was in no way similar to the left breast mass of 1919. Dr. Fry's case records were destroyed at his death in June, 1919, hence it has not been possible to ascertain in any direct manner what his real diagnosis was.

To Summarize.—1. Whether heredity is important in the etiology of cancer or not, it seems that this family history is rather significant.

2. It is an interesting coincidence, if nothing more, that this patient suffered abscessed breasts prior to the known development of any malignancy. In nearly 2,000 cancers of the mammary glands, MacCarty has never seen the condition except associated with a definite *chronic* mastitis. In almost the same number of specimens of chronic mastitis he has found histologic pictures that present changes with the demarkation to and including the picture of early carcinoma.

3. In view of the age of the first tumor and its conservative removal, the length of time elapsing between the two amputations and the excellent health of the patient during the interim, and the fact that Dr. Fry did not warn any member of the patient's family to be on the lookout for subsequent trouble, there is certainly room for reasonable doubt as to whether the right breast tumor was malignant.

4. This case is also of interest, along with many others on record, as showing how futile, if not worse than worthless, both surgery and radium are, sometimes, in dealing with early malignancy. And our retrospection leads us to wonder whether *x*-ray treatments would have been of value.

1720 M STREET.

Medicolegal Notes.

Admissibility of Dying Declarations in Homicide Cases.—In a homicide case, where the dying declaration of the deceased was introduced in evidence, the Oklahoma Criminal Court of Appeals states the law as to the admissibility of such declarations as follows: Whether or not a purported dying declaration was made by a deceased under the sense of impending death is, first, solely a question for the trial court, in so far as it determines the admissibility of the declaration. In order to be admissible in evidence, it must sufficiently appear by evidence adduced on the preliminary hearing, had in the absence of the jury, that such declaration was made at a time that the deceased was under a sense of impending death, and that the declaration is restricted to facts concerning the facts and circumstances attending the homicide being tried, and, such facts being established, such declaration should be admitted in evidence, notwithstanding that subsequent to making such declaration the deceased expressed the belief that he would get well. It is not necessary that the deceased declare he is going to die. It is held sufficient if the circumstances, including his physical condition, and that he was too weak to sign his name to the declaration and so affixed his mark thereto, and that he four days after making such declaration died from the infliction of the wound to which said declaration relates, show at the time of making such declaration he believed he was going to die, and this renders said purported dying declaration admissible in evidence.—Elliott v. State (Okla.), 194 Pac. 267. Where a written dying declaration, for the admission of which in evidence a proper predicate has been laid, contains recitals of transactions had and statements made which do not shed light upon the homicide, and are not *res gestæ* in the strict sense, such recitals of transactions and statements are not admissible in evidence.—Wratislaw v. State (Okla.), 194 Pac. 273.

Construction of Washington Drugless Healers' Statute.—The plaintiff in a proceeding against the Washington State Board of Drugless Examiners, who had applied to the board for a license to practise, was issued a license to practise suggestive therapeutics, and, claiming to have been improperly classified by the board, he sought to have issued to him a license to practise mental therapy. The Washington Drugless Healers' Statute of 1919, section 4, provides for the issuance of the following certificates to healers: Certificates to practise (1) mechanotherapy; (2) suggestive therapeutics; (3) food science; (4) physcultopathy, and (5) any other separate and coordinate system of drugless practice.

The Washington Supreme Court has now reversed a judgment of the lower court ordering the board to issue a new license to the plaintiff, for the following reasons: "Subdivision (2), above, refers to a school of practice which operates through the mind of the patient, and whether the cure is secured by mental operations resulting from suggestions from the practitioner or from reasoning between the practitioner and the patient is of no importance. It was not the purpose of the Legislature, in providing licenses for these various systems of drugless healing, that each practitioner might choose for himself a name to describe his practice and be licensed under that name. Four distinct classifications are made, and a fifth is provided for systems which are separate and coordinate to the four systems specifically described. It cannot be said that the system explained by the respondent is separate and coordinate. The fact that it is possible to license persons to practise suggestive therapeutics whose method of operation is distasteful to the respondent does not privilege him to choose some other designation under which he would like to be licensed. Nor does the fact that the board may have erred and granted licenses under names not set forth in the statute, although the persons practising under such names are, in fact, practising what should properly be designated therapeutics, give to the respondent the power to compel the board to commit another error in his case."—Wells v. State Board of Drugless Examiners (Wash.), 194 Pac. 388.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, July 16, 1921.

PARADOXICAL REACTION OF THE PUPIL.

By this term is meant dilatation of the pupil caused by directing upon it a ray of light. It is worth while for clinicians to study this sign and to search for it, although for the present no diagnostic value can be assigned to it. But it should at all events cause one to suspect a serious organic affection of the nervous system, possibly of syphilitic origin. This reaction has been differently interpreted by various observers and its reality has also occasionally been denied. Some attribute it to a synergy of movement with the pupil of the other eye which has remained free; others regard it as a phenomenon depending upon the orbicular reaction of the pupil—Piltz's phenomenon—and in four cases recently published by Secret, his observation has led him to acquiesce in this way of looking at the phenomenon. Still other observers look upon it as the result of movements associated with those of divergence, movements which are favored by a paresis or paralysis of the adductor muscles of the eye, this being more especially the opinion of Frenkel. This observer therefore denies the paradoxical character of the reaction, and in two of his cases Secret was forced to recognize the justice of this interpretion.

However, some clinicians mention dilatation of the pupil under the sole influence of light and confirm its paradoxical character; three out of the nine cases reported by Secret unquestionably enter into this latter category. From various sources it would seem that we are authorized to admit that a reaction of a paradoxical nature of the pupil to light certainly does exist, although it is a rare phenomenon. For example, in a case reported by Burchardt, the patient, a syphilitic, had an iridectomy done for a left-sided iritis. The dilatation, induced by lighting the temporal side of the left pupil, was due to the contraction of the muscle of the iris, which brought the two free ends of the lower part toward the fixed attachment above and in so doing produced an enlargement of the coloboma. Lépine reasoned from analogy. Since a rise in temperature may occur following the exhibition of quinine, sodium salicylate, or antipyrine, so a luminous stimulant acting on the pupil may produce dilatation instead of contraction. Bechterew admitted the possibility of voluntary dilatation of the pupil and he reported the case of a neurotic woman who for five years was able to dilate her right pupil at will, just as some persons can control the heart beats. Another hypothesis, emitted by Money, is that the dilatation is produced by the action of the heat coming from the luminous source on the terminal fibers of the trigeminus. Bechterew offered still another explanation based on pathological researches on the subject of normal reaction of the pupil. The lesion is to be found in the nucleus of the oculomotor nerve, in the motor center of the iris, and consists of a softening of the cerebral substance. Should a process of cure ensue, the peripheral portion again resumes its momentarily abolished functions. This reorganization of the cerebral substance is characterized by a remarkable fatigue and consequently, with moderate light—that of day, for example—a slight contraction of pupil results, but an intense light will provoke an arrest of the reflex of the pupil at its very onset, the extent of which will depend upon the amount of exhaustion of the center of the iris.

Silex assumes that a permanent contraction of the sphincter of the pupil exists, due to some cerebral irritation or a spasm of accommodation. The rays of light falling suddenly on the pupil in these circumstances paralyze the active nervous fibers and thus gives free play to the dilator muscle. The paradoxical reaction has been explained by some by a phenomenon similar to hippus. Under normal circumstances the oscillations of nervous activity, by reacting on the tonus of the dilator of the pupil, provoke rapid oscillations of the diameter of the pupil, known by the name of hippus. The pupil, even in the physiological state when kept for a certain time under the action of light, may gradually dilate instead of contracting, and it is to a phenomenon of this kind that the name of paradoxical reaction has been given.

CONCERNING GOUT.

OPINIONS as to the diagnosis and consequently the treatment of gout are not so definite as formerly. It used to be, and not long ago, almost an article of faith that gout was due, if not wholly, at least largely to an excess of uric acid in the system. Of course, this belief is still widely held. These views must, however, undergo a considerable amount of revision if we are to accept the statements put forth in a paper read before the Dover and Folkestone division of the British Medical Association on April 7 by Llewellyn T. Llewellyn. (*Medical Press and Circular*, May 25 and June 4, 1921.)

In the first instance it has been demonstrated by modern research that the diagnosis of gout cannot rest solely on the analysis of the urine, but must depend also on the quantitative analysis of the blood. A fairly accurate means of this form of blood analysis was rendered possible by the introduction in 1913 of the colorimetric system by

the American biochemists, Folin and Denis. These investigators were able by this technique to show that uric acid is a normal constituent of human blood, even when persons are fed on a purin-free diet. The uric acid content of the blood in individuals suffering from gout exceeds that of normal individuals by only a few milligrams. Therefore, as Llewellyn points out, we are asked to believe that this trifling amount possesses such profound potentialities as to determine the incidence of gout. As a matter of fact, the blood stream can hold in suspension far more uric acid than has ever yet been met with in gout. Moreover, further difficulty must be surmounted; to-wit, that in diseases other than gout a still greater percentage of uric acid may be found in the blood; yet gout is not developed. And still another discrepancy hard to explain satisfactorily has to be noted. An excess of uric acid is not peculiar to gout and is not always present in gout. From a study of these and other considerations, Llewellyn comes to the following conclusions: (1) Uric acid is a normal constituent of the blood. (2) Only by a few milligrams does the blood content in gout exceed the normal. (3) An excess of uric acid in the blood is not peculiar to gout, but is met with in other diseases, and in larger amounts. (4) No constant relationship has yet been established between the uric acid content of the blood and acute attacks of gout. (5) Attacks may occur, even when the uric acid content is subnormal. As for the physiological effect of drugs, phenylcinchoninic acid, which increases uric acid elimination and augments the output by the kidneys, does not necessarily inhibit the incidence of gouty paroxysms, while colchicum, according to Dixon and Malhen, has no action on metabolism or the excretion of urine, nor on the kidneys. In short, it exerts no influence whatever on uric acid excretion. But, although colchicum is the remedy par excellence for acute gout and will not be supplanted by any other remedy which quickly and markedly increases uric acid excretion, phenylcinchoninic acid does influence the consequences or sequels of gouty inflammation—that is to say, it obviates the formation of the sequential uratic deposits, or promotes their absorption and elimination when established. Judging, then, from the contrasting physiological action of these two remedies and from the results of urine and blood analyses, uric acid is not the cause, but, at the same time, has something to do with the causation and the sequelæ of gout.

It is Llewellyn's belief that infection is a prominent factor in the genesis of gout, and pyorrhea may be a predisposing cause of the disease, as may also be infected tonsils. Attention is drawn to the fact that gout suggests infection in more ways than one. The abrupt onset, the temperature curve, the character of the local phenomena, and the course of the disorder are emphatically indicative of the intrusion of an infective element. In conclusion, it is pointed out that there are many analogies between gout and the specific infective arthritides. For example, in virtue of its tendency, not only to arthritis, but to trouble of nerve and muscle sheaths, gout falls into line with the specific infections. Its predilection for bursal and fascial structures is but another evidence of affinity with this group of diseases. In view of these similitudes, one may well ask, are not the manifestations of gout, all of them, susceptible of a like explanation? For in reviewing the clinical and pathological data brought forward by him, Llewellyn thinks, it cannot be gainsaid, that they are more readily explicable by the theory of an infection than in any other way.

It is no new contention that gout is not caused by a system loaded with uric acid alone, but the assertion that its manifestations are due to a specific infection requires further proof before it can be generally accepted. So long has the belief been held that gouty arthritis is of purely metabolic origin that it will not be easily overturned. If it were not, at any rate mainly, a disease of disordered metabolism, suitable diet would not influence it as favorably as it usually is thought to do. The origin of gout is an interesting subject, and one which will well repay close investigation.

A WORKABLE MEDICAL ORGANIZATION.

It is safe to say, in retrospect, that a relatively small proportion of the medical men who offered their services to the Government in the recent war, entered upon their duties with any clear conception of the limitations and requirements imposed by the military establishment. It is also a fair assumption that this lack of knowledge on the part of Medical Reserve officers of the functions and actual operations of the Medical Department, as well as of military matters in general, gave rise, on divers occasions, to embarrassment and confusion on the part of doctors fresh from civilian life, and increased the difficulties under which the members of the regular establishment labored. The various medical officers' training schools organized after our entry into the war came into being presumably for the purpose, so to speak, of acclimatizing the civilian doctors to the military atmosphere.

Perhaps the doctor with an inclination in the direction of military tactics as applied to medical matters, or *vice versa*, might have encountered some difficulty in quickly enlightening himself with regard to the functions of the medical services of the Army and Navy. Undoubtedly even a "reading" knowledge thereof would have inducted him into the service with a somewhat less serious handicap than no knowledge at all. While no war ever calls forth just the same circumstances as the preceding war or wars, a knowledge of the functions of the services as exercised in other campaigns must be of value in the preparation for a coming conflict. Were it not so there would never have been recognized the need for the various histories of wars in general and of the medical aspects thereof in particu-

lar. As a concise and readily available account of the functions of the medical department in war the brochure recently brought forth under the joint authorship of two Army officers,* will prove an interesting aid to members, present or future, of the Medical Reserve Corps, and others who may wish to familiarize themselves with the duties incumbent upon the doctor metamorphosed into the soldier.

For, as the authors say, the medical department is an offensive arm of service, and as such it fights in the very forefront of the battle. Practical results and not theories are demanded. The combatant surgeon in was is "in the field, in trenches, shell holes, dugouts, in camp or bivouac, along muddy roads and in wet woods, fighting his fight along with the other combatants. He commands troops, directs transportation, organizes and controls tactical movements, supervises construction. He takes an active part in all the tactical operations of the combatant forces, accompanies them into battle, and is exposed to rifle and artillery fire, poison gas, and bombs from airplanes. He is not the swivel-chair consultant or the white-robed, steam-heated surgeon of peace." It is emphasized that he must be an administrator, an organizer, a director, a superintendent, a tactician—in short, a *soldier*. This little volume is devoted to the tactical functions of the surgeon in modern war, but it is written in an interesting manner, illuminated by numerous charts and other illustrations, and cannot fail to be of service to those in search of information concerning the active functions of the medical branch of service. It is based on the tactics of the medical service upon the organization employed during the late war, "which proved itself good and workable if not perfect."

*Medical Service in Modern War. An exposition of the Tactical Functions of the Medical Department in Campaign, by P. S. Bond, Lieutenant Colonel, U. S. Army, and C. F. Martin, Lieutenant Colonel, U. S. Army, with an Introduction by Major General M. W. Ireland, Surgeon General, U. S. Army, 1920.

KAOLIN IN THE TREATMENT OF ASIATIC CHOLERA AND INTESTINAL TOXICOSIS.

Cholera and bubonic plague are the two scourges of Asia. Although treatment of this type of cholera, true cholera, has considerably improved, especially from the preventive aspect, that is, by the introduction of improved sanitary and hygienic measures, yet an epidemic of this disease will carry off the natives of Asia by thousands when it gains a foothold. While the most effectual means of extirpating or seriously checking cholera is by the practice of efficient sanitation and hygiene, which, of course, are, as a rule, grievously lacking in those lands in which the malady is most in evidence, thereapeutic treatment is more encouraging than was formerly the case. The employment of sodium permanganate, saline injections, and the hypertonic saline remedy advocated by Sir Leonard Rogers have met with a good deal of success. As regards the last mentioned mode of treatment, it has been stated that it was successful in reducing the mortality to 22 per cent. and securing the discharge of convalescents in nine days.

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine, held on April 19 of this year, a paper was read by Dr. R. R. Walker on "The Action of Kaolin in Asiatic Cholera." Kaolin is a fine powder of aluminum silicate, recognized medicinally in early Roman times. It has been employed in the treatment of dysentery and sprue, also of diphtheria, when applied by insufflation to the fauces. Dr. Walker pointed out that its value in checking the course of cholera had been demonstrated by Victor Kuhn, who claimed that by effecting the elimination of cholera toxins, the use of kaolin resulted in the reduction of the mortality of the disease from 60 to 3 per cent. During the cholera outbreak in Foochow in 1919, it was used with much success. It was prescribed in suspension with an equal quantity of water and patients were encouraged to drink as much of the mixture as possible. In 30 cases so treated there had been only one death, due to puerperal complications, and convalescents had been discharged in six days. For cases admitted in a state of collapse, saline injections, administered if necessary intravenously, or continuous cupping, were advised as preliminary treatment to secure a return to consciousness. Rectal lavage was also employed. In the experience of the speaker the combined use of hypertonic saline and kaolin suspension was not as effective as the kaolin alone. After two hours' kaolin treatment all vomiting ceased, the diarrhea was checked, and in 36 hours convalescence was established. In his opinion its chief advantages were its simplicity, the cessation of loss of fluid, the early return of the urine, also its power of rapid absorption of cholera toxins, and the speedy onset of convalescence. A number of animal experiments and detailed microscopical and bacteriological examinations which had been carried out were described, some of them going to show that the cholera toxins were removed by the absorptive powers of the kaolin. As a matter of fact, the claim was made that the action of kaolin is partly mechanical in being deposited on the walls of the stomach and intestines and so acting as a filter bed, partly absorptive in removing the toxic products of the cholera vibrios. It was further noted that the amount of kaolin used in treatment was considerable, almost filling the bowel, yet it had no harmful mechanical effect, as it remained soft and pultaceous.

Walker also held that rectal lavage by kaolin suspended in water was likely to be of use in the treatment of colitis, and that general toxic conditions, for example, in dysentery, were greatly relieved by absorptive action on the bacterial products.

The number of cases treated by this remedy is not sufficient to warrant the drawing of definite conclusions, but the results so far are encouraging, and it is probable that more will be heard and learned of kaolin in the treatment of cholera and in diseases in which toxic products are formed in the alimentary tract.

Familial Arteriosclerosis and Short Life.

A case of fatal arteriosclerosis in a man aged 39 is reported by Weinfurter in the *Wiener klinische Wochenschrift* for May 19, 1921, xxxiv., 20. In regard to the familial element it is stated that the father and a brother of the patient died in the best years of manhood after the same symptoms. The patient was a distinguished mathematician, and he had always been well save that for two years before the development of his symptoms he had complained of frequent headaches. The regression of this symptom is in line with the claim that the early symptoms of cerebral arteriosclerosis may be only temporary. A fall from his horse seems to have preceded the development of the permanent symptoms, which comprised attacks of *petit mal* and frank epileptiform seizures. Lues was denied and the Wassermann reaction was negative. The urine having been found to contain albumin and casts the diagnosis of contracting kidneys was made. Intellectual disorders, as memory failure and inability to do mental work, now supervened. The author found on physical examination a blood pressure of 200, which with the urine finds seemed to justify the diagnosis of primary nephrosclerosis of the bland type. The kidneys were in too good functioning condition for the diagnosis of secondary sclerosis. The presence of beginning choked disks complicated the picture. Cerebral hemiplegia at this juncture carried the patient off. Autopsy showed a high grade cerebral arteriosclerosis which had led to regional anemia and foci of softening, this accounting for the epilepsy and other intracranial symptoms. The occupation of mathematics was believed to predispose the patient to this affection, despite the oft repeated statement that mathematics tends to conserve the cerebral functions. The kidneys were only slightly compromised and the diagnosis of a bland sclerosis was confirmed; nevertheless only the renal lesion could explain the presence of choked disks.

Primary Diphtheria of the Anus.

What is possibly the first example of this affection to be recorded in literature is to be found in *La Pediatria* for April 1, 1921, xxix, 7. The reporter is Mallardi, assistant to Professor Jemma of the University Pediatric Clinic of Naples. The patient was an infant aged twenty-two months, the child of peasants, who brought it to the clinic for a chronic condition which proved to be an association of syphilis with leishmaniasis (kala azar). It was necessary to exclude tuberculosis, typhoid and paratyphoid fevers, and Malta fever, which was done by obtaining negative tests for each of these affections. Kala azar was diagnosticated by the discovery of an abundance of Leishman bodies in a punctate from bone marrow. Both the infant and its parents gave positive Wassermann tests. The patient did well on the double specific treatment (presumably salvarsan and antimony, although details are not given). Of a sudden without apparent motive the condition took a turn for the worse which could hardly have been due to the course of the kala azar. General inspection revealed two small lesions about the anus which rapidly extended until the perianal region was transformed into a large necrotic area with a yellowish grey membrane. Examination of a loop of the secretion of the active border of the lesion showed numerous streptococci and an abundance of Klebs-Loeffler bacilli. After a single injection of 3000 Behring units of antitoxin the fever promptly fell from nearly 104° to below normal, and the local lesion also showed arrest and improvement. A second injection was sufficient. About a week was required for the healing of the wound surface, after which intravenous injections of tartar emetic were resumed for the kala azar. There is no speculation as to how the anal lesion was contracted.

Encephalitis Lethargica Grippalis.

Certain authors continue to insist on the autonomy of this affection. Thus in an article which appears in the *Schweizerische medizinische Wochenschrift* for April 28, 1921, li, 17, by Reicher, a woman assistant of Professor Sahli, on blood studies of influenza, we find a section on this disease. In the winter of 1919-20 nine patients with encephalitis lethargica were specially studied. In six of these the affection was typical, with all transitions into the myoclonic form. One of the number appeared in the midst of an attack of influenza and Pfeiffer's bacillus was found in throat smears. It was the only one of the six which showed the typical blood picture of influenza, including leucopenia. In the others there was either normal leucocyte count or leucocytosis. The same association was reported by Leichtenstern in the epidemic of 1890. The leucopenia of influenza disappears in influenza-pneumonia and if the latter be severe the leucocytosis is pronounced. Despite this fact leucocytosis is a better prognostic in influenza than leucopenia. In typical encephalitis lethargica the stronger the infection the more marked the leucocytosis. Apparently no similar case of grippal encephalitis is known at Sahli's clinic and in fact no other case is cited from any source.

News of the Week.

Tuberculosis in France.—Dr. Baillon, laureate of the Faculty of Medicine of Paris, is in this country to reveal how serious the tuberculosis peril is in France. He says that there are about 1,900,000 cases of tuberculosis in France and not more than 10,000 beds available for their care. The number of deaths has reached 20,000 a year. France lacks the most efficient weapon with which to fight tuberculosis—the sanatorium. There are no tuberculosis sanatoria in Provence, a region of a mild climate and eminently propitious for the care of the disease. It was to remedy this condition that the Franco-American Committee to Fight against Tuberculosis was created. Dr. Baillon is here to raise funds with which to complete the projected Garden City Sanatorium, in which will be treated the war victims of tuberculosis and the tuberculous children of Northern France. Dr. Baillon expresses the opinion that prohibition, if it prohibits, will go a long way toward preventing the increase of tuberculosis because in every country where alcoholism is increasing tuberculosis is increasing equally as fast.

National Red Cross Convention.—Plans for a national convention of the American Red Cross, the first of its kind ever held, were announced at the society's headquarters in Washington on July 2. The convention will be held at the Ohio State Exposition Grounds in Columbus from October 3 to 8. President Harding has agreed to address the convention if State affairs permit him to leave Washington at that time.

Attendance at Summer Military Camps Urged.—Brigadier-General Charles E. Sawyer has written a letter to State Health Commissioners asking them to encourage citizens to take the course of training offered by the Army in the Summer Military Camps, and declaring that the interest of young men in health matters will be increased by attendance at these camps. The Bureau of Public Health Service has instructed its physicians to give a free medical examination to candidates for the camps. The West Virginia Medical Association has passed a recommendation that its members make a gratuitous physical examination of men desirous of taking the training, and many members of the Medical Officers' Reserve Corps have volunteered their services for this purpose.

Professor Otto Zuckerkandl of Vienna, well known as an authority on urology, died suddenly on July 3. He had intended to take part in the International Urological Congress to be held here in September.

Provisional Health Committee of the League of Nations.—Official announcement of the membership of the Provisional Health Committee appointed by the Council of the League of Nations has been made. According to this the committee as now completed has the following membership: Dr. G. S. Buchanan, Great Britain; M. Velghe, Belgium; Prof. Madsen, Denmark; Señor Pulido, Spain; Prof. Leon Bernard, France; Dr. Charles Havelock, India; Dr. Alberto Lutrario, Italy; Dr. Yoneji Myagawa, Japan; Dr. Calmette, Morocco; Dr. Mimbela, Peru; Dr. Chodzko, Poland; Dr. Carriere, Switzerland; Dr. Luigi Carozzi, International Labor Office; Prof. Winslow, League of Red Cross Societies.

Mortality Statistics for 1920.—A recent statistical review states that St. Paul, Minn., has the lowest mortality rate of the twenty principal cities of the United States, and that Portland, Ore., runs a respectable second, the figures for these cities being respectively 10.18 and 11.20 per 1,000 population. New York City with a death rate of 12.93 stands seventh on the list. Denver with a mortality rate of 17.47 has the highest death rate of any American city. It is noted that the death rate among females is considerable below that of males. Wherever women are relatively in the majority the death rate is relatively low. Washington, D. C., has the highest death rate from typhoid fever; Cincinnati wins the prize for measles, and Rochester and Boston are tied for the top mortality rate for scarlet fever. Boston has the high death rate for whooping cough and Pittsburgh holds the record for influenza. San Francisco shows the worst rate for cancer, Newark, N. J., holds the first place so far as the number of births are concerned and New York City is a close second. In spite of the intense heat of the first week in July, New York shows the remarkably low death rate of 9.72, while Chicago shows an infant mortality rate for this week 15 per cent. higher than for the corresponding week of last year.

Medicinal Beer Permits Held Up.—Secretary Mellon announces that permits to manufacture medicinal beer will be deferred for "at least a week or two." The House bill to prohibit the sale of such beer has been favorably recommended to the Senate by the Judiciary Committee, and it will be brought up in the Senate in the near future.

Urges New Medical Degree.—A plea for the establishment by medical colleges of the degree of doctor of public health in addition to that of doctor of medicine is voiced by Assistant Surgeon-General W. T. Sedgwick of the United States Public Health Service in a lecture recently reprinted by the service. Dr. Sedgwick points out that there are forty-eight State Departments of Public Health, which require at least one hundred and fifty experts in public health and sanitary science. The United States Public Health Service finds great difficulty in getting the scores of qualified health officers that it needs. The army and navy and hundreds of counties, cities, towns, and rural districts need whole-time trained health officers. Private agencies, such as the Rockefeller Foundation and the Red Cross, cannot get a competent personnel. Doctor Sedgwick urges that the present medical curriculum should be split up at the end of the first two years. One line should remain as it is, but from it another line should branch off, which should treat of preventive medicine, vital statistics, sanitary science, laboratory methods in epidemiology, municipal sanitation, preventive hygiene, etc. The medical school which neglects this, Dr. Sedgwick says, is sending out its graduates unprepared to meet some of the most serious problems they will have to face.

The Interdepartmental Social Hygiene Board announces that a synthesis of organic compounds containing arsenic, of possible value in the treatment of syphilis of the nervous system, is being worked out under the direction of Dr. W. Lee Lewis, of the Northwestern University, and his associates. The research proposed is a part of a carefully organized plan whereby the new chemical compounds that may be synthesized through the efforts of Dr. Lewis and his associates will be tested for their therapeutic value in relation to the treatment of syphilis under Dr. A. L. Loevenhart at the University of Wisconsin.

Rockefeller Institute Announces Promotions and Appointments.—The Board of Scientific Directors of the Rockefeller Institute announces the following promotions: Dr. Frederick L. Gates, hitherto an associate in pathology and bacteriology, and Dr. Frederick S. Jones, hitherto an associate in the department of animal pathology, have been made associate members; Dr. Goronwy O. Broun, hitherto a fellow in pathology and bacteriology, has been made an assistant. The following new appointments are announced: Dr. E. V. Cowdry, associate member in pathology and bacteriology; Dr. Albert Fischer, assistant in experimental surgery; Dr. William A. Hagan, assistant in the department of animal pathology; Dr. Albert B. Hastings, assistant in chemistry; Dr. Hugh J. Morgan, assist-

ant in medicine; Dr. David I. Hitchcock, fellow in general physiology; Dr. James M. Neill, fellow in medicine. Dr. John Auer, hitherto an associate member in physiology and pharmacology, has accepted a position as professor of pharmacology at St. Louis University. Dr. Francis G. Blake, hitherto associate member in medicine, has accented a position as professor of medicine in Yale University School of Medicine. Dr. J. Harold Austin, hitherto an associate in medicine, has accepted a position as professor of research medicine in the University of Pennsylvania. Dr. Glenn E. Cullen, hitherto an associate in chemistry, has accepted a position as associate professor of research medicine at the University of Pennsylvania. Dr. William C. Stadie, hitherto an associate in medicine, has accepted a position as assistant professor in medicine at Yale University School of Medicine. Dr. Martha Wollstein, hitherto an associate in pathology and bacteriology, has accepted a position as pathologist at the Babies' Hospital, New York City. Dr. Israel J. Kligler, hitherto an associate in bacteriology, has accepted an appointment with the Zion Medical Unit in Palestine.

Plattsburg Plans Health Follow-up.—A new health examination plan is to be inaugurated at the Plattsburg Military Training Camp this summer. According to Captain Arthur F. Cosby, executive secretary of the Military Training Camps Association, there will be a complete physical examination of each man upon his arrival at camp, with notations of his physical defects. Upon his return home he will receive a report of his physical condition and will be advised what course of treatment to follow to eliminate any disabilities. In the case of the younger men the parents will be notified and army officers will keep in touch in order, if necessary, to give further advice and assistance. It is believed that by means of this follow-up system permanent results in the improved health of the men will be achieved.

Professor Lawrence Joseph Henderson of Harvard University has been appointed by the Paris Academy of Medicine as one of its foreign correspondents.

Rear Admiral William C. Braisted has resigned the presidency of the Philadelphia College of Pharmacy to take effect September 10, 1921.

Dr. William W. Leake of New Orleans, assistant surgeon of the Illinois Central Railroad Hospital since its founding has been elected superintendent of the Charity Hospital to succeed Dr. Stephen W. Stafford, resigned.

Colonel Homer Folks has been appointed by Governor Miller to succeed himself as member of the Public Health Council of New York State. The term of office is six years.

Gifts and Bequests.—The will of Henry R. C. Watson of Brandon, Vt., who died recently in Paris, bequeathes $36,250 to Roosevelt Hospital, New York, for a free memorial bed, and $33,000 to St. Luke's Hospital, New York, for a free bed.

By the will of the late Adelaide K. Carruth of Philadelphia the sum of $10,000 is bequeathed to the Philadelphia Home for Incurables.

A tract of land at Ridgeway, Pa., has been given to the Philadelphia College of Pharmacy by the H. K. Mulford Company for a botanical garden.

Medical Society Elections.—THE AMERICAN GYNECOLOGICAL SOCIETY, at its annual meeting held in Swampscott, Mass., June 2-4, 1921, elected the following officers for the ensuing year: *President*, Dr. George Gray Ward, Jr., New York; *First Vice-President*, Dr. Barton Cooke Hirst, Philadelphia; *Second Vice-President*, Dr. W. P. Manton, Detroit; *Secretary*, Dr. Arthur H. Curtis, Chicago; *Treasurer*, Dr. Brooke M. Anspach, Philadelphia; *Member of the Council for four years*, Dr. Walter W. Chipman, Montreal; *Member of the Council for one year*, Dr. Dougal Bissell, New York and Dr. Fred L. Adair, Minneapolis.

THE MEDICAL SOCIETY OF THE STATE OF NEW JERSEY, at its annual meeting held in Atlantic City, June 17, 1921, elected the following officers for the ensuing year: *President*, Dr. Henry B. Costill, Trenton; *Vice-Presidents*, Dr. James Hunter, Westville; Dr. Wells P. Eagleton, Newark; Dr. Alexander McAllister, Camden; *Corresponding Secretary*, Dr. Harry A. Stout, Wenonah; *Recording Secretary*, Dr. William J. Chandler, South Orange; *Treasurer*, Dr. Archibald Mercer, Newark.

THE OKLAHOMA MEDICAL ASSOCIATION, at its annual meeting held in McAlester, May 19, 1921, elected the following officers for the ensuing year: *President*, Dr. McLain Rogers, Clinton; *First Vice-President*, Dr. J. A. Walkers, Shawnee; *Second Vice-President*, Dr. J. C. Best, Ardmore; *Third Vice-President*, Dr. L. B. Torrence, Okmulgee; *Secretary-Treasurer*, Dr. Claude A. Thompson, Muskogee.

THE MAINE PUBLIC HEALTH ASSOCIATION, which has recently filed a certificate of incorporation, at a meeting held in Augusta, June 11, 1921, elected the following officers for the ensuing year: *President*, Dr. E. D. Merrill, Foxcroft; *First Vice-President*, Dr. Henry Richards, Gardiner; *Second Vice-President*, Dr. Sylvester J. Beach, Portland; *Third Vice-President*, Dr. F. C. Thayer, Waterville; *Secretary and Clerk*, Mrs. Howard R. Ives; *Treasurer*, Dr. Ralph Whittier, Bangor; *Executive Secretary*, Walter D. Thurber, Augusta.

Obituary Notes.—Dr. EZRA BARKER POTTER of Rochester, N. Y., first assistant superintendent of the Rochester State Hospital since 1883, died on July 24 at the age of seventy-three years. He was graduated from the University of Pennsylvania in 1872. He was a member of the American Medico-Psychological Association and the Rochester Academy of Medicine.

Dr. WILLIAM K. LOUGHRIDGE of Omaha, Neb., a graduate of Lincoln Medical College in 1894, died of kidney disease on May 24, at the age of forty-five years.

Dr. EMIL FREI, a graduate of the College of Physicians and Surgeons, New York, in 1892, died at his home in Brooklyn on June 20 after a long illness, at the age of forty-nine years.

Dr. SETH C. GORDON, a former vice-president of the American Medical Association, died at his home in Portland, Me., on June 23, at the age of ninety-one years. He was graduated from Bowdoin Medical College in 1855, and for twenty years was surgeon to the Maine General Hospital. The degree of Doctor of Laws was conferred upon him by Dartmouth College in 1905.

Dr. SARAH ELIZABETH FINCH, a graduate of

the Medical Department of Cornell University in 1904, and bacteriologist to the Skin and Cancer Hospital, New York, died from heart failure following an operation on June 21, at the age of forty years.

Dr. LYCURGUS L. STATON, a graduate of New York University Medical College in 1869, died at his home in Tarboro, N. C., on July 1, at the age of seventy-two years.

Dr. JAMES B. LATIMER of Newark, N. J., a graduate of Rush Medical College, died on June 9, at the age of sixty-eight years.

Dr. SAMUEL N. A. DOWNING, a graduate of the Denver College of Medicine in 1884, and physician of the Western Pacific Railroad during its construction, died at his home in Salt Lake City on June 19, at the age of sixty-four years.

Dr. LAMSON ALLEN of Worcester, Mass., died suddenly at Amherst College on June 22, at the age of sixty-six years. He was graduated from the New York Homeopathic Medical College and Flower Hospital in 1883. He was a member of the American Institute of Homeopathy, the American Institute of Orificial Surgeons, the Massachusetts Surgical and Gynecological Society, and the Massachusetts Homeopathic Medical Society.

Dr. LOTAN CHILSON READ, a graduate of the Cincinnati College of Medicine and Surgery in 1884, died in the Michigan Soldiers' Home, June 19, at the age of seventy-six years.

Dr. JOSEPH H. POTTS of Holyoke, Mass., a graduate of Dartmouth Medical College in 1884, died on June 16, at the age of sixty-one years.

Dr. ALFRED WALTON of Bangor, Me., died at his home on May 31, at the age of eighty-nine years. He was graduated from Bowdoin Medical College in 1867. During the Civil War he served for three years in the hospital corps.

Obituary.

WALLACE CALVIN ABBOTT, M.D.

CHICAGO, ILL.

DR. WALLACE CALVIN ABBOTT, who died at his home in Chicago on July 4, was born in Bridgewater, Vermont, October 12, 1857. His early education was obtained at preparatory schools in Vermont and at Dartmouth College. He was graduated in medicine from the University of Michigan in 1885. After graduation he removed to Chicago, where he built up a large practice on the North Side, at the same time winning many friends. He early became interested in alkaloidal therapy, and not long after his graduation established the Abbott Alkaloidal Company, now known as the Abbott Laboratories, of which firm he was president.

Doctor Abbott was coauthor, with Dr. Wm. F. Waugh, of several medical books, including "The Practice of Medicine" and "Positive Therapeutics." He was, also, editor-in-chief of *The American Journal of Clinical Medicine*. He was a member of the American Medical Association, the Illinois Medical Society, the Chicago Medical Society, the American Medical Editors' Association, the American Drug Manufacturers' Association, and the American Pharmaceutical Manufacturers' Association.

Correspondence.

TREATMENT OF DIPHTHERIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your number of June 25 there is an article by Dr. Lester Curtis of Chicago on some cases of diphtheria with their treatment upon which the writer desires discussion.

The cases described by Dr. Curtis, who disavows opposition to antitoxin, have been treated by him since 1890, and apparently his method of treatment continues to this day. It is to be inferred that antitoxin is not being given to his patients, although it is not so definitely stated. The local use of solutions of bichloride in the treatment of diphtheria was practised many years ago at the Willard Parker Hospital in New York City both before and after the days of antitoxin, but has long since been discontinued, since no evidence of bactericidal power of the solution was forthcoming. In my opinion a hot normal saline solution introduced under low pressure into the nostrils and later into the pharynx is useful in removing membrane, mucus, pus, and broken-down tissue, and possibly in promoting restoration of the tissues to normal. Forcible injection of any solution into the nares creates the danger of introducing products of inflammation, diphtheria bacilli, and pyogenic organisms into the Eustachian tubes and setting up middle-ear disease. It is more than questionable whether bichloride solution of any strength in the presence of mucus and pus by which the bacteria are surrounded can have any pronounced bactericidal effect. Furthermore, during the time in which attempts are being made to kill diphtheria bacilli the blood of the patient is filled with toxins, constantly exercising destructive influence on the nerves and internal organs and calling for immediate neutralization by antitoxin. Whatever adjuvant treatment may seem best there is only one basic treatment for every case of diphtheria, and that is antitoxin given in sufficiently large doses and as early as possible in the disease. The physician who advocates any substitute for this treatment is trifling with human life, and the doctrines set forth by him in the medical press in my opinion are a menace to the public health.

I have written frankly in this matter, as it is a matter of some surprise to me that your columns should be open to medical suggestions which savor of a by-gone age.

M. NICOLL, JR.,
Attending Physician, Willard Parker Hospital;
Deputy Commissioner of Health.

IODINE LOCALLY IN TONSILLITIS AND DIPHTHERIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I have just read in your June 25 number an article on the treatment of diphtheria by the use of a 1:2000 solution of bichloride of mercury by irrigation of the affected parts every two or three hours. The article is worth while reading and the treatment is worth while trying. As diphtheria is a bacterial infection of the mucous membrane of the nose

and throat, it is reasonable to believe that antiseptics that are strong enough to kill the bacteria before the tissues are invaded by them will cure or abort the disease by inhibiting the growth on the surface and preventing the formation of a false membrane. Even if such treatment does not arrest the disease at once, it prevents the extensive formation and absorption of the toxins which constitute the chief danger. About twenty-five years ago I began to treat tonsillitis by the application of tincture of iodine when the disease was just beginning, while the infection was still on the surface and had not penetrated deep down into the crypts of the gland. I found that one or two applications a day in the first day or two of the disease would often arrest its progress. It should be applied thoroughly twice a day; but when the tonsil shows symptoms of pus formation the application should be stopped as it can do no more good.

Some twenty years or more ago I was faced with a number of cases of diphtheria in one family. There were five cases in children and one in a young man of twenty years. I treated the latter with iodine; the other cases were treated with antitoxin. The young man, when I first saw him, had what promised to be a very severe type of the disease, the neck being greatly swollen; but he suffered less than the others from the symptoms of intoxication, there evidently being less absorption of poison from the throat, which was sterilized twice a day with the iodine. If the pure tincture is too strong it can be diluted to half strength.

It is a good plan to use small doses (3000 units) of antitoxin two or three times a day, for the very large doses are not needed when the iodine applications are used. I have seen some severe reactions and some deaths in diphtheria that I believe would not have occurred had not very large doses of antitoxin been given. If the tincture of iodine has been applied thoroughly, in a severe case 10,000 units may be given as an initial dose, repeated if necessary in six or eight hours. But doses of 20,000 to 50,000 units are too large and are likely to cause a severe anaphylactic reaction in individuals who are sensitive to foreign proteins.

I hope this note may lead to a more extensive use of iodine locally in various dilutions in the treatment of tonsillitis and diphtheria, applied early in the disease when the soreness first begins.

JAMES G. KENNEDY, M.D.

ELK CITY, KAN.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, June 15, 1921.

The Report of Viscount Cave's Committee on the Hospitals.—The long awaited report of the Parliamentary Committee under the chairmanship of Viscount Cave, appointed to investigate into and submit proposals for the financial rehabilitation of the hospitals of this country has just been published. Their main recommendations, which are on the lines foreshadowed in a previous letter, may be summarized as follows: (1) That a Hospital Commission for Great Britain should be set up by the Ministry of Health. (2) That voluntary hospital committees should be formed in each county or county borough, the King Edward's Hospital Fund to act for London. (3) That Parliament should be asked to sanction a temporary grant of £1,000,000 for 1921, to be administered by the Hospitals Commission, grants to be made normally on the recommendations of the local voluntary hospital committees. (4) That a further grant may be required in 1922, but no Government assistance should be promised beyond that year. (5) That the Hospitals Commission during the two years may recommend grants, not exceeding £250,000 in 1921-22, for extension and improvement of hospitals, subject to like contributions being made from private sources. (6) That arrangements should be negotiated through the voluntary hospitals committees for the utilization of vacant beds in poor law infirmaries. (7) That County Councils should be empowered to contribute to the expense of Voluntary Hospital Committees. (8) That failing the provision in the National Insurance Acts of a "hospital benefit," the Courts should be authorized to award to hospitals compensation under the Employers' Liability and Workmen's Compensation Acts. (9) That local authorities should be authorized to pay the cost of treatment in hospitals of persons in their employ. (10) That the payment from technical education funds of grants for the training of nurses should be considered. (11) That provision should be made for obtaining and tabulating returns of cases treated in hospitals. (12) That all contributions by employers to hospital funds should be allowed as deductions from profits for income tax purposes. (13) That where the payment to a hospital of a testamentary gift of residue is delayed for more than a year, the hospital should be authorized to claim repayment of income tax. (14) That legacy and succession duty on testamentary gifts to hospitals should be remitted.

The chief characteristic of the report is the emphasis laid by the committee on their belief in the value of the voluntary system. As for the existing financial position of the hospitals, of which it is stated there are in Great Britain 952, containing 52,194 beds, it is admitted the receipts have not fallen off, indeed they have increased; but the cost of provisions, drugs, dressings, fuel, and labor has grown to such an extent that it far more than counterbalances the increase of income. There are indications that the cost of food, drugs and dressings, which is already falling, should show a marked reduction before the end of the year; but as to fuel the position is doubtful, and it is not anticipated that there will be any substantial reduction in the cost of nursing and domestic staffs. Under these conditions it is estimated that unless some remedy is found there will be deficiencies in the present year in respect of the hospitals in the whole of Great Britain, including London, amounting to not less than £1,000,000, and this without any provision being made for the necessary extensions and improvements. The position thus disclosed appears to involve danger to the whole of the existing hospital system. Two of the large London hospitals, King's Cross and the London, have quite recently closed some of their beds owing to lack of means, and others have indicated their intention to take a similar course. And if any considerable number of hospitals should close down, the shortage of accommodation would be such that the public would be

compelled to step in and supply the deficiency, and the position of the hospitals throughout the country would be imperiled. It has been suggested that liability for the hospitals should be taken over by the state or thrown upon the rates, or at least that a regular yearly grant in aid should be made from one of these sources. In the view of the committee either proposal would be fatal to the voluntary system. The question is then asked, Is the voluntary system worth saving? The answer given is that in the opinion of the committee it is. If that system falls to the ground, hospitals must be provided by the public and the expense of so providing them would be enormous. They must then be carried on without the aid of the voluntary subscriptions and donations estimated at not less than £3,000,000 a year, and presumably without the income, about £1,000,000 a year, from endowments which were given to support voluntary hospitals only. Although convinced that state aid is imperative to save the hospitals from disaster, the committee are also firmly of opinion, first, that the assistance should be temporary only, and that it should be clearly understood that it will not be continued beyond a limited period which may be fixed at two years; and, secondly, that no grant should be made except to a hospital which is able to show that it is taking all steps which are open to it to reestablish its financial position and that it has a fair prospect of so doing before the end of the period of probation. The committee conclude as follows: In recommending some temporary assistance from public funds, it may be pointed out that the state is indebted to the voluntary hospitals for the services which they have rendered during the war in the treatment of wounded soldiers. It is true that most, if not all, voluntary hospitals which admitted military patients received a capitation grant from the War Office. But this grant in no way covered the full cost of maintenance and the Committee of King Edward's Fund informed this committee that their accountants had calculated that the aggregate War Office payments to the London hospitals alone fell short of the total cost of maintaining and treating the military patients by £530,000. It is probable that the grant suggested for 1921 will not of itself be sufficient to enable the hospitals to tide over the crisis, and that a further grant will be required in 1922. But the committee think that it should be made clear that Parliament will not consider itself under any obligation, express or implied, to continue the grant beyond the latter year, and that the responsibility for maintaining any voluntary hospital after that time will rest wholly upon those who have the charge of the institution.

International Conference on Tuberculosis in London.—The next International Conference on Tuberculosis will be held in London at the Institution of Civil Engineers, Westminster, from Tuesday, July 26, to Thursday, July 28, inclusive. The National Association, which represents Great Britain and Ireland on the Council of the International Union Against Tuberculosis, has decided to merge its Annual Conference in the International Meeting and will act as host to the International Union. The President of the International Union for the current year is Monsieur Léon Bourgeois, President of the French Senate, who will be succeeded on the occasion of the Conference in London by Professor Sir Robert Philip of Edinburgh. Addresses will be given at the opening meeting of the Conference by Monsieur Léon Bourgeois, President of the French Senate, and Colonel George Bushnell, United States Army Medical Corps. The subjects for discussion are: (1) The Modes of Diffusion of Tuberculosis Throughout the Races of the World, to be opened by Professor Calmette, Pasteur Institute, Paris. To be divided as follows: (*a*) Frequency of tuberculosis among civilized people. Its rarity among savage or nomadic races. (*b*) Number of persons infected at different ages of life in crowded centers and in rural areas. (*c*) Sources of tuberculous infection, expectoration, discharging tuberculous lesions, milk. (*d*) Contagiousness of latent lesions. Discharge of bacilli by natural excretory channels, intestine, kidney, mammary gland. (*e*) Dissemination of tuberculous infection by apparently healthy bacilli carriers. Preventive measures against the speed of infection. (2) The rôle of the medical profession in the prevention of tuberculosis, to be opened by Sir Humphry Rolleston, followed by Sir George Newman, Chief Medical Officer, Board of Education and Ministry of Health. The Right Hon. the Lord Mayor of London will give a reception in honor of the International Union, at the Mansion House, July 26. Other social functions and visits to institutions of special interest are being arranged. A fee of one guinea per representative will be charged. The secretaries are Dr. Leon Bernard, University of Paris; Sir Arthur Stanley, Chairman of Council, National Association for the Prevention of Tuberculosis; Dr. J. J. Perkins, Hon. Secretary, National Association for the Prevention of Tuberculosis, 20 Hanover Square, London, W. C.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 30, 1921, clxxxiv, 26.

1. A Mechanical Explanation of the Suffering Which Is Associated with Prolapse of the Uterus. George M. Garland.
2. The New Sargeant Body-Test. George Van Ness Dearborn.
3. Goiter. Joseph Stanton.
4. The A B C of Radium. Ernest M. Daland.

2. The New Sargeant Body-Test.—George Van Ness Dearborn says that while strength and functional capacity of a part usually increases with the size of that part, those engaged in making physical measurements of men by the thousands soon learn the limitations of the information which comes from this source alone. The new Sargeant body-test may be considered as a momentary try-out of one's strength, speed, energy, and dexterity combined, and, in the writer's opinion, furnishes a fair physical test of a man and solves in a simple way his unknown equation as determined potentially by his height and weight. The new test is made by having the individual to be tested stand under a cardboard disc, or paper box cover, about twelve inches in diameter, held or suspended from ten to twenty or more inches above his head. He is then requested to bend forward, flexing the trunk, knees and ankles, and then, by a powerful jump upward, straightening the legs and spine, to try to touch the cardboard disc with the top of his head. Swinging the bent arms forward and upward at the time the legs, back and neck are extended, will be found to add to the height of the jump. When the disc has been placed at the highest point above the head that can be just touched in jumping, this height is measured. The difference between this height and the total stature is, of course, the

height actually jumped. If, then, the total weight be multiplied by the height jumped, and the product be divided by the total height of the person in inches, the result will give a fair index of the effort made in the smallest number of figures. This is an advantage in making a test and handling the data for statistical purposes. This stunt tests the muscles of the feet, calves, thighs, buttocks, back, neck, anterior deltoid, chest and biceps. These are the muscles used in all sorts of athletic sports, setting-up exercises, etc., and in the active industries. For this reason the writer believes it should precede any other all-round physical test in basic value. It is urged that the test be given a trial in order to set the actual status of this new index of personal efficiency.

New York Medical Journal.

July 6, 1921, cxiv, 1.

1. Co-operation in Endocrinology as an Introduction to Research on the Morphological Constitution. J Aug. Hammer.
2. The Relation Between the Adrenal Cortex and Sexual Development. Knud H. Krabbe.
3. The Problem of the Adrenals. E. Gley.
4. Evolution from Status Thymicolymphaticus. Walter Timme.
5. Endocrine Dyscrasias in the Production of Epileptic States. Joshua Leiner.
6. The Endocrines in Everyday Practice. Charles E. DeM Sajous.
7. Endocrine Tropisms. D. M. Kaplan
8. A Study of High Blood Pressure in Women from the Endocrine Point of View. Jacob Gutman.
9. The Endocrines as Factors in the Causation and Treatment of Dysmenorrhea. William V. P. Garretson.
10. Radium and X-Ray Treatment of Hyperthyroidism. C. Augustus Simpson.
11. Some Ophthalmological Implications of Endocrinology. Percy Fridenberg
12. The Clinical Value of Basal Metabolism Determinations in Diseases of the Thyroid Gland.
13. The Relation of Endocrine Disturbance to Tinnitus Aurium J. Coleman Seal.
14. Progressive Systemic Deafness as an Endocrine Syndrome. James G. Callison.
15. The Effect of Pituitary Extract on the Rate of Urine Formation. R. McBrayer.

1. Cooperation in Endocrinology.—J. Aug. Hammer believes that the opinion sometimes expressed that gross human morphology is a finished chapter of biology is not correct and tries to lay down some lines of advance for it in the field of endocrinology. It is not merely sufficient to establish the size of an organ—its weight. To attain a real insight into the conditions of a separate organ for the present purpose we need the most thorough morphological—numerical—analysis of it with regard to its various structural regions, if possible, right to the cellular units. We must first establish norms for the various endocrine organs. Thus, for example in the hypophysis, with accurate elimination of the connective tissue, the amount of each of the three principal portions ought to be ascertained. In the anterior portion the number of the different cell types, in the intermediate portion the number and size of the cysts with and without colloid should be approximately settled. In the thyroid the weight of the true parenchyma with deduction of the connective tissue is to be ascertained; again in the parenchyma the amounts of the trabecular and adenomatous territories, respectively, should be fixed apart from the acinar portion; and in the last mentioned part the number and part of acini with and without colloid should be calculated. In the adrenals the quantity of the cortex and the medulla, as well as the different zones of the cortex, requires to be expressed numerically. A knowledge of the approximate percentage of lipoids and adrenine in the organ would be of the greatest consequence for estimating the state of function of an individual organ. After outlining further fields for investigation in other glands of internal secretion Hammer outlines a program of work having for its aim the attainment of this knowledge. He thinks it desirable that a central body with great authority and furnished with adequate material resources should arrange for the appointment of different groups of specialists who would have to work out and test suitable numerical methods for each of the endocrine glands and who should superintend the collection of the necessary material of organs and its distribution to the various groups of workers. Our progress in endocrinology depends upon putting it in the light of the problem of constitutional anatomy in general.

4. Evolution from Status Thymicolymphaticus.—Walter Timme points out that never has any real attempt been made to trace the progress of status thymicolymphaticus through the developmental years to adult life and to mark its metamorphosed characteristics and the attempt of the individual to compensate for its disturbances. In the past ten years he has examined many hundreds of cases of status thymicolymphaticus in all stages of development including adult cases, in whom the early history gave indubitable evidence of such disturbance. The first consideration in these cases in the difficulty of adaptation to environment is the outstanding fatigue. This is due to several factors—the adrenal insufficiency, the low blood sugar content, the low alkaline reserve and low blood and pulse pressures. There is one tissue—independent of adrenalin—to increase blood pressure and sugar content, and that is the pituitary body. A study of case histories reveals two groups of status cases, one, by far the larger, in which the sella turcica on *x*-ray examination is found to be small and enclosed; and the other, in which the sella turcica is presumably normal in size and conformation. The symptomatology in the two groups is different in important particulars. In the small enclosed sella group there is always associated with the fatigue states headache. It is a headache which may be produced by any factor which will stimulate the pituitary gland. After one or two or three years of such recurring headaches, blood pressure, pulse pressure and sugar content are on a higher level, and the *x*-ray shows enlargement and erosion of the pituitary. Skeletal growth is abnormal. In other words, there is a compensatory process inaugurated automatically, which has served to overcome many of the symptoms of disability of the status case. As time progresses other symptoms of pituitary primary activity, and other glandular activity secondarily, begin to present themselves. By means of *x*-ray examinations of the chest and skull information may be obtained as to the patient's whereabouts in his progress to complete compensation. In those cases in which the sella shows much erosion with gradually increasing efficiency on the part of the patient and a diminution of headache, no treatment at all is indicated. But where the effect of compensation is not apparent, and the sella remains small and enclosed, then pituitary medication is essential.

15. The Effect of Pituitary Extract on the Rate of Urine Formation.—R. Brayer has made observations on a small series of cases which warrant the following conclusions: (1) During the first hour following the hypodermic injection of medicinal doses of pituitary extract, the urine output is markedly decreased. (2) During the same period of time the total output of urinary solids is markedly decreased, both relatively and actually. (3) During the same period of time there is a marked and constant decrease in the systolic, diastolic, and pulse pressures, and pulse rate, which decreases appear definitely related to the decrease in the fluid and solid output of the urine.

Journal of the American Medical Association.

July, 1921, lxxvii, 1.

1. Strokes in Neurosyphilis: I. Conjugal Neurosyphilis. Joseph Earle Moore and Albert Kedel
2. Principles Underlying the Treatment of Heart Disease by Exercise. Theodore B. Barringer, Jr.
3. Management of Pleural Effusions in the Course of Therapeutic Pneumothorax. Barnett P. Stivelman and Joseph Rosenblatt.
4. Aberrant Vessels in Surgery of the Palatine and Pharyngeal Tonsils: The Sigmoid or Tortuous Cervical Internal Carotid Artery and the Visible Pulsating Arteries on the Wall of the Pharynx. J. Parsons Schaeffer.
5. Malformations of the Palate. Gordon B. New and Enoch K. Hansel.
6. Esophageal Stenosis Following the Swallowing of Caustic Alkalis. Chevalier Jackson.
7. Sterilization of Closed Cavities by Lavage and Staining with Gentian Violet: Description of Technic. John W. Churchman.
8. Bronchial Cysts and Fistulas. P. K. Gilman
9. Hematemesis and Melana in Chronic Appendicitis. Anthony Bassler
10. Radium Treatment of Cancer of the Esophagus. A. E. Rockey
11. Specific Action of Atropin in Relieving Certain Irregularities of the Heart Beat. Louis Faugeres Bishop.

12. Splenectomy in Splenic Anemia and Banti's Disease. William J. Mayo.
13. Treatment of Furunculosis in Infants. Clifford G. Grulee and Cassie Belle Rose.
14. The Cure of Infantile Rickets by Sunlight. Alfred F. Hess and Lester J. Unger.

1. Studies in Familial Neurosyphilis: Conjugal Neurosyphilis.—Joseph Earle Moore and Albert Keidel. (See MEDICAL RECORD, June 11, 1921, p. 1081.)

2. Principles Underlying the Treatment of Heart Disease by Exercise.—Theodore B. Barringer. (See MEDICAL RECORD, June 11, 1921, p. 1081.)

9. Hematemesis and Melena in Chronic Appendicitis.—Anthony Bassler calls attention to instances of disease of the appendix which, perhaps for toxic reasons, can cause from slight small bleedings to intermittent frank hemorrhages of alarming amounts of blood from the gastric mucosa. Such hemorrhagic condition requires appendectomy for its permanent and complete cure. In all hematemesis cases, possibility of disease of the appendix should be considered along with other factors in which bleeding of the stomach occurs. The writer has seen fifteen cases, twelve in women averaging 27 years of age, and three in men averaging 25 years of age. In all but four there was a negative appendix history, but a frank hemorrhage history. They gave no ulcer history. Disease of the appendix as the cause of the hemorrhage was judged in all; all were operated on; all had some distinctive pathologic condition of the appendix and no gastric lesions, and all at the time of operation had the pyloric blush. Not one had a hemorrhage from the stomach after the appendectomy.

10. Radium Treatment in Cancer of the Esophagus.—A. E. Rockey believes that the total number of neoplasms of the esophagus is much larger than is generally thought, and that every case of persistent difficulty in swallowing, occurring in persons of middle age, should be subjected to a careful roentgenological examination. In order to apply radium directly to a carcinoma of the esophagus he recommends the following procedure: Fifteen to twenty feet of thread are slowly swallowed. On the following day the thread is drawn up until it is quite taut and the loop of a piano wire is threaded on it and passed through the stricture while the thread is held taut. A second piano wire, carrying a rubber catheter containing radium applicators, is then threaded on the first wire and pushed into the center of the carcinoma, and the proper dose and time treatment given. This method of treatment of cancer of the esophagus requires the cooperation of the surgeon with the roentgenologist. It is the surgeon who must accept the responsibility for the correct placing of the radium applicators. This procedure, the writer believes, offers the hope that one more fateful disease may at times have a hopeful prognosis.

12. Splenectomy in Splenic Anemia and Banti's Disease.—William J. Mayo reports that 249 spleens were removed in the Mayo Clinic up to January 1, 1921, with a mortality of 10+ per cent. Of these 249 cases, 71 were for splenic anemia of unknown origin with nine deaths and 38 for splenic anemia of known origin. Sherren, Cushing and others have called attention to the fact that after removal of the spleen for splenic anemia an occasional patient has a recurrence of hemorrhage. Of this 71 patients splenectomized for splenic anemia, eight died of gastrointestinal hemorrhage during the next ten years. Other causes for which splenectomy was performed in this series of cases were chronic sepsis, splenomegaly of syphilitic origin, splenic anemia in children, and von Jaksch's disease, chronic malaria, and chronic splenomegaly. In portal cirrhosis the spleen may play an important part in the etiology and splenectomy in properly selected cases may be of great benefit. By removal of the spleen not only is toxic material cut off from the general circulation, but also the portal blood stream is reduced by the subtraction of the amount of blood poured into the portal circulation from the spleen; this relieves the hepatic cells of a sufficient overload to permit them to function normally. In performing splenectomy in the Mayo Clinic the technique of Balfour is employed.

13. Treatment of Furunculosis in Children.—Dr. Clifford G. Grulee and Cassie Belle Rose. (See MEDICAL RECORD, June 25, 1921, p. 1116.)

The Lancet.

June 11, 1921, cc, 24.

1. Lettsomian Lectures (Abridged) on Surgery of the Lung and Pleura. Lecture II. Treatment of Wounds of the Thorax During the War of 1914-1919. G. E. Gask.
2. The Relation of Heart Disease and Pregnancy. Section II. James Mackenzie.
3. The Schick Reaction and Diphtheria. Prophylactic Immunization with Toxin-Antitoxin Mixture. A. T. Glenny, K. Allen and R. A. O'Brien.
4. Post-War Neurosis. S. Herbert.
5. Hippuric Acid Synthesis as Regards the Functional Condition of the Kidney. P. L. Voille.
6. The Evil Effect of Excess of Protein on Milk Secretion. Gladys Annie Hartwell.
7. Alpinism. Joseph Barcroft.

5. Hippuric Acid Synthesis as Regards the Functional Condition of the Kidney.—P. L. Voille states that he wrote in a letter published in the *Lancet* of April 17, 1920: "Hippuric acid elimination is profoundly influenced by diet. Hence it is necessary to base a test on conditions not dependent on the intake of food." The normal amount of hippuric acid having been estimated, the patient is given a dose of 0.50 gm. of glycocol and 50 gm. of benzoic acid. From the time of taking the doses the total amount of urine is collected during twenty-four hours. The analysis should show an excess over normal of about 0.74 gm. for twenty-four hours. Since the normal output for a healthy subject is about 0.40 gm. the figures one would expect to find are somewhat as follows: 1.14 gm.—that is, 0.40 gm. for normal, and 0.74 gm., the amount synthesized from the benzoic acid and glycocol given. When the figure is lower it may be asserted that the hippuric function is abnormal, and that probably there is some renal parenchymatous disorder. Voille summarizes his work as follows: 1. The arterial hypertension is fairly closely connected with the renal condition so far as it has been possible to discover that condition by testing the hippuric acid synthesis in the cases under observation. 2. The azotemia, chloridemia, and albuminuria are evolved by crises. The modifications observed in the hippuric acid synthesis appear to be rather the reflection of functional parenchymatous disturbances that are capable of gradual modification. 3. The hepatic disturbances, since they are not accompanied by renal disturbances, fail to effect any modifications in the hippuric acid synthesis, which appears to be purely of renal origin. From the point of view of hydrology these findings may explain the results obtained in cases of arterial hypertension by means of treatments by diuretic waters which act energetically on the renal parenchyma. For instance, in the course of the Vittel treatment one frequently sees not merely a persistent lowering of the maximum tension—a result easily obtained by means of other treatments—but at the same time a simultaneous lowering of the minimum tension which alone is of any value. On the other hand, the writer has noted that diuretic waters favor the production of hippuric acid, exciting the renal parenchyma, sometimes to such an extent as to double the renal output.

6. The Evil Effects of Excess of Protein on Milk Secretion.—Gladys Annie Hartwell states that in a recently published investigation it was found that adding a quantity of caseinogen to the diet of a nursing rat caused the baby rats to die while the mother remained in apparently good health. This extraordinary result might have been due either specifically to the caseinogen, or to the fact that excessive protein was being given to the mother. To settle this point other caseinogens were substituted for the caseinogen, and in no case were the litters normal; many, if not all, of the babies died. The few which survived the lactation period were not successfully weaned, and lived only a few days after being separated from the mother. The young rats had fits, exhibited extensor and contractor spasms, and just before death extreme exhaustion was evident. Postmortem examination showed the stomach and intestines to be almost devoid of contents. The intestinal walls were thinner than in a normal animal of the same age. While it is extremely unlikely that a nursing woman ever takes a dietary containing as large a proportion of protein as was given in these experiments, if one may argue from rats to human beings, it is clear that excessive proportions of protein in the mother's diet may lead to metabolic and nervous trouble in the suckling.

British Medical Journal.

June 11, 1921, i, 3154.

1. A Post-Graduate Lecture on Lumps in Children: Their Recognition, Origin, and Treatment. John Fraser.
2. Residual Vaccines: A New Technique for Their Preparation, with a Description of Some of the Properties of the Bacterial Residue. C. E. Jenkins, with Clinical Notes by C. C. Heywood, A. Corsar Sturrock, and G. J. Langley.
3. Encephalitic Lethargica. G. S. Haynes.
4. Ocular Symptoms in the Slighter Symptoms of Encephalitis Lethargica. Ransom Pickard.
5. A Note on New Growth and a Reducing Substance in the Blood. A. S. Leyton and H. C. Leyton.
6. A Path of Toxins to the Central Nervous System. Martin Button.

2. Residual Vaccines.—C. E. Jenkins describes a new technique for the detoxication of vaccines based on the principles of Thomson's method, which depends upon the fact that alkaline solutions dissolve organisms and their toxins while mineral acids precipitate the organisms but retain the toxins in solution, and upon the method of H. R. Dean, who has shown that a suspension of virulent organisms can be detoxicated by the action of eusol or hydrogen peroxide in weak solution. Residual vaccines made from a mixed suspension were used in over 200 cases of chronic bronchitis treated by different clinicians, with very satisfactory results. There have been failures, but the results on the whole have been better than if the cases had been treated with the older type of vaccine. In summarizing his investigation and results, Jenkins says it is not possible, short of gross destruction, to detoxicate completely a suspension of pathogenic bacteria. The residual toxic substance is not affected by a temperature of 120° C., it is not destroyed by weak solutions of oxidizing agents, but it is precipitated by mineral acids. It is possible to remove from a suspension of organisms all the thermolabile toxins and endotoxins. Thomson's method, Dean's method, or that of the author, are equally efficient. It is probable that the original toxic body is an integral part of the bacterial protoplasm. Residual vaccines are highly efficient therapeutic agents. They retain their maximum efficiency indefinitely. Most cases of uncomplicated chronic bronchitis respond to residual vaccines.

5. A Note on New Growth and a Reducing Substance in the Blood.—A. S. Leyton and H. G. Leyton, led by the fact that bacteria with filterable spores which can be isolated from tumors only thrive well on media containing sugar, have examined the blood sugar content of patients suffering from malignant disease and have found the reducing substances invariably increased. The picric acid method was used for testing the blood, hence the figures do not represent sugar alone, since other reducing substances may be included. Further, in most of the cases that have been under observation for any length of time a definite excretion of sugar in the urine (as tested by Nylander's fluid) has appeared from time to time. So consistent have been the results that the writers have recently felt able to rely on this test to differentiate between simple and malignant cases. They suggest to those working with simple inoculable overgrowths that they try the effect of feeding the inoculated animals on sugar.

Southern Medical Journal.

May, 1921, xiv, 5.

1. Etiology and Diagnosis of Nephritis. J. P. McElroy.
2. The Importance of Eye Examinations in Nephritis. Adolph O. Pfingst.
3. The Changes Induced in the Kidney When an Acute Injury Is Superimposed on a Chronic Glomerulonephropathy: A Functional and Pathological Study. Wm. deB. MacNider.
4. Nephritis in Childhood. L. R. DeBuys.
5. Nephritis and General Surgery. Montague L. Boyd.
6. The Treatment of Chronic Nephritis. W. H. Witt.
7. A Consideration of the Clinical Features of Epidemic Encephalitis. Lewis M. Gaines.
8. Erysipelas in Childhood. J. H. Mason.
9. The Intraperitoneal Use of Dextrose and Normal Salt Solution in the Treatment of Marasmus and the Severe Type of Malnutrition. H. Leslie Moore.
10. Supervision of Pre-School Children and Physical Education. Frances Sage Bradley.
11. Acute Diffuse Septic Peritonitis. A. L. Blesh.
12. Management of the Surgical Kidney. R. L. Sanders.
13. Hemorrhage from the Kidney. H. A. Fowler.
14. The Necessity for the Cooperation of All Railway Surgeons Associations. J. W. Palmer.
15. Primary Carcinoma of the Trachea. E. B. Cayce.
16. Report of a Case of Extra-Dural Abscess Complicating an Acute Left Frontal Sinusitis. W. W. Pepple.

8. Erysipelas in Childhood.—J. H. Mason analyzes fifty-three cases which were admitted to the wards of the Harriet Lane Home of the Johns Hopkins Hospital over a period of six years. They were of average severity and were selected because the observations upon them were fairly complete. A review of these cases indicates that erysipelas occurring in young children is an exceedingly serious disease, and that its danger is in direct proportion to the youth of the patient. The largest mortality occurs in the first half year of life, even when the cases of socalled erysipelas of the newborn are eliminated. The incubation period is variable; the average is about five or six days. The symptoms are those of local infection and general constitutional intoxication. Leucocytosis is a prominent feature. A low count would indicate decreased resistance. Both sexes are equally susceptible. There is probably but little difference in susceptibility between the black and white races. The negro seems to be less resistant to the infection. The disease occurs in children throughout the year, but is more frequent from October to June. The incidence of the disease depends largely upon the frequency of the presence of infection and the resistance of the patient following the initial lesion. Any form of injury which breaks the continuity of the skin may form a portal of entry. The intensity of the course of the illness is somewhat independent of the extent of the area involved and generally an advancing erythema and infiltration mean an increase in the constitutional symptoms. The duration of the disease may vary from three days to three weeks. The average is about twelve days. A fatal termination is usually the result of a general septicemia, pneumonia, or involvement of the meninges or the peritoneum. The mortality rate in the whole series was 28 per cent., including fifteen children over two years old, in whom the rate was only 6 per cent. Of the twenty cases between two and six months, twelve died, a death rate for that period of 60 per cent. The disease is best prevented by avoiding injury of the skin and in being scrupulously careful in the treatment of these injuries when they occur, and by the prevention of irritation of the skin through infectious discharges.

Long Island Medical Journal.

April, 1921, xv, 4.

1. Community Interests from the Viewpoint of the Medical Library. F. H. Garrison.
2. Gall Bladder Disease. Russell S. Fowler.

2. Gall Bladder Disease.—Russell S. Fowler, in looking over the records of his operations for gall bladder disease, finds 608 cases in which the pathology of the lesions encountered is sufficiently and definitely described to permit the division of the cases, according to the lesion, as follows:

	Total	Recovered	Died
Acute cholecystitis	230	206	24
Chronic cholecystitis	331	330	1
Acute cholecystitis and acute pancreatitis	6	4	2
Chronic cholecystitis and chronic pancreatitis	30	30	0
Carcinoma of the gall bladder or bile ducts	26	15	11
Carcinoma of the common duct and pancreas	8	5	3
Curiosities of the gall bladder—Absence of gall bladder	1	1	0
Intestinal obstruction from gallstone	3	2	1
Syphilis of gall bladder	1	1	0
Choledochus cyst	1	0	1
Ecchinococcus disease of gall ducts	1	1	0
	608	565	43

Unfortunately many medical men do not seem to grasp the necessity for an early operation in gall bladder disease, which, in view of the pathology of the disease and its proved progressive nature, the surgeon feels he may logically request. On the contrary, many cases are sent to the surgeon when the disease has

advanced to a stage where relief is possible but not complete cure. In this respect the history of appendicitis of a generation ago and of duodenal ulcer of a decade ago is being repeated. No one now thinks of any method of treatment for appendicitis other than operation, nor of treatment other than surgical for duodenal ulcer, once its chronicity is established. Yet gall bladder disease continues to be treated medically in spite of the fact of its chronic progressive nature and the well proven fact that such an infected focus is responsible for so many complications.

Annals of Surgery

May, 1921, lxxiii, 5.

1. The Results of Surgical Treatment of Epithelioma of the Lip. Walter Ellis Sistrunk.
2. Salivary Calculus in an Acromegalic. Chester Jones.
3. The Treatment of Acute Suppurative Pleurisy. James Morley Hitzrot and W. M. Weeden.
4. Duodenal Ulcer in Infancy. Dudley White Palmer.
5. Linitis Plastica. Anthony Harrigan.
6. The Use of the Duodenal Tube in the Preoperative Study of the Bacteriology and Pathology of the Biliary Tract and Pancreas. Allen O. Whipple.
7. Acute Intestinal Obstruction Due to Strangulation of a Loop of Small Intestine by Meckel's Diverticulum. William B. Coley and Stanley T. Fortuine.
8. Chronic Duodenal Obstruction with Duodeno-Jejunostomy as a Method of Treatment. Edward Leland Kellogg and William A. Kellogg.
9. Symphysiotomy as an Aid to the Removal of Cancer of the Prostate. George Walker.
10. The Secretory Pressure of the Kidneys as an Index of Pathologic Conditions. George Walker.
11. Sliding Hernia of the Ureter. George G. Ross and Kempton P. A. Taylor.
12. Dislocation of the Semilunar Carpal Bone. Isidore Cohn.
13. Injury to the Bile-Ducts, and Methods of Repair. Horatio B. Sweetser.

1. The Results of Surgical Treatment of Epithelioma of the Lip.—Walter Ellis Sistrunk made the study reported in this paper with the idea of determining the results of a number of years following operations for cancer of the lip. He recently reviewed in detail the case histories of the patients operated on in the Mayo Clinic during 1912, 1913, and 1914. Only the patients who had primary operations in the Clinic were considered, in order that the possibilities of the operation in primary cases might be ascertained. In many of these patients, however, the growth had been removed or partially destroyed on one or more occasions by the use of pastes or caustics. After dropping from the series the cases of recurrence, 178 remained. In two of these an incomplete operation was performed; that is, these two cases were, therefore, discarded from the list studied. In thirty-four cases it was impossible to obtain data after operation; these were also dropped from the list, leaving 136 cases which form the basis of the study. Review of these cases shows that the percentage of cures following operation in cases in which the glands are involved are much lower than in cases in which operation was performed before the glands became involved. The percentage of from five to eight-year cures when the glands were involved is almost identical with that obtained in cases of cancer of the breast when the glands are involved. The percentage of local recurrences seems too large. This probably could be avoided to a certain extent by a wider removal of the growth and the use of radium after operation. Rapidly growing epitheliomas, and especially those growths with a marked inflammatory reaction surrounding them, are best removed with the actual cautery without attempting to perform a plastic operation at the time. In cases in which the glands have liquefied, broken down, and extensively involved the surrounding tissues no relief can be expected. Such cases are probably best treated by means of radium and *x*-ray. Treatment of the growth by means of radium and the *x*-ray without removal of the glands does not seem a radical procedure. Patients have been seen with an extension of the malignancy later into the glands while the primary lesion remained cured. There is no doubt that radium often destroys the growth, but such a procedure is almost identical with the methods in which the growth is removed with pastes or by local excisions. Although there may be no local recurrence of the growth following the latter procedures, in about from 20 to 30 per cent. of the cases metastasis occurs later in the submaxillary and submental glands.

3. The Treatment of Acute Suppurative Pleurisy.—James Morley Hitzrot and W. M. Weeden, to determine what had been the result obtained by the routine treatment of acute suppurative pleurisies in a civil hospital service, studied the records of the First Division at the New York Hospital, and an analysis of the cases is given in this paper. The study of 111 cases is summarized: 1. In the cases of suppurative pleurisy due to the pneumococcus proper drainage instituted early and maintained long enough produced a satisfactory cure. 2. In the cases of suppurative pleurisy due to the streptococcus there were more underlying lung conditions (abscesses, etc.) which required more varied treatment, and secondary operations were more frequent. 3. The average stay in the hospital for the uncomplicated cases in this series was thirty-two days. This includes the case due to the *Bacillus typhosus*, but not the deaths, the unsatisfactory results, or the cases submitted to secondary operations.

Le Presse Médicale.

April 27, 1921, xlix, 34.

Paradoxical Hyperalbuminose in the Blood of Cancerous Subjects.—Loeper, Forestier, and Tonnet call the increased percentage in the blood of the cancerous paradoxical because it seems incompatible with the cancerous cachexia. In anemia, such as develops in the cancerous, there should be hypoalbuminosis. Again the appetite and food utilization seem to render impossible a retention or accumulation of protein. The increment stands in direct relation to the size of the tumor mass and if the growth is small the increment is small, and vice versa. A malignant growth may be likened to a hastily constructed building, erected without plans. There should be some provision for drainage, such as is seen in a physiological gland which the cancer roughly resembles. The vessels and lymphatics are very poorly constructed, and the products of disintegration readily find their way into them, giving rise to blood changes, cachexia and, of course, metastatic deposits. Comparison of cancerous growths with glands of internal secretion is difficult because of the small size of the latter. The tumor cells which gain the circulation and either dissolve in the blood, or cause mechanical embolism or actual metastases, must add their products to those of the primary growth. The normal content of blood serum in albumin is rarely more than 75 to the thousand, and the authors who have made many analyses of cancer blood have found values up to 110 per 1000—this in a tumor of the kidney which weighed almost 7 pounds. The important fact was discovered that the increase lies wholly in the blood globulin, the serin being actually diminished. The serin-globulin ratio is almost inverted in cancerous blood. The blood state is therefore a hyperglobulinosis, and the excess can only come from the tumor itself. In other words, the serin is, as one would expect, reduced, along with other blood constituents, while the tumor mass gives up globulin to the blood. The ratio of the two albumins in the tumor is 2 to 1 in favor of globulin. To use a simile, the tumor may be said to expectorate into the blood. As might be expected after ablation of a large tumor mass, the per cent. of globulin in the blood falls. Tumor albumin is toxic, while blood serum in the cancerous is not toxic. As far as is known no other affection produces this hyperglobulinosis. The authors touch on numerous other problems of serology in connection with the latter. The blood serum of the cancerous, while nontoxic, contains a peculiar erepsin-like enzyme, but this does not proceed from the tumor save incidentally. It is probably not specific and differs from an ordinary enzyme of the blood only in amount and activity of action. This is the enzyme which forms the subject of Abderhalden's studies in the field of serodiagnosis.

Cause of the Great War.—The cause of the great European war is to be sought, according to Jorge of Lisbon, in the collective psychology of the German people oriented in a morbid direction of delirium of grandeur and of persecution, of panteutonomania, etc. —*Il Policlinico.*

Book Reviews.

HYPERTHYROIDISM: MEDICAL ASPECTS. Vol. i, No. 1 of Harrower's Monographs of the Internal Secretions. Edited by HENRY R. HARROWER, M.D., F.R.S.M. (Lond.). Glendale, California: The Harrower Laboratory, 1921.

THIS monograph is the opener of a series on the internal secretions, hyperthyroidism having been selected apparently as the keynote in the harmony and dysharmony produced by the ductless glands in the human body. The amount of straight common sense displayed throughout is a relief and tends to establish confidence in the reader, who has perhaps been fed up on the wild theories and imaginative conclusions of the action of these glands drawn by the speculative members of the medical profession who have entered the endocrinological field.

"Many writers still insist that the origin of this disease remains a mystery, though to my mind toxemia —chemical, bacterial, endocrine, or emotional—is the real cause. Yet, as we shall shortly see, the complicated associated factors are the chief sources of difficulty." The paramount importance of focal infection is dwelt upon at length and the author looks to the nearest ports of entry of infection as among the most common avenues for production of this condition—the nose, throat, and head. "Acute infectious diseases are possible exciting causes of hyperthyroidism. I must call attention here to a fact which I have not seen in the voluminous literature on this subject—that in the history of the patient with hyperthyroidism, it is virtually the rule to find that in childhood, or later, the patient has suffered from whooping-cough, measles, mumps, scarlet fever, pneumonia, or other of the acute infectious diseases." We may remark, however, that it would be difficult to find an adult without some such history. The diagnosis of hyperthyroidism, clinical and laboratory tests, differential diagnosis, prognosis. general hygiene, hydrotherapy, drugs, and organotherapy form the several sections of this work. There is no drastic procedure recommended in the treatment, but, after a thorough discussion of the subject, the author offers his routine in the management of hyperthyroidism. This last chapter is more than interesting —it is well worth studying. If anyone labors under the impression that the author believes in the treatment of this condition only through the administration of certain amounts and certain combinations of ductless gland extracts, a reading of this work would be most advisable. A very complete bibliography is given.

LE FORAGE DE LA PROSTATE. MÉTHODE DE LUYS. Par le Dr. LOUIS ESCANDE. Mulhouse: A. Herbelin, 1921.

THIS brochure of 102 pages comprises the conclusions based on the experience gained in treating sixty-three cases of prostatic hypertrophy by the method of forage or canalization. The percentage of success was 90.4, and the degree of success is shown by the fact that in only one case in twenty was there residual urine after treatment, all symptoms having wholly disappeared. The tunneling process devised by Luys is the sole one which can be controlled directly by the operator's eye. The method by which the tissue is destroyed is either electrocoagulation or the galvanocautery, using Luys' direct vision cystoscope. The intervention is seemingly quite safe and as a rule does not make it necessary to intern the patient. It is conservative in the young subject, because the prostate is practically left intact; in general the ejaculatory ducts are respected and sexual relations continue to be physiological.

CLINICAL OPHTHALMOLOGY FOR THE GENERAL PRACTITIONER. By A. MAITLAND RAMSAY, M.D., Fellow of Royal Faculty of Physicians and Surgeons, Glasgow; Lecturer on Ophthalmology, University of Glasgow; Ophthalmic Surgeon, Glasgow Royal Infirmary; Author of Atlas of "External Diseases of the Eye," "Eye Injuries and Their Treatment," "Diathesis and Ocular Diseases," etc. With Foreword by Sir JAMES MACKENZIE, M.D., F.R.S. New York: Oxford University Press, American Branch, 1920.

THE science of medicine owes a debt of gratitude to Sir James Mackenzie for his endeavors to drag it back from the extremes of slipshod diagnoses and undue reliance on laboratory tests, and start it once more on the practical middle ground of dependence on the teaching of experience. It was at his suggestion that Dr. Ramsay undertook the preparation of this present work, which is so eminently practical and so plain spoken and simple that the careful reader cannot but profit by it when confronted by diseases of the eye in his practice. The title of the book expresses its scope. It deals not only with the diagnosis and treatment of ocular troubles, but also with their clinical significance in relation to systemic diseases.

In the chapter on Eye-strain the author pays a tribute to Dr. Gould of Philadelphia for "the forceful way in which he has written on the subject." He says that there is essential truth in the contention that low degrees of ametropia are responsible for headaches and many other nervous troubles, though he thinks that Gould and his followers weaken their position by underestimating the important part which other causes play in the origin of headaches, visual disturbances, and other functional nervous disorders.

The general practitioner, especially one whose practice is in a country district, where it is not easy to secure the help of a specialist, will find this book of the greatest assistance.

THE SEX-COMPLEX. A Study of the Relationships of the Internal Secretions to the Female Characteristics and Functions in Health and Disease. By W. BLAIR BELL, B.S., M.D. (Lond.), Gynæcology Surgeon to the Royal Infirmary, Liverpool; Lecturer in Clinical Gynæcology in the University of Liverpool. Second Edition. Price, $6.00. New York: William Wood & Company. 1921.

THIS second edition has been called for, since the first has been long out of print (the first being published in 1916), by the interest in the subject. Dr. Blair Bell presents his points ably and arranges them with logical clearness. With wide experience from the experimental and the clinical side, he makes a forceful argument, laying especial emphasis on the influence of the total secretions on the complex, rather than on the individual hormones. Since the first edition further research has amplified and confirmed the author's original conclusions. The author still in this edition confines to a brief space his consideration of the sexual psychoses and neuroses in woman. But his additions to the relationship and the interaction of the internal secretions between mind and body is a valuable presentation.

SURGERY, ITS PRINCIPLES AND PRACTICE. For Students and Practitioners. By ASTLEY PASTON COOPER ASHHURST, A.B., M.D., F.A.C.S. Associate in Surgery in the University of Pennsylvania; Surgeon to the Episcopal Hospital and to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; Colonel Medical Reserve Corps, U. S. Army. Second Edition. Thoroughly Revised. With 14 Colored Plates and 1,129 Illustrations in the Text, Mostly Original. Price, $10.00. Philadelphia and New York: Lea & Febiger, 1920.

THIS is a sound conservative treatise on Surgery, constructed on the classical plan of the three divisions of General Surgery, Systemic Surgery, and Regional Surgery, and is one that can be safely recommended to one who does not look for encyclopedic treatment of the entire subject in twelve hundred pages. All the various operations are not mentioned, though in each case one or more approved operations are described or pictured. The new edition (the first appeared in 1914) is enriched with the author's war experience and that gleaned by other American and Allied surgeons and contributed to the common fund. The most important changes are in the chapters on gunshot wounds, infected wounds, shock, and reconstructive surgery. Dr. Ashhurst does not accept all the "novelties" which our men brought home from the war—for example, Willems' plan of immediate mobilization in the case of joint wounds, which he says he has never seen successful. The Carrel-Dakin dressing receives moderate commendation, though the very real danger of eating away the sutures is noted; the author evidently prefers dichloramine-T. The book is well and freely illustrated with 14 colored plates and 1,129 text figures.

CLINICAL METHODS. A Guide to the Practical Study of Medicine. By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital, and HARRY RAINY, M.D., F.R.C.P.Ed., F.R.S.E., Physician to the Royal Infirmary, Edinburgh, with 16 Color Plates and 157 Figures in the Text. Seventh Edition, Revised Throughout. Price, $4.50. New York: Paul B. Hoeber, 1921.

THE seventh edition of a book which originally appeared in 1897 speaks well for the value attached to it by generations of medical students and their teachers. Special attention has been paid to the revision of the chapter on the examination of the heart and all has been brought to date, while the examination of the urine has had additions made and due value attached to the various processes of examination. All needed methods are included in the chapters on the eye and the nervous system, but although mention is made of radiograms in the examination of the stomach and intestines, the fact that the method of bismuth and barium meals does not fall within the scope of the book, is permitted to prevent the inclusion of valuable information as regards the margins and position of the viscera. But the book is a compend of useful information both in the wards and in the laboratory and is of handy size to carry round for study at odd moments.

SURGERY OF THE LUNGS AND PLEURA. By H. MORRISTON DAVIES, M.A., M.D., M.C. (Cantab.), F.R.S.C. (Eng.), Hon. Captain R.A.M.C. (T.) Consulting Surgeon University College Hospital, Consulting Surgeon City of London Hospital for Diseases of the Chest, Medical Superintendent Vale of Clwyd Sanatorium. Price, $10. New York: Paul B. Hoeber, 1920.

THE war added much to our knowledge regarding the surgical treatment of diseases and injuries of the chest, itself a young science in 1914, and the interest thus aroused has been maintained and furthered in this country by the excellent work done in the last three years by the American Association for Thoracic Surgery. This book should therefore be welcomed by all whose line of work lies, or is liable to lie, in this direction, and this would be the case, during peace times, especially with those whose practice is in large industrial establishments, though, of course, any surgeon may be called in occasionally to treat thoracic injuries.

The various chapters deal with the anatomy of the chest, intrapleural pressure, diagnosis and prognosis, disease of the pleura, injuries of the lungs and pleura, foreign bodies in the bronchi, gangrene and abscess, pulmonary tuberculosis, bronchiectasis, streptotrichosis of the lungs and pleura, hydatid disease of the lungs and pleural membranes, primary tumors of the lung, mediastinal dermoids, and emphysema. In intrapleural operations the author prefers the hypoatmospheric method, that is a chamber in which the air is maintained at a negative pressure while the patient breathes air at normal pressure, when it is possible to use it; but the disadvantage of size, nonportability, and expense are so great as to be prohibitive outside of a specially equipped hospital, and therefore resort must be had in most cases to hyperatmospheric pressure, but effected by means of intratrachial insufflation after the Meltzer-Auer method.

The author's style is very easy and simple, and his description of the technique in the various operations is so clear and detailed that anyone possessed of ordinary surgical experience and skill ought to be able to follow it practically. The illustrations, largely roentgenograms, are excellent, but unfortunately they are run in with the text and not printed on inset plates, necessitating the use of a highly calendered paper throughout, the glare from which is rather distressing to the eyes. The text seems to be unusually free from typographical errors. Dr. Davies has given us a good monograph, which is very valuable to the growing literature of thoracic surgery.

DIABETES. A handbook for physicians and their patients. By PHILIP HOROWITZ, M.D. Price, $2.00. New York: Paul B. Hoeber, 1920.

THE aim of the book is to effect more intelligent cooperation between doctor and patient and, while not supplanting the physician and encouraging patients to treat themselves, this being the greatest folly, it instructs patients how to prepare a varied diet on the lines laid down by the physician and also to intelligently watch results by carrying out tests which can be guarded and supplemented by the physician. For this purpose the book is simple and practical, and should be of great value to the busy practitioner. By aiding the patient to be of intelligent help, it should tend to keep the patient to his regime and thus aid in reducing the mortality of diabetes, which is one of the author's aims.

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. MACLEOD, M.B., Professor of Physiology in the University of Toronto, Canada, formerly Professor of Physiology in the Western Reserve University, Cleveland, Ohio, assisted by ROY G. PEARCE, A. C. REDFIELD, and N. B. TAYLOR, and by others. Third edition, with 243 illustrations. Price, $11.00. St. Louis: C. V. Mosby Company, 1920.

THE fact that this is a third edition within a short period of years shows with what welcome such a volume has been received by the medical profession. It is really the standard work on the application of the principles of biochemistry and experimental pathology and physiology to clinical treatment. The authors do not propose to supplant the textbooks on physiology, biochemistry and the numerous manuals on clinical methods, but to supplement these with an application of the more recent methods of examination to diagnosis and treatment. And this they have done with thorough efficiency. In this edition the section on the nervous system has been rewritten, and an account of neuromuscular physiology is incorporated with it, by A. C. Redfield. Complete changes have been made as regards the chemistry of respiration and new chapters have been added as regards the functional capacity of the heart, the therapeutic value of oxygen, the interpretation of polysphygmograms, the capillary circulation, surgical shock, and the nature of vitamines.

In the brief space of a review it is not possible to enter on a detailed criticism as to whether all subjects are dealt with adequately or whether all are included. But it may at once be said that the vast subject is very completely treated and the book has been brought thoroughly up to date, changes in technical details having been made so as to keep the volume in as handy a bulk as possible and yet bring together the constantly increasing facts. It is the standard work on the subject, and this with later editions should be increasingly welcome.

A SYNOPSIS OF MEDICINE. By HENRY LETHEBY TIDY, M.A., M.D., B.Ch. (Oxon.), F.R.C.P. (Lond.), Assistant Physician to St. Thomas's Hospital; Physician to the Great Northern Hospital; formerly Assistant Clinical Pathologist and Medical Registrar to the London Hospital. Price, $6.50. New York: William Wood and Company, 1921.

WE have seldom seen a book so packed with information as the present volume. It is almost encyclopedic in its scope. It covers the whole field of Practice, and under the title of each disease it gives a succinct summary of the etiology, bacteriology, pathology, symptoms, signs, diagnosis, complications, sequelæ, prognosis and treatment. But it gives much more than this; for it includes special chapters on such subjects as the chemical pathology of gout, carbohydrate metabolism, etc. To give an idea of the scope of the book, it may be said that typhoid fever takes up 34 pages, tuberculosis 50 pages, syphilis 16 pages, pneumonias 22 pages. The volume contains more than any of the one volume works on Practice, and yet it is only a Synopsis. The author says that the book is for those who have to revise rapidly their knowledge of medicine in general or of some disease in particular, and for the worried student whose final examination is in sight, and for the hurried practitioner from whose ken the knowledge contained herein has long passed. For all of these readers the book should prove of service. But we would add a word of warning; it is of no use to the medical student, unless he has already studied his textbook. It is in no sense a compend, and the beginner who tries to tackle this volume will either fall asleep over it or get an acute attack of mental indigestion. The special arrangement of headings, types, and indentations is on the same plan as in the companion volume on Surgery.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirty-sixth Annual Meeting Held at Atlantic City, May 10 and 11, 1921.

DR. W. S. THAYER OF BALTIMORE, PRESIDENT, IN THE CHAIR.

First Day—Tuesday, May 10.

President's Address.—Dr. W. S. THAYER of Baltimore delivered this address in which he said that this year the society had sustained the loss of two of its best-known members, Surgeon General Gorgas and Dr. Meltzer. The former, born in Alabama, educated in the University of the South, graduate of Bellevue Medical School, was for forty years a surgeon in the Medical Corps of the U. S. Army. In 1901 he was sanitary officer in Havana, and applied the biological discoveries of the Yellow Fever Commission, and rid the city of that plague. The prophylactic measures inaugurated by him at Panama made the construction of the canal possible. These were two examples of the biological principles applied to public sanitation. He died in London on an important mission to Africa.

Meltzer, a physiologist, was born in Russia, and educated in Germany. He combined his daily practice as a doctor with scientific studies as a physiologist. He felt that the life blood of medical art springs from its association with the underlying sciences. Meltzer felt that to be a doctor one must be a student, a discoverer, and an investigator, contributing something to the store of knowledge, and he exemplified this principle until the day of his death at the age of 70 years. These two men, so different in many respects, represented the spirit which brought this association together on common ground. The clinician, the physiologist, the pathologist, the chemist, had here one common bond, the advancement of medicine in its broader sense. If this association continued to fulfill the conditions of its founders, it would always consist of just such a group of students representing many special interests but united in the common study of physiology, pathology, and therapy.

Report of a Case of Disseminated Subcutaneous Sporotrichosis with Lung Metastasis.—Dr. L. M. WARFIELD of Milwaukee read this paper. Cases had been few, perhaps 100 in number, reported in this country. The organism was usually saprophytic, but sometimes pathological for man. It occurred on bark, hay, decayed vegetables, etc. Four forms could be seen: (1) Localized with chancre; (2) disseminated gummata with multiple subcutaneous nodules; (3) disseminated ulcerated, with multiple lesions simulating tuberculosis or syphilis; (4) extracutaneous, in the periosteum, eye, or internal organs. Cases reported had been from unique conditions, such as bite of a hen, of a horse, of a parrot, etc. It often started with a nodule on the finger, which was disseminated by the lymph channels. In the author's case the patient, a colored man, had followed the races as a stable boy, had had venereal disease had a swelling on the top of the right foot, which broke down, and other lesions occurred, with nodules all over the body. There was a 4+ Wassermann; leucocytes, 17,000. *Treatment:* intensive administration of potassium iodide. Patient became weaker and died. *Autopsy:* Nodule in hylum of right lung, from which and from all nodules of the body cultures were made. The organism was best grown at 37.5° C.; it was pathological for white rats and rabbits. In lung conditions the organism could be found in the sputum, the lesions closely simulating those of syphilis, and were misleading on account of the giant cells. Cases were not usually fatal. The diagnosis must be correctly made and potassium iodide administered.

Secondary Mould Infections of the Lung.—Dr. CHARLES P. EMERSON of Indianapolis made this presentation. He said that penicillium infection was not supposed to be pathological, but two cases were reported as occurring in a man of 53, and a woman of 34, both treated in sanatoria for pulmonary tuberculosis. The first patient suffered tickling of the throat, sputum contained "slugs," and he had acute spells of respiratory distress and dyspnea, but no loss of weight of strength, and no fever. His appearance suggested the last stages of fibroid tuberculosis, but the sputum continually produced mycelium and the roentgenologist, without previous suggestion, diagnosed it as mould infection of the lung. The culture always gave penicillium. Put on potassium iodide, the man did fairly well, was able to work, and had but slight respiratory distress. The second patient, a woman, 34, was sent to Colorado, although she protested she always felt well. Drs. Webb and Foster saw her. Penicillium was always found in the sputum cultures. The question was whether penicillium could be a primary invader of the lung; if it were secondary, to what was it secondary? Great caution must be taken in not confusing these cases with tuberculosis, and sending the patients to sanatoria where they might be exposed to the danger of contracting that disease. In another instance two cases of sporotrichosis were reported in one family, mother and daughter. The relation to the buckwheat crop in this case could not be disregarded.

Dr. L. G. ROWNTREE of Rochester, Minn., asked if sodium iodide had any effect in these cases? There was a tremendous difference in the toxicity of potassium iodide and sodium iodide. Many syphilographers were using huge intravenous injections of the latter. Stokes, at the Mayo Clinic, used 50 c.c. of sodium iodide intravenously, so that if there were any response to this drug in this condition the large doses would be more effective.

Dr. J. B. HERRICK of Chicago asked if Dr. Emerson noted any particular features in the *x*-ray plates; if so, what were they?

Dr. GEORGE BLUMER of New Haven, Conn., asked if they used tuberculin in those cases.

Dr. T. R. BOGGS, Baltimore, said he would like to draw attention to a very important reason for non-discovery of mould infections of the lung. They had got away from studying the sputa in gross, and it was easy to overlook massive infections in sputum, when only using the ordinary staining methods with aniline dyes. The mycelium was so distorted by the heat and fixation that it was not recognizable. The spores stained imperfectly and were supposed to be large cocci. These cases must be vastly more frequent than anyone realized. The study of black and white surface on glass, use of the loop, and study of such particles on acid carbohydrate media that would restrain growth of other organisms and permit development of the fungi, were essential points. Recognition of fungus infections in the tissues was not easy by any section or fixation method. In a gland stained with eosin one might see no evidence of mycelia, although there were many. One must pay special attention to the methods of demonstrating these infections, and must look to the bacteriologist for some serious effort to standardize the present chaotic descriptions of these organisms. Medical men did not know how to describe them technically, so that it was a matter of great difficulty, in cultivating a study of the biology of moulds, to say to which group they belonged. One must look to trained men to help one to talk intelligently about these organisms.

Dr. S. SOLIS-COHEN of Philadelphia said that in carrying out the statements of the last speaker in regard to laboratory methods, in many laboratories no matter what the sputum was sent in for, one got back the same answer: "No T. B." If the laboratory technicians were sometimes interested in what was present as well as what was absent, they might sometimes give a report: "Unknown organism." Something more than the ability to fix a culture or to stain a slide was necessary to be a technician.

Dr. W. S. THAYER of Baltimore said he had two instances of sporotrichosis under observation, which he had intended to present last year, and had not yet prepared the cases for publication. A woman came to the hospital in the fall of 1916, presenting a picture of bronchial and peribronchial obstruction and great dyspnea. They thought it was aneurysm. She showed induration at the roots of both lungs, but nothing definite in the sputum. No lues, although there was a 4+ Wassermann. She was sent to Asheville, and Dr. Miner

said it was not tuberculosis but probably due to mould infection. She returned to her physicians and was put under vigorous antiluetic treatment with arsphenamine. On return from the war the speaker found her specimens in the laboratory. The lungs showed extensive areas of firm, slaty color, and so much sclerosis that it seemed as if the bronchi were grasped in a vise. In the tissue was found the sporotrichum; it was cultivated, but the group was not determined. In the hospital examination of the fresh sputum was neglected, which was just as important as examination of fresh blood, and neglect of this point accounted for failure to recognize cases. In another case, the man showed acute respiratory infection, with some remarkable subcutaneous nodules, like lipomata, and afterward seeming like subcutaneous gummata. They suspected sporotrichosis. It was not lues. He had been treated well with iodide of potassium and was better, but they were not encouraged with the prognosis.

Dr. CHARLES P. EMERSON, in closing, said in answer to Dr. Rowntree's remark, that potassium, not sodium iodide, was used. The *x*-ray picture was quite different from that of the tuberculous lesion, which was more pronounced at the upper lobe, and had longer markings with anastomoses. With the other we had no evidence of calcification near the hyla, and little flocculent shadows scattered around. The roentgenologists, without knowing it was mould infection, or having it suggested to them, pronounced it as such. In answer to Dr. Blumer, they did not use tuberculin, for the diagnosis of tuberculosis based on the subcutaneous or conjunctival test was difficult in adults, and by elaborating the technique of the complement fixation test in tuberculosis they arrived at a fairly accurate point. Aspergillus had been found and penicillium also. There were many infections that were not aspergillum. Were they penicillium? Were they mucori? Did they come from the trachea?

On Experiments in Epidemiology.—Drs. SIMON FLEXNER and H. L. AMOSS of New York City made this presentation. These studies had consisted of artificial control by a prearranged plan of epizootic outbreaks. These were considered as epidemics. The organism used was *B. typhi murium* which produced epidemics among mice. The mice were assembled to represent a village. One hundred normal mice, free from *B. typhi murium*, were put in twenty cages. Ten mice were then fed a heavy suspension of the organism, and were put among the hundred normals. Feeding and cleaning were done in one direction by one attendant, but it was found that the epidemic did not progress in the line of feeding. Roaches and flies were eliminated. Eight of the ten infected mice came down, and seven of the normal mice, by contact. After thirty days, another series of mice was brought in. Those previously exposed and the new ones were watched and the epidemic progressed in a series of waves, the crests of which became smaller. Among the first exposed the deaths were higher and more frequent. After two weeks there were no more deaths, and the mice were stocked up to 300 again. The mortality now was 68 per cent. Originally it was 58 per cent. They were again restocked, and the mortality now was 14 per cent. It was supposed that greater mortality would occur among new arrivals, but it was about the same among old and new. The number of carriers was found to be in inverse proportion to the death rate—the higher the death rate, the fewer carriers. The carriers had agglutinins in the blood, but these were not protective against a new epidemic wave. The strains of organisms had different virulence at different heights of the disease. One was tempted to interpret these facts, but there would be less cause for regret if the men drew their own conclusions.

Dr. FLEXNER said they had been greatly impressed with waves of epidemics in this country, such as poliomyelitis, influenza, and, lately, epidemic encephalitis. The study of these waves had been restricted to statistical data from human beings. At the Rockefeller Institute there was a very violent epidemic of typhoid in the cancer breeding mouse stock, which was a separate stock. They sought experimental light on the epidemic and on the curves of epidemics as ordinarily produced. They were extending this study to one of respiratory infection in rabbits, commonly called "snuffles," to be reported on later. These two studies would cover epidemics of gastrointestinal infection and respiratory infection. The facts elicited were very interesting, especially as regards the introduction of normal mice among the population which had successfully passed through the epidemic. Dr. Topley of London had also undertaken a similar study, with which there was a general coincidence. These studies differed from those carried on among human beings in that they dealt with mortality entirely, while human studies dealt only with morbidity. One could not draw exact parallels between this and human infection, but they could be compared with mortality statistics. The striking thing was the wave incidence even when measured entirely by mortality. It was thought wise to present these studies at this juncture, because they expected to go on for many years and study different phases, hoping to acquire data referring to the sources and causes of epidemics.

Remarks Upon the Symptomatic Treatment of Pneumonia.—Drs. JAMES H. MEANS and A. L. BARACH of Baltimore presented this communication. To apply correctly a specific therapy in pneumonia one must visualize the morbid anatomy and functional pathology. In analyzing pneumonia, one saw in it a respiratory battle. Dyspnea would arise when the demand for ventilation was greater than the supply. Several factors called for greater ventilation: (1) metabolism was increased; (2) acidosis was often present; with nonvolatile acid in the blood the carbondioxide must be kept lower; (3) there was anoxemia; (4) deficiency of blood flow, which must be compensated by hyperventilation of the lungs; the enlargement of the heart in these cases was perhaps explained by the asphyxia; (5) marked reduction of the vital capacity of the patient because part of the lung was consolidated; (6) abdominal distention might be present, limiting the respiratory excursion and causing rapid shallow breathing, the most expensive for the organism as it required more work and increased anoxemia. There were two ways of combating these symptoms, one could reduce the demand, or increase the supply of ventilation: (1) one could alter metabolism and correct acidosis by giving alkali to ensure normal hydrogen concentration of the blood. Sodium carbonate could be used, even if there were no free carbonic acid, because alkali tolerance was increased in pneumonia; (2) oxygen therapy could be used to improve the blood flow, especially in anoxemia; (3) we could remove abdominal distention and improve the pulmonary bellows. The correction of acidosis and anoxemia would improve the chances of recovery by leaving the patient free to combat the infection.

Dr. G. M. KOBER of Washington, D. C., said he had greatly enjoyed Dr. Means' excellent contribution to the symptomatic treatment of pneumonia. He desired to recall the socalled eliminative treatment advocated by Hugh Bennett in his classical lectures over fifty years ago. This treatment consisted in the administration of tablespoonful doses of a mixture composed of liquor ammonii acetatis, ʒvii; spiritus ætheris nitrosi, ʒi; repeated two or three hours, until diaphoresis set in, then the intervals were lengthened. In the light of modern pathology, these diaphoretic and diuretic agents evidently subserved a useful purpose in the elimination of toxins, and the blood being determined more or less to the periphery it had also a beneficial effect on the heart and lungs. He had resorted to this treatment ever since and had observed its good effect at the Carlisle Cavalry Recruiting Depot in 1868. It appeared to prevent the development, in all but bad chronic heart cases, of the dangerous symptoms such as demanded the administration of oxygen.

Dr. C. F. HOOVER of Cleveland, O., said that in regard to the source of anoxemia and the relation between anoxemia and air hunger, the latter term described the sensations of the patient. The patient could have extensive pneumonia with pronounced cyanosis but have no air hunger, although he might have hyperpnea. This did not come into the field of consciousness of the patient as air hunger. In a man with complete consolidation of the entire right lung, there was no non-saturation of the lung, and no anoxemia of the aortic blood. This man had a tuberculosis pneumonia and showed a pale, ischemic lung. A pneu-

mococcus patient with cyanosis and anoxemia had a red hyperemic lung, therefore it was due to the unrespired blood from the lung to the aortic stream. In the ischemic lung there was no unrespired blood contributed to the aortic stream. Two patients were seen with arteriovenous aneurysm, and the heart became enlarged with the minute flow of blood to the heart; as in Basedow's disease, there was an increased burden on the heart without increase in the capillaries. Patients with arteriovenous aneurysm had enlarged ventricles, but the auricles were not enlarged. When dealing with a large heart in pneumonia, one must determine whether it was a compensatory measure or increase of the minute flow of blood; if the former, there would be enlarged right auricle. If there were no auricular enlargement one should not give digitalis.

Dr. S. SOLIS-COHEN of Philadelphia said that these careful and scientific studies bore out the clinical experience of many years. One physician at Atlantic City had used sodium bicarbonate as a specific in pneumonia. Maintaining the alkalinity of the urine was a clinical practice capable of being carried out by the nurse or by intelligent members of the family. As a rule of thumb it answered the purpose; and with a continuous administration of alkali one could use any alkaline diuretic. The use of oxygen had gone through many successive waves of acceptance and rejection. Oxygen must be administered in a proper way so that the patient really got it; it would not revive the dead. If the patient really got it, it was a life-saving measure. If used as a routine measure, it would waste a lot of oxygen, but would save life. Another important question was that of abdominal distention. Lavage and the administration of pituitrin, guided by the systolic blood pressure, tended to prevent gastric and abdominal distention.

A Case of Alkaptonuria with a Study of Its Metabolism.—Drs. C. P. HOWARD and R. H. GIBSON of Iowa City reported this case. The patient, male, had symptoms of brain lesion, probably tuberculoma. The urine showed a reducing body. The specimen showed dark brown pigment, recognized as alkapton, and he was transferred to the metabolism ward. This pigment was hydroquinone acetic acid. Twelve cases had been reported in America. They were familial, but not congenital. Often they occurred in children of consanguinous marriages, when the parents were cousins. There were few symptoms. The patient would apply for life insurance and be rejected as a diabetic. Rarely ochronosis occurred. An inborn error of metabolism was the cause of the disease. Protein diet increased it. The change probably took place in the body tissues. There was disturbance in the conversion of phenylin or tyrosin into homogenistic acid, and acetone was produced. In this patient the nitrogen ratio was studied and there was a rather high nitrogen retention. The sulphur production was normal.

Dr. T. B. FUTCHER of Baltimore said Dr. Howard had mentioned the rarity of this condition and had spoken of the relationship of this metabolic disturbance to ochronosis (which meant ochre-colored cartilages). He had reported alkaptonuria with ochronosis in a case in which the cartilages of the ears, finger nails, and cheeks had this peculiar slate color. There were three cases in that family. Osler used to speak of arthritic changes in the first patient, and there was distinct crepitation of the joints on palpation.

The Bearing of the Evolution of the Pneumonic Exudate on Local Chemical Factors Influencing Recovery and Resolution in Lobar Pneumonia.—Dr. FREDERICK T. LORD of Boston presented this communication. He said that he did not want to neglect the humoral aspects of recovery from pneumonia, such as the matter of agglutination of serum, which had been proven by Cole and by Cecil, but there were aspects of humoral immunity which were difficult of comprehension. They checked septicemia, but why did pneumonic patients have involvement of successive lobes? Why did they have relapses? Why did the pneumococcus grow readily in pneumonic and postpneumonic serum. There might be local aspects of recovery. This matter was not proven, but it was suggestive. Partial isolation of the lung was important. The pneumonic process went through a certain evolution. There was increased serum at first, and later increased hydrogen-ion concentration of the pneumonic lung. The organism might be killed by the hydrogen-ion concentration, but also, as in the test tube, addition of serum might prolong the life of the organism. Diminution of serum and increased acid could achieve the death point of the organism. The hydrogen-ion concentration was important to enzyme action in general. There was a serum and enzyme balance, which probably protected the framework of the lung. When diminution of serum occurred there was setting free of the enzyme, which split up through the amino acid nitrogen. The lung was spared by the antiferment in the capillary circulation. Delayed resolution was caused by too little enzyme, or too much serum.

Dr. T. SOLLMAN of Cleveland, Ohio, asked if there was any evidence that the acidity took place during life, or was it a postmortem change?

Dr. LORD said they had no evidence that acid formation took place during life. They tried to obtain this evidence, but it was impossible to be sure. They had determined the increase of acid in the lung immediately after death. Of course it might be formed postmortem; one could not exclude that possibility.

Observations on the Bactericidal Activity Against Bacillus Diphtheriæ of the Whole, Coagulable Blood of Immunized Animals.—Dr. S. SOLIS-COHEN of Philadelphia and MEYER SOLIS-COHEN presented this paper. They said that Dr. Heist had shown that there resided in the blood of animals a property inimical to the growth of organisms to which the animal was immune. That was confirmed by Kohler. This substance was present in the whole, coagulable blood of the immune animal; it was not demonstrable in serum, in defibrinated blood, or in citrated blood. When injected to cause artificial immunization the same property appeared in the immunized animal. Two measurements were used: (1) the time at which the organism was killed in the tested blood; (2) the dilution of culture in which growth could be proven. Diphtheria presented a different problem. The immunity was found to be antitoxic, not antibacterial. Two points were discovered: (1) bactericidal power against *B. diphtheriæ* was found in the blood of the rat; (2) in human beings subjected to the Schick test, in some there was bactericidal power, but there was no correspondence between immunity by the Schick test and the bactericidal power. Dr. Park thought the recovery from diphtheria was by the production of bactericidal substance, not by antitoxin, as those recovering had a positive Schick. The horse was tested to see if the bactericidal power corresponded to the antitoxic immunity. The antitoxic power in the blood was due to antitoxic immunity and bactericidal substances were not necessarily increased. In rabbits bactericidal power could be induced. They would see if high bactericidal power would cause high induced resistance, as in pneumonic infection.

Dr. WILLIAM H. PARK of New York said that there might have been an error in thinking that antitoxin immunity effected a cure. They found children without antitoxin in whom antitoxin did not occur at all until weeks after the recovery, so probably bactericidal immunity caused recovery. Dr. Cohen would have to work very accurately, as he was in a very difficult field. Bactericidal values for one thing were not the same for another. There was no reason to fear that a single antitoxin would not apply to all types of cases.

Dr. SOLIS-COHEN, in closing, said he and all who were working with him were fully alive to the questions raised by Dr. Park. They did not observe any differences in growth between the toxin and nontoxin producing varieties, but more recent work by the Philadelphia Board of Health had found three types which could be distinguished. Perhaps the strains produced in New York should be called small toxin producers or nontoxin producers. There were some Klebs-Loeffler bacilli which were killed in a very short time by the blood, while other groups required a long time or were not killed at all. They fully realized now that they had got into very deep water and would be glad if some other workers with better laboratory facilities would take up the study and push it.

Yaws: An Analysis of 1,046 Cases.—Drs. W. L.

Moss and H. G. Bigelow of Baltimore presented this study of cases in Santo Domingo. Yaws was also called bubo and frambesia. Its distribution was throughout the tropical world. Some workers considered it identical with syphilis, but there was a distinct etiology, as syphilis could also develop in a yaws patient. The disease was due to *Treponema pertenue;* it had primary, secondary, and tertiary stages, but they were not so clearly defined as in syphilis, and were apt to overlap. Primary stage: two to four weeks' incubation, with malaise, pains, headache, fever; there was a papule with yellow secretion, a crust formed and fell off, leaving an ulcer. Secondary stage: one to three months after the primary; generalized eruption of granulomata with systemic symptoms, which persisted three to six months or a year; the scabs fell off, leaving pigmented scars. Tertiary stage: this might occur years after the secondary; there were gummata and ulcers leaving large scars; bone lesions were common. Mortality was low. Treatment: administration of potassium iodide and sodium bicarbonate. Neosalvarsan in two or three doses effected a cure in many cases. Ages of patients varied from one month to sixty years. The initial lesion was usually extragenital, in contrast to that of syphilis, and 25 per cent. occurred in patients under five, so that no amount of sexual precocity would account for this early occurrence if it were venereal in nature. It might be transmitted by some insect. The mucocutaneous or moist surfaces were chiefly affected.

Dr. E. J. Wood of Wilmington, N. C., said yaws was described by Bricknell in the "Natural History of North Carolina." Many cases of the disease occurred among white children, and there was a large percentage of positive Wassermann reactions among these cases, which might possibly be accounted for by the presence of yaws, and by the small proportion of vascular and nervous lesions that negroes suffered. All Southern physicians would be deeply indebted for this contribution.

Dr. S. Solis Cohen of Philadelphia said he would like to ask Dr. Moss about the treatment.

Dr. W. Riesman of Philadelphia said there was one case in the Philadelphia Hospital—a white soldier who had picked it up in France. He had a strongly positive Wassermann. Dr. Moss did not refer to this feature.

Dr. J. Collins of New York asked Dr. Moss if he had the opportunity to investigate any of the terminal cases from the pathological standpoint to see if the lesions were in the peripheral nerves and the muscle substance, and not in the spinal cord. That would make an important differentiation from syphilis, because syphilis very rarely produced the former lesions.

Dr. Moss, in closing, said they used neosalvarsan, 0.6 gram dosage, diminished in proportion for children. Observations were made on the result of treatment in 593 cases, and were tabulated according to the number of injections: one injection, 30 cured; two injections, 53 cured; one to three injections, 14 cured; four injections, one cured. Altogether 16.5 per cent. of the cases were cured, every manifestation of the disease having disappeared; 15.5 per cent. were considered unimproved. They took the Wassermann in a limited number of cases and of these it was positive in 85.7 per cent., and negative in 8 per cent. As to the differentiation between yaws and syphilis on the evidence they were able to obtain, namely, the statements of the patients who were acquainted with both diseases and knew the difference as regards manifestations: (1) patients said they had yaws; (2) denied syphilis; (3) patients knew the location of the primary lesion; (4) the primary lesions were not the same as in syphilis; (5) it did not resemble chancre and was usually extragenital; (6) the generalized eruption did not resemble syphilis, and there were no mucous patches or alopecia. The response to salvarsan was conclusive.

Plaguelike Infections.—Drs. Richard P. Strong and W. T. Councilman of Boston read this paper. Examination of 10,000 rats per 100,000 inhabitants was considered sufficient to obtain evidence of the plague. The rat served as the basis of investigation. Plaguelike organisms, resembling *B. pestis,* were found in rats; these included (1) the group of hemolytic septicemic organisms affecting chickens, rabbits, swine; (2) pseudotuberculosis; (3) typhoid organisms, as *B. typhi murium* and the hog cholera bacillus. One organism that was pathological for animals was *B. towlourense,* a very minute, round or rod-shaped organism, which caused necrosis and proliferation of the vascular endothelium, causing congestion of the large lymphatics. Autopsy showed rigor mortis and a granular surface of the liver, like pepper grains. This was so characteristic that with the naked eye one could distinguish the lesions of *B. towlourense* from those of *B. pestis.* The British Plague Commission emphasized the importance of making the correct differential diagnosis.

Dr. W. W. Ford of Baltimore said there was one case seen of a colored man, who came in complaining of very severe fever; on examination the temperature was 104°. There was no evidence of venereal infection, but he gave an obscure history of syphilis ten or twelve years previously. There was very marked enlargement of the inguinal and axillary glands. The picture was suggestive of bubonic plague. The material aspirated from the glands gave cultural reactions which seemed to be those of *B. pestis.* They were puzzled what to do. The man had been a dock laborer and presumably had been exposed to rat bites. McCoy decided it was not plague, on the basis of the lack of virulence for animals. They thought it was a nonvirulent plague organism. In cases of this character what should one do? One must establish a diagnosis at the time of occurrence. From the standpoint of politics one should hesitate to report it as plague, one might set up international complications. The case was observed for a long time, and the man recovered spontaneously. He did not have plague. This showed what difficult questions arose in regard to plague. We were at the beginning of the study of plague and plaguelike organisms in this country.

Dr. H. Noguchi of New York City asked if this was a direct contact infection. The organism was one-fifth of a micron in size. Would it assume a form which would pass through an ordinary filter?

Dr. R. P. Strong said they did not know anything about the mode of infection in this case. Dr. McCoy found that the organism would not pass through the Berkefeld filter.

Dr. William H. Park of New York City said that Dr. Ford had suggested a question whether it would be wise to send on the culture to Washington. One could easily stir up trouble for the health departments. In New York City they had not had a case of plague in thirty years. They had had a few cases in the harbor. They kept on examining rats and this cost a good deal of labor. In summer time the rats were partially decomposed, and it was very nauseating work for the laboratory workers. They had examined several thousand and had never found a plague bacillus. A few thousand would be enough. Rats were found with plague before human beings contracted it. This amount of examination took the public health worker's time from more important things. The health department had seven rat catchers at work and it kept the department busy.

Dr. Strong, in closing, said that when in doubt one should always send to Washington. He thought a few examinations carefully made would be worth more than a great many. The examination would be of no value on decomposed bodies.

Etiology of Infectious and Parasitic Diseases.—Dr. Theobald Smith of Princeton, N. J., opened this discussion, saying that etiology was the study of the entire field of medicine from a special point of view. If one could comprehend the cause one could intercept it. Observation of causes must be associated with experiment. Nature was continually experimenting and observation was taking notes. To interpret correctly one must, as far as possible, reproduce natural phenomena. They had reached a stage when the conditions influencing disease could be accurately measured. There were three factors: (1) heredity; (2) environment; (3) parasitism. These three factors reacted on each other, and the animal body reacted on them. In parasitism there were two bodies reacting on each other. The unicellular organism used to be considered the beginning and end of disease; now it was known that immunological reactions of the host played an important part. The study of epidemiology from a bio-

logical standpoint would help in clearing up causes and would show what were the influences besides the infective agent. The formidableness of the invader was due to its power of multiplication in the host. Some were adapted to one host only, others led a saprophytic existence, or became saprophytes. The smallpox parasite was specialized for one host. Other organisms were predatory, others were surface parasites. Four conditions were essential: (1) entry; (2) multiplication; (3) escape; (4) transfer to another host. Infective parasites left the body in armies, but few entered. Penetration into the normal body was unknown, and traumatism must play a part in making tissues vulnerable. Multiplication and escape were also essential to the parasite. Superficial tissues allowed of ready escape, but deep tissues were unnecessary to the organism, as they did not provide escape. Comparative pathology would fill many gaps in the knowledge of parasitism; the study of primitive man and of animals would reveal underlying, unifying factors dealing with infection and immunity.

Dr. A. R. DOCHEZ of Baltimore said that infectious diseases had reached a fairly stable state, and further modification did not seem likely, as few diseases had died out, and no new ones were added. Some species of bacteria had become saprophytic. Some parasites, such as *B. coli* and *B. tetani*, had found favorable conditions and had become specialized. Why did not all parasites reach such a stage? Was there any change in the suitability of the host? Each group seemed to have a pathological member which caused disease, and the pathogens had often to be tested by immune reactions to distinguish them. As the organism became a permanent parasite the resistance of the host rose. The pneumonia organism was the same all over the world, except in South Africa, where the species affecting the negroes was more virulent, probably having found a fertile soil. The organism had taken advantage and had become established as a parasite. There was a struggle between organism and host, the former having power to multiply and invade the tissues, and some organisms possessed toxins to break down the cells of the host. Animal passage increased the virulence of organisms, but when very virulent they destroyed the host and with it themselves. Often the ground was prepared by a primary virus before they could manifest their activities. This was seen in the war, when virulence was high on account of passage from individual to individual of measles and pneumonia, and also in the recent influenza epidemic. Three factors might account for this: (1) increase of the power of the parasite; (2) decrease of power of the host; (3) favoring circumstances which altered environment. In regard to epidemiology there were two or three factors: (1) infection in a fixed population tended to disappear; (2) continuous addition of new susceptible material prolonged the period of infectivity because the introduction of new material gave the parasite a chance to freshen up its invasive powers. The study of the effect of the organism on the host would answer the question whether some were primary invaders or were dependent on others.

Dr. HANS ZINSSER of New York presented the final paper on this topic. He said that the correlation of the enormous material available was the next step in the work of the immediate future. In the study of immunological processes he had taken up particularly that of antigens and antibodies. In regard to the phenomenon called hypersensitiveness and the study of exotoxins and endotoxins he found products which appeared early in the cultures. There were two types of skin reactions: (1) sensitiveness to horse serum, developing early and passing quickly; (2) the skin reaction primarily associated with infection, a later reaction with necrosis. This applied to guinea pigs and to man. Did either of these reactions correspond to anaphylaxis? The skin reaction to horse serum was parallel with the general development of anaphylaxis, but the tuberculin reaction in guinea pigs was different. Both reactions could be seen in the same animal, but independent of each other. Typhoidin and mallein reactions were infective. He worked with human serum, adding acetic acid to the precipitate, and called this nucleoprotein. When boiled it gave albumins and globulins which, if boiled again, produced something which acted like Bence Jones protein. (He would not say it was that, because there were a good many chemists there.) There was a clear solution left, which he called proteose. This gave the deep-seated reaction, nonprotein in nature. The uterus of the tuberculous guinea pig would not give reaction to the proteose fraction. The question was, was this proteose an antigen, that is, did it produce antibodies? He believed there were two antigens, one a typical antibody producer; the other, proteose, producing antibody with difficulty. The question was why should the infective reaction be superficial and apparently vascular and the proteose be a deep seated reaction? Bacteria that gave skin reactions passed out a proteose-like substance which caused sensitization. This was probably the important antigenic substance during the infection. The method of sensitization was different in time and quantity from the true proteose. Why did this not form antibodies as easily as the whole protein? As the substances became more and more diffusible they did not have to produce antibodies. The whole protein had to produce antibodies. One antigen was supposed to react with several antibodies, but the antibodies might be identical. Where one worked with a single chemically pure antigen one antibody would be produced. The uniting of antibody and antigen would change the antigen. Agglutination and precipitation were secondary phenomena which took place after union of antigen and antibody. Agglutinins and precipitins might be identical, and only different stages of the same phenomena. If one considered all the antibody effects as due to the same substance one would have a simplification of the views on antibodies. If one could recognize that the infection of the animal was not purely by a protein body, but there was also a proteose-like substance which might enter the body by its greater diffusibility and become toxic, because of the sensitization, this unifying concept of antibodies would simplify the work and give a new starting point from which to investigate these phenomena.

Dr. SIMON FLEXNER of New York said that anyone who had attempted to unravel some of these phenomena was impressed by their complexity, but they were moving in the direction of getting material which could be handled more effectively. There were two or three essential points: Ethnologists were getting concerned lest pretty soon they would be out of a job. So few primitive peoples were left to study that material dealing with primitive civilizations was scarce. To simplify some of the problems one must go to the regions where certain diseases were being produced, and determine what the reaction was between parasite and host rather than introduce the complication which existed in the operations of parasites among hosts among which they had flourished for centuries. The most valuable material being collected was that arising from the study of the incidence and morbidity of tuberculosis, as, for example, among African troops, exposed for the first time among Europeans. Measles introduced into the Fiji Islands was as destructive as the plague among those nations, so that one could secure experimental data still, in the study of parasitism in new populations. That was what Dr. Dochez referred to in pneumonia, the rise in virulence in individuals hitherto unexposed to pneumococci. Another question was the related study as to what were primary and what were secondary agents from the parasitic standpoint. There was the question of pneumonia following measles. That could be studied experimentally.

Dr. EMANUEL LIBMAN of New York said Dr. Olitsky had made some very interesting studies. He caused lesions with the virus of the influenza organism, such as edema, hemorrhage, and emphysema. Dr. Baer found the same organism in the lungs of animals injected by them. There was a blood thrombosis in the capillaries and small arteries. The lesions began around these vessels in the lung parenchyma and walls of the trachea which was responsible for the ease of introduction of the organism in pneumonia. The effect was on the blood vessels and hematopoietic organs. Another question was that during the epidemic a number of people got infected without showing evidence of disease. In the course of work on typhus fever by Drs. Baer and Olitsky, with *B. typhi exanthematici*, they found that the complement fixation test against that

organism was never positive in 200 controls and positive only in typhus fever. The agglutination was negative in the controls and positive in patients at the crisis. Dr. Baer examined his own blood and found a 4+ complement fixation against this organism. He had not been well and thought he had had a mild attack; the reactions disappeared in a certain time. In animals he found the same thing. Contacts had reactions against the organisms while controls were negative. In Russia, at a time when there were 28 cases in contact, 13 out of these developed reactions against this organism. Whether one believed this organism was the cause of typhus or not, it was certain that one got no reactions except in contacts with typhus. Complement fixation test and agglutination did not necessarily mean immunity. Contacts could be infected with the virus without getting large doses.

The Pathology and Etiology of Typhus Fever.—Dr. S. B. WOLBACH of Boston presented this paper. The work was carried out under the auspices of the Red Cross Societies, and lice feeding on typhus patients were studied. It was possible only to infect a small number of lice from the patient. Inseparable from the infection was the finding of minute filamentous bodies in the gastrointestinal tract of lice. These stained by Giemsa were nonmotile, and could not be cultivated. The general evidence of infection consisted in finding bodies consistent with Rickettsia in experimental lesions. The lesions caused by typhus virus were vascular, with proliferation of the endothelium of the vessels. This explained the lesions in the central nervous system. There was reaction of the neuroglia and small nodules were formed throughout the central nervous system. The manifestations depended on the distribution of these nodules. Coma, delirium and death occurred with extensive involvement, according to whether the lesion was located in the midbrain, medulla, or cortex. Rickettsia organisms had been found in trench fever, as well as in typhus, but they were larger, extracellular, and stained more deeply with Giemsa.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

CONNECTICUT MEDICAL EXAMINING BOARD.

November 9 and 10, 1920.

(*Concluded from page 1079.*)

OBSTETRICS AND GYNECOLOGY.

1. Give varieties of mastitis and describe fully puerperal mastitis, including treatment.
2. Diagnosis and treatment of complete placenta prævia through pregnancy and labor.
3. Under what conditions may it be advisable to empty the pregnant uterus (*a*) in the interests of the child, (*b*) in the interests of the mother?
4. Give directions for obtaining measurements of the female pelvis and length of such diameters to reasonably assure successful labor at term.
5. Describe placenta and cord.
6. Discuss treatment of nonoperable carcinoma of female breast.
7. Describe any operation you may prefer for correction of retrodisplacements of uterus.
8. Causes and treatment of dysmenorrhea.
9. Indications for operative treatment in fibromyomata of uterus.
10. What is meant by Trendelenburg's position? What advantages are obtained by use of this position?

SURGERY.

1. Give the differential diagnosis of skull fracture and the signs and symptoms which call for operative interference.
2. Describe in detail the characteristic picture of a patient with perforated duodenal ulcer. Differentiate from gallstone colic.
3. Describe the complete treatment of open fracture of the mandible with displacement of the fragments.
4. Discuss deep cervical suppuration.
5. Give the diagnosis, differential diagnosis, and treatment of carcinoma of the tongue.
6. Discuss the treatment of chronic empyema.
7. Give the diagnosis, differential diagnosis, and treatment of gonorrheal monarthritis.
8. Discuss the etiology and treatment of chronic leg ulcer.
9. Describe the etiology, signs, and symptoms of acute intestinal obstruction.
10. Give the diagnosis and differential diagnosis of stone in the ureter.

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. MASTITIS. *Varieties:* Acute, chronic, puerperal, tuberculous, and syphilitic.

PUERPERAL MASTITIS. *Etiology:* Infection, generally due to handling; cracked or sore nipples and overactivity of the gland with retained secretion are predisposing causes.

Symptoms. The breast is swollen, painful, and tender, and, owing to the soreness of the nipple, the breast is not relieved of its secretion, so that it is distended. If suppuration follows, redness, edema, and fluctuation occur over the site of the abscess. The abscess may be—(1) supramammary, the pus lying between the skin and breast; (2) intramammary, or the common form, in which the pus is in the substance of the breast; (3) submammary, which is beneath the breast, and may spread from the deep lobules, but more frequently is due to disease of the underlying ribs." (*Aids to Surgery*)

Prophylactic measures consist in not touching the breasts (by doctor or nurse or patient) without thoroughly clean hands; by washing and drying the nipple before and after nursing, and by proper attention to hygienic conditions before labor, and the nipple and breasts being preserved from pressure. *Treatment* before suppuration occurs consists in supporting the breast with a bandage, emptying the gland regularly with a breast pump, and applying a belladonna plaster over the gland to stop the secretion and allay the pain. Nursing from the affected breast should be stopped at once. When pus is present an incision should be made at once, or the abscess may burrow extensively and riddle the breast. The incision should be made in a line radiating from the nipple, so as not to cut the ducts; it should be free, and all pockets opened up with the finger. Then a large drainage tube is inserted and shortened daily, as the wound heals by granulation. If necessary, several incisions are made.

2. COMPLETE PLACENTA PRÆVIA. *Symptoms:* "Usually there are none in the early months, though the woman may bleed as early as the third month. The first warning is a sudden outpour of blood of greater or less amount. The first hemorrhage is most frequently observed in the seventh or eighth month, rarely not until the onset of labor. The bleeding is usually most profuse just as the uterine contraction passes off. It may cease altogether with the pain. Hemorrhage during pregnancy always demands immediate investigation to determine the source of bleeding. This is doubly imperative when it occurs in the later months. Placenta prævia is distinguished from accidental hemorrhage and from uterine rupture by the physical signs. Very rarely bleeding may proceed from a lesion of the venous network of the decidua vera, the situation of the placenta being normal.

Physical Signs: "(a) *Abdominal.*—The location of the placenta may sometimes be made out by abdominal palpation. Beneath the placenta the fetal parts are obscure to the touch, elsewhere they are more distinctly felt. In most instances of anterior implantation the convex edge of the placenta can be traced as a resisting ring. Abnormalities in the presentation and position of the fetus are common, owing to the occupation of the lower uterine segment by the placenta. (b) *Vaginal.*—Examination will show (1) Unusual development of the cervix, especially when the placenta prævia is complete, and pulsating vessels are detected around the cervix. (2) A cushiony mass may be detected between the presenting part of the fetus and the examining

finger. (3) There is a bogginess of the cervix, vaginal vault, and the lower uterine segment. (4) The characteristic stringy feel of the detached surface of the placenta may be noted on examination through the cervical canal; the uneven surface of the cotyledon and a gritty feel distinguish it from blood-clots, which are more friable. It should be borne in mind that the portion of placenta over the cervix may be only an adventitious cotyledon."

Treatment: "(a) *Before Viability.*—Generally the pregnancy should be terminated as soon as a positive diagnosis is made. Exceptionally, the treatment may be expectant, provided the patient is in a hospital under constant observation. Partial or complete rest must be enjoined, according to the amount of bleeding, and a general regimen prescribed very similar to that pursued for the arrest of threatened abortion or premature labor. If the hemorrhage is copious, the placenta prævia complete, or the fetus dead, the uterus should be immediately emptied. (b) *After Viability.*—Induction of labor is indicated immediately the diagnosis is made, simple cases excepted. *Management of Labor.*—The principal indications in the management of labor with placenta prævia are the control of hemorrhage and the securing of dilation of the cervix. Hemorrhage under control, urgent measures are not necessarily required, but the obstetrician should remain with the patient until she is delivered." (Polak's *Manual of Obstetrics.*)

3. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

4. *External pelvimetry:* "The measurements are made with a pair of calipers. *Interspinous diameter:* The points of the calipers are held in the two hands so that the point of the forefinger rests alongside the point of the instrument. The two anterior superior spines are located, and the points placed on them. The calipers are then screwed tight by an assistant or nurse, and the measurement read off. Normally it is 9½ to 10 inches. *Intercristal diameter:* The instrument is held as before and the points passed slowly around the iliac crests until the points of greatest separation are found, when the measurement is made. Normally it is 10½ to 11 inches. The *external conjugate diameter* is measured by placing the one point of the calipers over the tip of the last lumbar spine, and the other over the front of the symphysis pubis. This is most easily done with the patient standing, and the tip of the last lumbar spine can be found by counting downward from above. It is, however, usually marked by a slight dimple due to fascial attachments. In fat persons it suffices to make a point in the midline 2½ inches above the line joining the posterior superior iliac spines. The external conjugate usually measures about 7½ to 8 inches; 3½ inches at the very least must be allowed for the thickness of the bony and soft tissues. Therefore, while a large reading may not necessarily mean a large conjugate, a reading under 7½ inches, and more especially under 7 inches, indicates that the conjugate is diminished proportionately.

"*Internal pelvimetry:* The *diagonal conjugate* from the promontory of the sacrum to the under margin of the symphysis may be measured by the fingers. The diagonal conjugate measures 4½ to 4¾ inches, and ½ to ¾ of an inch must be subtracted to give the length of the conjugate vera. The actual amount to be subtracted varies with the depth of the pubic bone and its inclination toward the sacrum, so that at the best this method of estimation is but approximately correct. In practice, however, these methods are found to be sufficiently accurate in the vast majority of cases. It should be remembered that in a normal pelvis it is impossible to touch the promontory of the sacrum by vaginal examination without forcing the fingers so far in as to hurt the patient. Therefore, if the promontory can be felt readily, it indicates a small pelvis and the desirability of more careful investigation. The *outlet of the pelvis* can be directly measured in both its anteroposterior and transverse diameters by means of the fingers and a measuring tape, or more conveniently by means of a pair of calipers with the points crossed."—(Johnstone's *Textbook of Midwifery.*)

5. At full term the *placenta* is a soft, spongy mass, roughly saucer-shaped, from 6 to 9 inches in diameter, about ¾ of an inch in thickness at the central point, and weighs about one pound. It is *formed* partly from the mucous membrane of the uterus and partly from the chorionic villi. Its *usual location* is on the anterior or posterior wall of the uterus, near the fundus.

The *umbilical cord.*—"At term the cord has been compared to a 'twisted rope of tissues,' extending from the placenta to the child. The cord is of a glistening grayish-white color, of varying thickness, and is usually about 22 inches long, but may be either much longer or shorter. In structure the cord consists of a covering of epithelium continuous with that of the amnion, which surrounds a jelly-like matrix called Wharton's jelly. This consists of mucin, branched corpuscles, and embryonic connective-tissue cells. Within this substance the two arteries and one vein run in a spiral course, usually from left to right; it is to the fact that the growth in length of the vessels exceeds that of the rest of the cord that the twisted appearance of the latter is probably due."—(Jewett's *Practice of Obstetrics.*)

6. *Treatment of inoperable carcinoma of the female breast.* Oophorectomy has been recommended for recurrent cases in women before the menopause. Large doses of thyroid extract, injections of trypsin, Coley's fluid for sarcoma, and *x*-ray treatment have all been recommended. The *x*-ray treatment is said to diminish the pain and prolong life.

7. *Alexander's operation:* "The pubic hair is shaved off and skin and vagina disinfected. The uterus is replaced and a glass stem with attached silk thread introduced into its cavity. A narrow Hodge pessary is placed in the vagina. Next, the patient's legs are extended. The operator stands on the side opposite to the ligament to be shortened; he locates the pubic spine, which is the leading landmark during the whole operation, and makes an incision from 1 to 3 inches in length through the skin over it, in the direction of the slit between the pillars of the external inguinal ring. Its length must be proportionate to the amount of adipose tissue present, but it should, if possible, not extend beyond the hairy portion of the mons Veneris, as then, after the hairs grow out again, the cicatrices will be entirely hidden. Next, the subcutaneous fat and the superficial fascia are divided in the same direction, exposing the glittering, satin-like pillars of the external ring, which is situated above and a little outward of the spine of the pubis and can be felt at the bottom of the wound. It is well to dissect the aponeurosis of the external oblique abdominis muscle, so as to see not only the pillars, but the intercolumnar fascia extending between them. During the incision several small arteries will be severed and must be clamped. In the external inguinal ring is seen a lump of fat which contains the ligament. This whole mass is grasped with an artery-forceps and drawn in the direction of the vulva. The genital branch of the lumbocrural nerve is seen as a fine white cord in front or to one side of the ligament. If it is in the way, it may be cut, but generally it suffices to push it aside. From the ligament extend a number of sinewy threads to the sides of the inguinal canal, which must be severed. Sometimes the peritoneum is invaginated and forms around the ligament a sheath, which must be stripped back with the nails of the fingers. When the isolated white tendinous ligament peels readily out from the canal, the wound is covered with iodoform gauze or sterile gauze; the operator takes his position on the other side and treats the second ligament in the same way. Before fastening the ligaments he should pull both forward and ascertain through the abdominal wall or the vagina, that the uterus is tilted forward. He should then slacken them from ¼ to ½ inch, in order to avoid undue strain on them and the formation of a hernia. They are fastened by passing three sutures of chromicized catgut through them and both pillars on each side, the last one comprising some of the tendinous tissue in front of the pubic bone. When the sutures have been tied, the superfluous piece of the ligament, which will measure from 2 to 4 inches, is cut off. The superficial fascia is closed with running suture of plain catgut and finally the skin wound is closed with two or three sutures of silkworm gut. The two wounds are dressed with one piece of iodoform gauze, guttapercha tissue, and plain

gauze, kept in place by a double spica or straps of rubber adhesive plaster. At the end of a week the superficial sutures are removed. The patient should remain in bed three weeks."—(Garrigues' *Gynecology.*)

8. DYSMENORRHEA. *Causes:* Pelvic congestion, pelvic inflammation, malnutrition, overwork, lack of development, neuralgia, stenosis, or obstruction of the cervix, prolapse, or displacement of the uterus. *Treatment:* If possible remove cause; attend to the general condition, hygiene, tonics, regular habits, etc.; curettage may be necessary, and may have to be repeated (perhaps more than once).

9. *Operative treatment in cases of fibromyomata of the uterus* is always indicated unless there are also present serious complications which render the operation either impossible or extra hazardous. Extreme age, weakness, and incompetent cardiac action are often classed as contra-indications.

10. *Trendelenburg's position* is one in which the patient is placed with the pelvis raised and the head and shoulders lowered.

Its *advantages* are:—The intestines fall towards the diaphragm and the pelvic cavity is exposed to view. This is effected by gravity and so the intestines are saved from the bruising and irritation which would be caused by undue handling. Further, the operator has more room, and a clear field of vision for the operation. Hemorrhage can be more quickly controlled because its source is more likely to be visible. Shock is said to be lessened.

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.	DIABETIC COMA.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma, sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.	Deep coma. Sweetish odor to breath.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated	Pupils contracted to pinpoint size	
Pulse very slow.	Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.	
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration	Respiration very slow—may be 6 to 8 per minute.	
Temperature higher —101°.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.		
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal	Normal.	Urine contains a variable amount of sugar and diacetic acid.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.				

SURGERY.

1. In *fractures of the base of the skull* there will be:—Hemorrhage (from nose, into orbit, from ear, or into tissues), escape of cerebrospinal fluid from nose or ear; concussion or laceration of brain, with coma; various nerve lesions (blindness, ocular paralysis, facial paralysis, deafness).

In fractures of the vault of the skull: If there is a wound, the fracture and depression may be seen, and blood, cerebrospinal fluid, or brain, may be escaping. If there is no wound a careful examination is necessary, as a hematoma may form and obscure the depression. In cases of doubt an incision should be made.

In a *simple depressed fracture* there is usually some concussion, which is followed by compression from hemorrhage in the neighborhood. The depressed bone also causes compression later by the *spreading edema* it sets up in the brain. Death may result quickly, or the patient may recover and then become the subject of traumatic epilepsy from irritation of the cortex. If the depression is over the motor area convulsions or paralysis are quickly induced.

In a *compound depressed fracture* the blood escapes and does not produce compression. Concussion may or may not be present. The advent of sepsis produces inflammation of the bone, membranes, and brain, which may be limited if the drainage is free; but if not death soon follows from compression by the inflammatory exudation. During the stage of compression a hernia cerebri is formed. If the depressed fragments are early removed and asepsis is maintained the patient has a good chance, unless the brain itself is severely injured. —(From *Aids to Surgery.*)

The following table (from Eisendrath's *Surgical Diagnosis*) gives the differential diagnosis:

"The indications for operation may be epitomized thus:

(i.) In all punctured fractures, operate.

(ii.) In all compound depressed fractures, operate.

(iii.) In simple depressed fractures: In adults, always operate; in children, if gutter-shaped, operate; if pond-shaped, wait for symptoms, unless the fracture is a bad one."—(Rose and Carless' *Manual of Surgery.*)

2. In *duodenal ulcer,* the patient complains of pain of a dull aching character, felt to the right of the midline, and coming on about three or four hours after meals; vomiting; blood may be passed with the feces, or hematemesis may occur. It is most frequently located in the first part of the duodenum, being that part which is acted on by the acid chyme from the stomach.

When perforation occurs, there is sudden and severe abdominal pain, vomiting, rapid pulse and shock. The abdomen becomes rigid and tender, the temperature becomes subnormal, and later rises, and the symptoms of peritonitis develop.

In *gallstone colic* the pain is paroxysmal, radiates to the right shoulder; the pain does not occur regularly every day and at a fixed time after meals; the gastric content should be normal; jaundice may be present.

3. "*The Treatment of a fractured mandible* is frequently a troublesome matter, owing partly to the septic element, and partly to the difficulty of fixing the jaw without interfering with the patient's nutrition; hence the co-operation of a skilled dentist should always be secured. Teeth loosened by the injury will probably require removal, and at the same time it is wise to extract septic teeth or roots, so as to be able to keep the mouth in a more cleanly condition. (1) As a temporary measure, and indeed as a permanent appliance in simple cases without much displacement of the fragments and where dental assistance is not at hand, all that is needed is an efficient four-tailed bandage. . . . The bandage is maintained firmly in position for three weeks, the patient being fed through a tube passed between the teeth or through the gap behind the last molar, and all movement of the jaw prohibited. The mouth should be frequently washed out with some antiseptic lotion. Union is usually secured in five weeks. (2) If patients are unruly, or if the above method fails to maintain the fragments in position, a moulded paroplastic or leather splint may be applied. It is lined with lint, and secured by bandages or tapes passed

through holes. (3) Where there is much displacement, the fragments must be fixed. Wire sutures passed around or between adjacent teeth and tied are distinctly objectionable, causing the teeth to become loose and perhaps diseased. *Hammond's wire splint* is the best apparatus to employ. It consists of a firm wire collar or framework, which encircles the whole series of teeth in the lower jaw. It is accurately fitted by a dentist, firstly, to a cast of the jaw, subsequently to the jaw itself, and is fixed by several wires passing from one half to the other between the teeth. (4) In cases where a Hammond's splint fails in remedying the displacement, or where the teeth are defective, a Kingsley apparatus may be used with advantage. It consists of a vulcanite splint fitted over the teeth or alveolar process of the mandible, and extending for a sufficient distance on each side of the fracture to steady the fragments. To the front of this are attached curved metal bars, which extend sideways from the angles of the mouth over the cheeks. It is kept in position by passing a bandage over the bars and under the chin. (5) Wiring of the fragments together may be required in a few cases. The wires must be passed either through the bone or below the teeth, or through the empty alveoli of neighboring teeth which are extracted for the purpose. When septic inflammation occurs of such severity as to lead to necrosis, it is best to delay all operative treatment until the sequestrum has been detached, and the parts are more healthy, the patient's mouth in the meantime being frequently cleansed with antiseptic lotions. Wiring of the fragments may then, if necessary, be undertaken with good hope of success."—(From Rose and Carless' *Manual of Surgery.*)

4. "*Cellulitis of the Neck* is usually secondary to a septic throat, and therefore associated with follicular tonsillitis, diphtheria or scarlatina, the process probably starting in a deep lymphatic gland; it occasionally follows operations on the neck. The tissues beneath the deep cervical fascia become infected, usually with streptococci, and sooner or later suppuration occurs. The affected side of the neck is swollen, red and brawny; severe pain of a deep tensive character is experienced, and this is increased by movements of the head or jaw. The swelling is often peculiarly hard and resistant and although edema may be present, it may be several days before the surgeon can detect any focus of softening suggestive of suppuration. During this period the constitutional symptoms are severe; fever may be high, and the pain and subsequent sleeplessness may exhaust the patient, whilst the difficulty of swallowing hinders his nutrition. Dangerous symptoms arise from pressure on important vessels and nerves, from extension of the inflammation to the mediastinum or to the glottis, causing edema and consequent dyspnea, or from the supervention of pyemia owing to venous thrombosis. The process usually ends in sloughing of the cellular tissue and suppuration, the pus burrowing widely if a free exit by incisions through the deep fascia is not provided."—(Rose and Carless' *Manual of Surgery.*)

5. CARCINOMA OF THE TONGUE. "The clinical appearances vary widely. Sometimes the surface presents a warty growth; sometimes it is excavated, forming a deep ulcer with raised nodular edges; in other cases the ulcer is smooth, and its edges even and rounded. Extreme hardness of the edges and base of the ulcer is always a characteristic feature. The tongue tends to become fixed, especially when the disease spreads to the floor of the mouth, so that it cannot be protruded, and the restriction of its movement produces a characteristic interference with articulation, certain words being slurred, and when the fixation is extreme it may interfere with mastication and swallowing. The patient complains of a constant gnawing pain in the tongue, and of severe pain shooting along the branches of the fifth nerve, and especially towards the ear. In the advanced stages there is salivation and fetor of the breath. When the disease is situated on the edge of the tongue it tends to spread to the floor of the mouth and to invade the lower jaw. If situated far back on the dorsum, it spreads on to the epiglottis, the pillars of the fauces, and the tonsil. The neighboring lymphatic glands—particularly those under the jaw and along the line of the carotid vessels—soon become enlarged, so that they are palpable. The submaxillary and sublingual salivary glands may also be affected.

Differential Diagnosis.—"Cancer of the tongue has to be diagnosed from syphilitic and tuberculous affections, from papillomata, and from simple ulcers and fissures. It is to be borne in mind that any of these conditions may take on malignant characters and develop into epithelioma. The microscopic examination of a portion of the growth removed under local anesthesia is often the only certain means of establishing the diagnosis, and should be had recourse to as early as possible. When there is still doubt as to the nature of the growth, it should be treated as if it were cancerous. *Gummatous ulcers* are usually situated on the dorsum of the tongue, are frequently multiple, and have sloughy, undermined edges; the surrounding parts, although indurated, are not so densely hard as in cancer; there is not necessarily any involvement of lymphatic glands. The cancerous ulcer is usually single and situated on the edge of the tongue; its edges are hard, raised, and nodular; and the glands are usually enlarged and hard. Little reliance is to be placed on the therapeutic effects of anti-syphilitic drugs in the differential diagnosis, as they are often inconclusive, and result in loss of time. *Tuberculous ulcers* usually occur in association with other unmistakable evidences of tuberculosis. *Papillomata*, when sessile, may simulate cancer; they show a marked tendency to become malignant. *Simple ulcers and fissures* are usually recognized by the history of the condition, the absence of induration and of glandular involvement, and by the fact that they heal quickly on removal of the cause.

Treatment.—"The only treatment that offers any hope of cure is free removal of the disease, and experience has proved that unless this is done early the prospect of the cure being a radical one is remote. Not only must the segment of the tongue on which the growth is situated be widely excised, but all the lymphatic connections must also be removed whether the glands are palpable enlarged or not."—(From Thomson and Miles' *Manual of Surgery.*)

6. "*The treatment of chronic empyema* consists in removing a sufficient amount of the chest wall to enable the parietes to fall in and lead to the obliteration of the cavity—*thoracoplasty.* This may be done by the Estländer-Schede operation, which consists in excising subperiosteally portions of several ribs, the number and length of the portions resected depending on the size and shape of the cavity to be obliterated. One or more incisions are made over the ribs to be dealt with, or a large horseshoe-shaped musculo-cutaneous flap, extending from the fourth to the ninth or tenth rib, is turned up, and the exposed ribs resected. The periosteum, the intercostal muscles, and the thickened parietal pleura are then removed, and the cavity packed with gauze before the flap is replaced. When the lung is firmly bound down in the vertebral groove, multiple incisions may be made through the thickened visceral pleura, or the procedure known as 'decortication of the lung' may be carried out as an addition to thoracoplasty. This consists in peeling off the thickened pleura from the surface of the lung, and stitching the latter to the skin flap."—(Thomson and Miles' *Manual of Surgery.*)

7. GONORRHEAL MONARTHRITIS.—"The disease may begin suddenly with severe pain, swelling, tenderness, redness, and edema of the affected joint. The general symptoms in such cases are extreme. There is but little fluid in the joint, the swelling and pain being the most marked local signs. In a few cases intraarticular abscesses form at an early period. After such an acute onset, the course of the case becomes very chronic, resulting in complete destruction of the joint, *i.e.*, its ligaments become lax, the cartilages are destroyed, and ankylosis follows. Gonorrheal arthritis may run a subacute or chronic course from the onset. The patients often complain of flying pains in the joints. There is no swelling, but loss of function and ankylosis frequently follow. The majority of cases of gonorrheal arthritis appear during the latter weeks of the acute stage of the disease. The condition also appears in the subacute or chronic cases.

"There is usually no difficulty in making a diagnosis, even without a bacteriological examination. The first step is to examine the urethra for pus, and the urine for clap shreds, and then stain these for the gonococcus. The only form of acute arthritis which requires differentiation, is articular rheumatism. Both of these may

begin as polyarticular lesions. Acute rheumatism is more apt to involve the smaller joints of the fingers or toes than is the gonorrheal form. In many cases the local signs are so similar in their severity as to make a differentiation impossible. The presence of a local gonorrheal infection should be sought for. If the gonococcus is found in the joint exudate, the diagnosis is confirmed. This latter is unfortunately technically a very difficult mode of diagnosis, and often results negatively. Gonorrheal arthritis is more frequently monarticular than is the ordinary acute form; there is also an absence of cardiac or other serous complications in the gonorrheal form, and a greater tendency to early ankylosis. In the more chronic forms of gonorrheal arthritis without much effusion and no tendency to ankylosis, the differentiation from chronic rheumatoid arthritis is very difficult. The most important point is to find the primary focus in the genito-urinary tract."—(Eisendrath's *Surgical Diagnosis.*)

"The *treatment* is unsatisfactory, the disease being apt to persist or recur. The urethritis should be combated, and the joints immobilized and treated locally as in other forms of arthritis. As soon as the pain subsides, passive motions should be employed to prevent ankylosis. Among the internal remedies which have been used are the salicylates, iron, quinine, strychnine, and the iodides. If suppuration occurs, the joint should be opened, irrigated, and drained. Rogers and Torrey claim good results from the hypodermic injection of an antigonococcus serum, prepared by injecting cultures of the gonococcus into rabbits. From twenty to sixty minims are administered every day or every other day until the pain and disability subside. Vaccines made from the gonococcus also have been employed."—(Stewart's *Manual of Surgery.*)

8. "CAUSES OF CHRONICITY OF ULCERS.—(1) *Defective circulation:* In lower parts of legs; in those who stand all day; in old people. (2) *Venous obstruction:* Varicose veins; after venous thrombosis, *e.g.*, "white leg;" pregnancy. (3) *Fixation of the ulcer to the underlying bone or fascia:* Prevents the edges being drawn together; prevents the base being drawn up to the edges; prevents the proper vascularization of the base of the ulcer necessary for the formation of granulations. (4) *Constitutional conditions:* Bright's disease, gout, diabetes. (5) *Continued irritation:* When an ulcer is left dirty and without any dressing. (6) *Pressure of edema.* This causes the vessels in the neighborhood to be occluded, and produces an extension of the ulcer."

"TREATMENT OF CHRONIC SIMPLE ULCERS.—(1) *Posture:* Rest with elevation of the foot. (2) *Pressure:* Simple or elastic bandages; starch bandages over dressings; strapping. (3) *Unna's Paste* is the most useful routine treatment because it combines uniform pressure with the application of a stimulating medicament. In the case of large foul ulcers a window may be cut in the dressings over the sore and the ulcer dressed daily. It is changed once a week. (4) *Dressings:* When the surface is foul: Charcoal or boracic fomentations. For mere indolence: Metal, *e.g.*, a piece of pewter cut to the size and shape of the ulcer; metallic ointments, especially zinc; resins, *e.g.*, resin ointment; oxygen, applied for half hour daily. Method: If the ointments are used they should be spread on lint cut to the shape but rather smaller than the ulcer. All old ointment should be cleaned off daily with oil. (5) *Operative treatment:* Multiple incisions in a longitudinal direction to relieve congestive edema. Undercutting the ulcer edges so as to free them from deep adhesions. Tying prominent varicose veins above the ulcer. Skin grafting: Most useful in traumatic, *e.g.*, burn ulcers. Amputation: For old ulcers of large size with base fixed to the periosteum. For ulcers encircling more than half the circumference of the limb and producing great edema of the parts below. For epithelioma."—(Grove's *Synopsis of Surgery.*)

9. ACUTE INTESTINAL OBSTRUCTION.—*Etiology:* "(1) Strangulation by bands or adhesions or through apertures; (2) volvulus; (3) acute intussusception; (4) the termination of chronic obstruction; (5) the impaction of foreign bodies; (6) strangulation over a band, or acute kinking (rare). These are mechanical causes; another common cause is peritonitis, which is an inflammatory cause.

Symptoms: "Sudden severe pain referred to the umbilicus comes on, perhaps, after an effort. Shock, evidenced by a weak pulse, a cold, clammy skin, and a subnormal temperature, accompanies the pain. The pain, intermittent at first, becomes continuous. Vomiting is persistent, and soon becomes fecal-smelling. The patient becomes exhausted by the vomiting and inability to take food. The abdomen becomes distended, and if the obstruction is not relieved, perforative peritonitis follows, so that the patient dies in about seven to ten days from the onset. Constipation is usually absolute, though the lower bowel may empty itself at first."—(*Aids to Surgery.*)

10. STONE IN THE URETER.—The symptoms are: Colic. Pain shooting along ureter. Tenderness over ureter. Hematuria. Anuria (if opposite kidney is blocked or diseased). Abdominal tumor (persistent or intermittent). Urine contains crystals, blood, or pus. Prolapse of ureter into bladder. Skiagram shows stone. In the majority of cases the symptoms are simply those of renal calculus, and diagnosis is only complete on lumbar exploration and passing ureteral sound. In some cases the stone can be felt per rectum or vaginam.

"*Differential diagnosis.*—(1) *From encysted vesical calculus:* Impossible clinically. (2) *From cystitis:* In this: Urine is alkaline. Pus at beginning or end of micturition. (3) *From ureteritis:* Difficult in absence of history of colic. (4) *From vesical tuberculosis:* In this: Tubercle in urine. Polyuria. Frequent micturition. Slight hematuria. Symptoms not relieved by rest. (5) *From prolapsed inflamed ovary:* Ovary lies behind broad ligament and at greater distance from vaginal wall. Stone is felt in antero-lateral fornix. Hardness and outline are more definite.

"*The skiagram* shows a shadow in the course of the ureter, but this has to be distinguished from that of calcareous iliac glands or that of an appendix concretion (the latter very rarely throws a shadow). *Ureteral catheterization* through the cystoscope not only shows which side is affected, but the end of the catheter may touch the stone and a waxed tip receives a scratched impression."—(Groves' *Synopsis of Surgery*).

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

OPERATIVE SURGERY. By JOHN J. MCGRATH, M.D. 863 pages, with 369 illustrations. Price, $8.00. Published by F. A. Davis Company, Philadelphia.

CHIRURGIE DER WIRBELSÄULE, DES RÜCKENMARKS, DER BAUCHDECKEN UND DES BECKENS. Von Dr. G. LEDERHOSE. 160 pages, with 20 illustrations. Published by Georg Thieme, Leipzig.

KRANKHEITEN DES GEHIRNS UND DES VERLAGERTEN MARKS. Von Prof. Dr. E. MEYER. 128 pages, with 15 illustrations. Published by Georg Thieme, Leipzig.

URINARY ANALYSIS AND DIAGNOSIS. By LOUIS HEITZMAN, M.D. 362 pages with 131 illustrations. Price, $4.00. Published by William Wood & Company, New York.

CANCER AND ITS NON-SURGICAL TREATMENT. By L. DUNCAN BULKLEY, M.D. 457 pages. Price, $6.00. Published by William Wood & Company, New York.

THE GENUINE WORKS OF HIPPOCRATES. By FRANCIS ADAMS, M.D. 754 pages. Price, $5.00. Published by William Wood & Company.

CLINICAL BACTERIOLOGY AND HÆMATOLOGY FOR PRACTITIONERS. By W. D'ESTE EMERY, M.D. 310 pages with illustrations. Price, $3.50. Published by P. Blakiston's Son & Company, Philadelphia.

SQUINT. By CLAUD WORTH, M.D. 242 pages with illustrations. Price, $3.50. Published by P. Blakiston's Son & Company, Philadelphia.

THÉRAPEUTIQUE CLINIQUE. Edited by A. MARTINET and a Staff of Collaborators. Volumes one and two. 1340 pages with illustrations. Published by Masson & Cie., Paris.

Miscellany.

THIRTEEN.

A STATISTICAL REPORT OF THE CLASS OF 1881 OF HOBART COLLEGE.

By BRANDRETH SYMONDS, M.A., M.D., LL.D.,

NEW YORK.

As a matter of vital statistics, the number thirteen has great significance for us on account of the old superstition attached to it. This says that if thirteen persons partake of a meal together, one of them will die during the ensuing year. It is essential that these persons actually partake of the meal. The presence of an extra person or two as servitors does not count. No dinner party of twelve suffers the slightest compunction, though oftentimes only one servant will be present in the room. It seems necessary also that the meal should be eaten with a common interest or in a community manner. In a restaurant, for example, the presence of one extra diner seated at a table near by, but not belonging to a party of twelve, would not be considered to raise it to thirteen. A party of thirteen seated in a restaurant falls under the ban even though there are many other diners in the same room. Furthermore, for the time being the thirteen diners are on a social equality, whatever may be their levels before and after. Much stress is laid upon this point. The clerk or the governess who is brought in to raise the fatal thirteen to an innocuous fourteen is always treated as a social equal, perhaps even disguised for the purpose, and no guest outside the family is ever requested to stay away in order to bring the number down to twelve.

Thirteen is certainly a definite element in the superstition, but did it always refer to the number of banqueters? Is it possible that it was attached to another factor at one time? The origin of the superstition lies far back, long before history. It certainly antedates the Last Supper of Our Lord, for this was followed by the death of two, though one came to life again on the third day. As no variant of the superstition has ever suggested this possibility, this origin can be dismissed. Many a bit of ancient folklore has received a similar Christian gloss.

It seems likely that this dates almost from the earliest Aryan calendar. As long as they were huntsmen only, our ancestors' very first calendar doubtless comprised only the month, the usual lunation of 29d. 12h. 44m. 7.2s. This is very nearly 29½ days, and in order to keep the record straight they alternated months of 29 and 30 days. It was necessary to know beforehand, for hunting, the nights of the bright moon and of the dark moon. When they became shepherds and herders, a solar calendar was needed as well as the lunar, and this need was emphasized when they took up farming, even in its most primitive form. The first solar calendar comprised a year of 12 months, of 29 and 30 days alternately, which makes 354 days. This is more than 11 days short of the real solar year of 365¼ days. So they intercalated 12 days at the end of the regular year, in order to start the new year at the proper point.

Our ancestors stood at this time, in point of culture, only little above the North American Indians when Columbus discovered this country. They were inferior to the Aztecs and Incas in all items of civilization, and as cruel as the former. Among such primitive people the earth, the air, and the water and everything upon them, under them, and within them are populated with demons whose function is to harass and destroy human beings and their dependents. These demons have greater license and are more malignant on intercalary days, for such days are out of the regular order and do not belong to the customary ritual. On such days mock chiefs and kings were selected who substituted for the proper authorities, doubtless with their consent and perhaps at their demand. For if a particularly dire demon got loose at this time, he would seize the substitute chief in full thought that he was getting the real authority. Indications of this idea have persisted even into the last century, in the shape of such fossils as the King of Misrule, the Abbot of Unreason, the Boy Bishop and Archbishop, and the Lord of Twelfth Night. Substitution pervaded even the family in these intercalary days, and the slave and the serf sat at table with the master and mistress and ate their meals in common with them. Perhaps the master and mistress waited on them, for all social distinctions were abolished and everyone was on a social equality. As prohibition was unknown and alcohol was just as potent in driving away the blue devils then as now, everybody got joyously drunk without a thought of morals or posterity. For twelve days the mad, drunken revelry went on with all authority topsy-turvy. But the thirteenth was the day of reckoning when the regular order was reestablished. The real chiefs and kings again took command, and then what became of the substitute chiefs and kings? They went to the high places and there, at the altars of Saturn or Chronos or some other cruel and bloodthirsty deity, they were sacrificed without remorse or pity, just like the Aztecs. Perhaps they were sacrificed as scapegoats, so that the tribe could start off the new year with the old sins wiped out. Perhaps they were sacrificed as gods of vegetation and fertility, who were killed in the full flush of health and vigor in order that the crops might be abundant. Whatever the motive, for them the thirteenth day was fatal and doubtless the regular authorities were glad to get rid of them. It was the thirteenth day then and not the thirteenth person which the faint, flickering memory of that ancient time recalls in our present superstition. There are many fossils in folklore of the twelve intercalary days. Frazer in his "Golden Bough" cites many hundreds of them. Our little superstition is the only reminder left of the fatal thirteenth day on which one human being died, who had been for twelve days the social equal of the chiefs of the tribe and had eaten and drunk with them as their peer.

How far afield statistics will lead a man who loves fairy stories. So let us get down to the brass tacks of our own class of '81.

In June, 1877, just one man received a baccalaureate degree at Hobart. In September, 1877, five of us started the class of 1881, and we adopted

as our class motto "Vires acquirit eundo," which every pundit says signifies that the class would gain strength by going on. But let me draw your attention to the fact that vires is plural and means forces as well as strength. So we lived up to our motto and gained five more members in our freshman year. We lost two at the end of it, but gained six during our sophomore year, though we lost two at the end of that. We lost one more at the end of our junior year, but gained two in the senior year. So we finished with thirteen, and that number sat down together at our senior class dinner. Before our time this number was guaranteed to raise our mortality out of sight within one year, for one actual death would have been nearly twenty times the number of deaths expected among thirteen men at our average age—22 years and 4 months. This would be a mortality ratio of nearly 2000 per cent, something awful to think of, even though it means only one death.

We went on our way rejoicing, in spite of this demon, who has now been exorcised by our precept and our example. In the 40 years that have elapsed since then, 6.8—more than one-half of us—ought to have died, but all 13 are still alive and kicking. Some of us have been very near the edge of the valley, but all have come back, just to show what '81 and Hobart can achieve.

Looking at the other end of life, our dates of birth range from July 6, 1853, to March 4, 1863, a span of ten years. The oldest is now nearly 68 and the youngest just over 58. Ten of us went into orders very early. One of these dropped out a few years ago, and just about that time another one went in, so that ten of us are still clergymen. The others went into the law and medicine.

Each one of us has done his best by his country, but when it entered the Great War, four years ago, the youngest was 54 and he had a rotten heart. So none of us got into active service, though we all worked hard in the thousandfold duties which developed at home. Those of us who had sons and daughters old enough lent them to our country, and they all returned, save that MacLure lost his daughter's husband, who had made a splendid record in France and then came back home to die of influenza in camp.

We have averaged over two children apiece and some of us have grandchildren. May their record for longevity be as good as ours. To insure this they should first drink deep of the Pierian spring at the foot of Seneca Lake. Then they can say with proper pride, "We, too, belong to the class of 1881 at Hobart."

1 West Ninety-fourth Street.

The New University of Cluj, Roumania.—A descriptive article in *La Presse Médcale*, 1921, xxix, 15, states that the doors of this new school have been open to students for about a year. A corps of young professors has been assembled from the older universities of the kingdom, and it is the intention to complete the faculty with French professors and make the new institution preeminently Latin in culture. The incumbents in the chairs of the various sciences have mostly French names. The university town of Cluj already shelters about 2000 students who come from Transylvania and elsewhere. A Pasteur Institute for general research will soon be established. The installation for clinical instruction and laboratory work will be superior in character. Each clinic will have its separate amphitheatre, operating room, laboratory, etc. The older universities at Bucharest and Jassy have naturally been drawn upon heavily for good men, and many of these have been assistants to the famous medical Roumanians, Jonnesco, Marinesco, and Babès. Many of the eminent men of the older faculties received their education in the University of Paris, and the selection of prominent Parisians to fill chairs in this new school will be in obedience to tradition. Before the war there were numerous men on the university faculties who were unfamiliar with the Roumanian language and who were strongly tinctured with Teutonic ideas. Many were from Austrian or rather Hungarian colleges. The character of the textbooks will eventually be changed from German to French, if the French professor can bring it about, although German books are now much cheaper and many of the students are ignorant of the French tongue.

Prescribing for a Sick Stream.—An intensive study of stream pollution, with special regard to the establishment of a general plan by which any polluted stream in the United States might be purified at a minimum expense, has recently been begun by the United States Public Health Service. As is well known, a polluted stream tends to purify itself, but its power in this direction depends on the amount and character of the original pollution, on the volume and speed of the current, and on the extent to which new pollution is added along its course.

The Service has selected for study the Chicago Main Drainage Channel and the Illinois River (which empties into the Mississippi), chiefly because all the primary pollution of this stream originates in Chicago and is accurately ascertainable, both as to amount and character. Analyses taken along the course of the canal and river will determine the degree and nature of the changes that take place in it. Where new pollution is added, its amount and character must be ascertained; and its effect on the old pollution learned. This last is important, for it is quite possible that sundry industrial wastes might neutralize each other or might destroy certain types of organic pollution. Similar work was done on the Ohio River from 1914 to 1917; and the present study is to check the results obtained there.

The final object is to establish fundamental quantitative relationships between bacteriological and chemical pollution of a stream, on the one hand, and basic principles, such as population, industrial wastes, stream flow, and prevailing temperature, on the other. These relationships, once established, will guide the sanitary engineers as "stream doctors" in prescribing for a sick stream the sort of tonic required to restore it to health, and thereby make it available for human consumption or industrial purposes or both, as may be desired. The work in Illinois is in immediate charge of J. K. Hoskins, associate sanitary engineer of the United States Public Health Service, and is under the general supervision of Surgeon W. H. Frost.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 4.
Whole No. 2646.

NEW YORK, JULY 23, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

ENCEPHALITIS COMPLETA.

DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS

BY J. VICTOR HABERMAN, A.B., M.D., M.S.D. (Berlin)

NEW YORK.

"ONLY rarely can the diagnosis 'Encephalitis acuta' be made with certainty" (Oppenheim).

The following study comprises a brief yet complete examination of the subject of encephalitis—encephalitis in the fuller all-types-embracing sense. The matter scanned from this larger premise has peculiar interest in bringing into survey the sporadic incidence of encephalitis and its relation to various disease forms, as well as its epidemic manifestation, the latter so decidedly limelighted in the literature of the moment. There are, furthermore, the end results to be thought of which through deformities lead to orthopedics—the acute cerebral palsies of childhood—and through epilepsy and feeblemindedness to neurology and psychiatry. Finally there are the chronic forms, some evanescing out of the acute attacks, some insidious processes from the start, linking up the subject with the scleroses, with strange brain edemas and obscure lenticular disease.

1. SECONDARY ENCEPHALITIS.*

Encephalitis is an inflammation of the brain tissue (brain stem [and spinal cord]—rarely the cerebelum—being sometimes likewise involved) occurring for the most part in circumscribed areas, one or more, or in disseminated patches, less often involving a lobe, still more rarely a hemisphere or the entire cortex. It may affect the gray matter only (poliencephalitis) or—more usually—both gray and white matter diffusely (in which case we simply speak of *encephalitis*). Here no sharp clinical differentiation can be made. Strange to say, the motor area (in bulbar and pontine involvements the motor nuclei) is chiefly affected. In this secondary form a convexity involvement prevails, mostly of one hemisphere (sometimes of adjoining portions of both), tending thus far more often to hemiplegia than to diplegia. This inflammation scarcely ever leads to suppuration (it is lymphocytic, not polynuclear). In fact, when we speak of *encephalitis* we have in mind an acute, hemorrhagic, non-suppurative disease. In the exceptional cases pus forms and we have either *purulent encephalitis* or *brain abscess*.

This inflammatory process may be primary, as we shall see; usually, however—if we for the moment exclude Heine-Medin disease and the "epidemic" form—it is secondary either to the infectious diseases (bacteria or toxins of same), to intestinal, ptomaine, and occasionally gas and other poisoning, or to trauma.† Occasionally it occurs on the outskirts of an area of hemorrhage (from one cause or another), possibly, too, in the case of softening from thrombus. In the infections not only the disease toxins but the actual organisms may get into the brain.

Of the infections, those mostly implicated are influenza (to be discussed in detail below), scarlet fever,‡ measles, diphtheria,‡ pneumonia and pertussis. Oppenheim[1] cites cases following tonsillitis, and several pointing to erysipelas, Gowers,[2] a case following mumps.§ It has been seen in dysentery (Lenhartz) and in the wake of typhoid,[3] in con-

*In the present paper *Secondary Encephalitis* will be especially dealt with, though the entire field—Encephalitis Completa—is noted in the background and considered in differential diagnosis. In the subsequent paper the first form of *Primary Encephalitis*, namely Epidemic Encephalitis will be taken up.

†Such cases in which the brain tissue may be torn or bits of bone driven in without bacteria entering the brain. Occasionally through a blow or concussion without skull injury or tearing of brain substance, an inflammatory process takes place just under the external seat of injury. In brain trauma bacterial inflammation, however, has occurred even without external wounds or injury to the skull. Whether this is due to the injured brain becoming a good soil for the multiplication of stray bacteria which happen at the moment to be there—ordinarily harmless—or in some other way, we do not yet know. The encephalitis usually follows ½ to 9 days after the trauma (Ziehen). *cf.* also on trauma under differential diagnosis.

‡In scarlet fever, meningitis and encephalitis symptoms are by no means rare—yet in autopsied cases, if ear disease has not been present, little is found to explain matters. One helps oneself out of the embarrassment by then diagnosing "pseudo-meningitis" or "meningism." Encephalitis is very uncommon. When it occurs, it is cortical. Besides the usual encephalitis symptoms one has occasionally noted an impulsion symptom—the tendency constantly to turn in one direction (Romberg in No. 11, p. 145). Occasionally, just before or after the fall of temperature, a confusional psychosis may for a brief time obtain. There may also occur in scarlet fever a hemiplegia due to embolism (autopsied case by Chapelle and Taylor) and finally a pyemic-metastatic involvement of the brain (just as there may be a joint or kidney involvement). In an extremely interesting case of Bungart's (for details and reference see under "Differential Diagnosis") the patient, an adult, because of continuing convulsions, was trephined. An area of encephalitic softening was found in the left temporal lobe, and drained. *He recovered entirely.* A case of scarlatinal encephalitis of the cerebellum was demonstrated at the Society of N. & P. in Vienna, in June 1919.

§A study of A. L. Dynkin's makes it appear that cases heretofore possibly taken for encephalitis are really due to embolism following cardiac involvement (thrombosis of the cerebral vessels). Dynkin does not

nection with malaria, and once with erythema nodosum. The tubercle bacillus may provoke encephalitis (Nonne) and also the Weichselbaum diplococcus, the latter even without involving the meninges. Recently anthrax, unsuspected, was discovered as the cause in a group of cases. In a patient of Königsberger gonorrhea appears to have been the underlying factor. Lues is mentioned by Oppenheim, but appears to be unusual. Heubner,* however, says that without doubt syphilis lies in the background of some of these cases, though the connection has not yet been cleared up. (Chronic syphilitic encephalitis, or meningo-encephalitis, however, is by no means uncommon.)*

In the child alcohol plays the very rarest rôle; in the adult, however, chronic alcoholism has been a decided factor, producing a special form of the disease, *i.e.* the *poliencephalitis superior hemorrhagica of Wernicke*).† The possibility of sunstroke and heat stroke as an etiological factor, though probably rare, must be kept in mind. I remember a remarkable occurrence of the latter in Nonne's wards, the case at first being thought hysteria.

In the majority of heat stroke cases and heat stroke from insolation, however, not encephalitis, but edema of the brain, sometimes also of the leptomeninges, with marked generalized passive hyperemia, is found.[a] Rawling, in his study of cerebral edema, also states that edema was found in his patients suffering from "heat effects." The symptoms were headache, usually frontal, worse toward evening, vomiting, ocular changes, slow pulse, rise in systolic pressure, exaggeration of reflexes, slight rise in temperature, more marked during the headaches, and epileptiform convulsions. Several cases showed mental predisposition. Rawling believed the symptoms due to excess of cerebrospinal fluid, and decompressed.* (*Brit. Med. Jour.*, May 4, 1918.)

Encephalitis has also occurred in meat, sausage (botulism), fish,† mushroom, and carbon monoxide poisoning (*i.e.* so-called "ptomaine-paralyses" or "toxic poliencephalitis").‡ Finally, Oppenheim calls attention (No. 1, p. 10) to a non-purulent encephalitis, come upon in individuals who had or once had had a purulent otitis. Yet this matter and connection, Oppenheim states, is not quite clear. In passing, one might for completeness' sake also give variola, mentioned by Moreau[w] and Moritz,[n] as a possible etiological factor, chicken pox,§ mentioned by Heubner, and apparently, rarely, malignant endocarditis and lyssa (hydrophobia).

Besides these "secondary" cases and the "primary" already alluded to (*i.e.* Heine-Medin, influenzal, and "epidemic"), there are quite an appreciable number of instances in which no cause of any kind, either etiologically or pathologically, was dis-

think any diphtheritic case has yet been shown in which the paralyses were due to an encephalitis. He does not deny, however, that encephalitis may occur (*Jahrbuch f. Kinderheilkunde*, July, 1913). The tendency of the diphtheritic toxins to cause neuritis complicates the difficulties of diagnosis. Thus a bulbar paralysis has been described in diphtheria on a neuritic basis. So Oppenheim (No. 1, p 97) also states that it is impossible to say whether an ophthalmoplegia post-diphtheritica is due to neuritis or encephalitis. Extremely rarely diphtheria toxins cause "*a postinfectious psychosis*." In a case of Kühn this lasted for three months (cited by Ziehen).

§ It may be interesting to note in this connection that, though mumps encephalitis appears to be rare, a lymphocytic (serous) meningitis is most common. This was noticed by Massary, Tockmann and Luce in nearly all their mumps cases in soldiers in 1915 (*Cf.* Bulletin de l'Académie Médecine, Paris, July 3, lxxviii, No. 27, p. 6), as also by Herrick and Dannenberg.[s] *Cf.* also H. R. Casparis, A. J. D. Ch., September, 1919; W. R. Larkin, the Mil. Surgeon, January, 1919.

*Typhoid (toxemia) more often causes a meningitis serosa; delirium, however, may be present without such meningitis as an accompaniment to the high temperature, subsiding as the temperature or the disease itself subsides. Such delirium may again persist after the disease has abated, *i. e.* prove a "post (infectious) typhoidal" psychosis. This again may clear up. Finally, besides the possibility of an encephalitis (rather unusual), one may get a typhoid focal infection of the brain leading to "post-infectious imbecility or dementia."[t] Cases have also been described appearing to be an encephalitis (hemiplegia, etc.) which have entirely cleared up and may have been of the nature of an edema (?).[v]

*There are cases of congenital or acquired syphilis in which a low grade chronic process (interstitial or vascular) is going on in the brain, the individual showing no signs or symptoms whatsoever. Suddenly, without any warning, there is an acute "flare-up" with a convulsion or coma or delirium, etc. It may be interesting to mention that a toxic hemorrhagic *encephalitis* has been caused by injections of salvarsan (Zaloziecki, *D. Z. f. N.*, 1913, Bd. xlvi, H. 3., also Reif, *M. m. W.* No. 1, 1921). A Landry's paralysis from Nonne's wards has also been reported from such injection.[r] *Cf.* on syphilis under "Differential Diagnosis."

†Dana states that in about one out of ten autopsies on the brain of persons who died from *acute* alcoholism, he found large foci of hemorrhagic softening with evidence of inflammatory reaction about it.

*Comparing these symptoms with those found in chlorosis, it would appear to us that there was a greater (severer) change present in these patients than mere "excess of cerebrospinal fluid." (*Cf.* Differential Diagnosis.)

†A very interesting case for the psychiatrist is that of C. W. Burr, "Chronic Dementia, Cerebellar Ataxia and Epileptiform Convulsions in a Boy, caused by Ptomaine Poisoning from Eating Canned Salmon," *J. of A. M. A.*, May 30, 1914, p. 1712.

‡In carbon monoxide poisoning the characteristic brain lesion is a *bilateral* necrosis of the lenticular nucleus. Punctiform hemorrhage may occur throughout the white matter. (*Cf.* Hill and Semerak, *J. A. M. A.*, August 24, 1918.) Psychoses with intelligence defect and severest memory disturbance may also obtain—even with subsequent recovery. (*Cf.* Breitung, *Allg. Zsch. f. Psych.*, 76, H. 3.) The report of a case of poisoning by hydrocyanic gas made by Dr. Samuel Lamber is not only highly interesting, but contains a very instructive fact. The spinal fluid in this patient was under normal pressure, but gave a cell count of 207, 45 per cent. of which were polymorphonuclears. This, together with some of his symptoms, would suggest a purulent meningitis. Nine days after, the fluid was clear, 120 cells, 60 per cent. now lymphocytes. Necropsy showed *no meningitis, but distinct encephalitis*, small hemorrhagic areas in the white matter and neuronophagia changes. The cerebellum was most affected. The corpus striatum and thalamus escaped (contrary to carbon monoxide poisoning). There are many other interesting features in this case, the absent knee-jerks, the muscular twitchings (which latter the author attributes to the cerebellum—though we would place the source of this in the cerebrum itself), etc. (See *Neurol. Bulletin*, March, 1919.)

Several cases of veronal poisoning have been described which clinically resembled encephalitis. The patients recovered.

§Sachs mentions an interesting case in which, following a single convulsion at the onset of chickenpox, a (till then) healthy child of 15 months lost its speech and remained thereafter in a condition of complete idiocy. Sachs holds this due to the convulsion, intimating, I believe (by what precedes), the occurrence of hemorrhage due to the convulsion. The possibility of this having been an *encephalitis* (in the light of the evidence we have to-day [and *cf.* what we say under pertussis] cannot, however, be excluded. (B. Sachs, Nervous Diseases of Children, 1905, p. 438).

coverable, even though in some of these (lethal) cases necropsy examination was made (*i.e.* no abnormality whatsoever being found in the brain).

No age is exempt; yet the largest part of this chapter belongs to childhood, the majority of cases being seen in the second and third years. The disease is rare within the first nine months, though it does occur even in the earliest,* and is but uncommonly seen after the fifth.†

Course and Symptoms.—During the course or near the end of one of the above infections, there is a sudden rise of temperature (sometimes a chill), and with this the appearance of *general brain symptoms, i.e.* headache,‡ vomiting, a convulsion, followed by sopor or coma, with delirium after the coma subsides. For a day or two before, prodromata of malaise, headache, dizziness, or somnolence may have been noticed. In children, fever, vomiting, and convulsions almost always occur; in adults, convulsions may be absent, as likewise temperature (the last frequently absent, it will be remembered, in poliomyelitis and poliencephalitis, *i.e.* Heine-Medin disease, sometimes absent in the epidemic form and usually absent in the Wernicke type). The temperature comes down after a few days—though occasionally it may persist considerably longer. At times, yet rarely enough, there are cases in which sudden paralyses are noticed with scarcely any previous indisposition. Holt even mentions a child going to bed as well as ever, awaking in the morning hemiplegic. There may be a single convulsion or a series (general, half-sided, or Jacksonian), after which it is noticed that the child does not use its arm, has a facial paralysis§ or is aphasic;* or this is first noticed after the coma, if present, lets up and consciousness returns. For the most part pareses or paralyses are present *by the second, third or fourth day*, a matter of considerable importance in the differential diagnosis (Ziehen). During the early sopor or coma a tremor may be seen in a limb, or choreiform movements, or jactitations (*i.e.* cortical irritation), usually in the limb later to be found paralyzed. Or weakness in a limb is first noticed, which gradually becomes distinctly paretic and then paralyzed (the paresis or paralysis being accompanied by hypertonus or spasticity). The involvement is for the most part *hemiplegic* (with involvement of the face. Occasionally it is diplegic, rarely monoplegic).

Cases have been described in which, in the course of an acute infection, pneumonia or intestinal intoxication, a child (usually between the ages of 2 and 4) develops a large coarse tremor of the extremities and head, which is intensified by affect, scarcely by active movements, and usually does not entirely disappear during sleep. Occasionally it is half-sided. Occasionally, too, one finds mild pareses, spasticity, and ataxia. From here there are transition forms to real *encephalitis with tremor*. The cases clear up within 2 to 12 weeks. They have been written of under the title of "acute cerebral tremor." Ziehen,† however, terms them the "*tremor form of encephalitis*" and believes they are not different from the forms with paralysis, but rather shade gradually into them. He mentions the possibility at times of a toxicosis of various ganglion cells being the underlying cause rather than an inflammation.

More recently L. Sironi (*Rivista di Clinica Pediatrica*, May, 1918), in a study of *tremors of infants*, suggests that the cause of this symptom seen in early infancy is usually an abnormality in the cortical motor area, traceable in some to toxic infection, in others to gastrointestinal or pulmonary disturbances. Hereditary predisposition seems to play a very decided part. [He mentions, incidentally, that the toxic infection may excite the thyroid and overstimulate its activity, this being particularly apt to occur in malaria.] Still more recently Schippers (*Nederland. Tijdschrift v. Geneesk.* Amsterdam, Sept. 11, 1920, published 5 cases of tremors in children. In one, together with two other children of the family, there was a hereditary familial tremor. In two infants of a year there was an "acute cerebral slow tremor with wide excursions" in neck and limbs, persisted in sleep, exaggerated by excitement. S. comments that such tremors may be one-sided or in one arm or leg, and that there may be spastic phenomena, paresis and ataxia, always preceded by infectious disease or enteritis. *In one case the child grew up feebleminded.* Such tremor may be the first clue to meningitis, hence lumbar puncture should be done. In S.'s fifth case there was evidence of high pressure. Necropsy revealed hydrocephalus with suppuration in the ventricles. Such tremor as an early and single sign of meningitis is rare, yet there is a case (Göppert) on record.

Occasionally abnormal motor phenomena are noticed after the infection clears up. Thus Fürbringer (*D. m. W.* 1889, No. 4) reported a case of post-scarlatinal hemiatheto-choreatic movements due, as he believed, to an encephalitis. It may also be of interest in this connection to mention that recent studies of the pathological anatomy of (infectious) chorea point to an infectious or toxic (Jacobsohn) or septic form (Orzechowski) of a variously distributed encephalitis.‡ Chorei-

*The cases of early infancy—sometimes occurring after severe intestinal disturbance—rarely survive. These cases will be found separately studied by Zappert,[12] also by Finkelstein.[13] In these cases the disease is more apt to be primary and the result of a septic process. Finkelstein, in fact, calls this type "septic encephalitis." The condition lasts one or two weeks, the diagnosis from meningitis being almost impossible. Most of these infants have been premature. In many, according to Finkelstein, the trouble must have begun intrauterine. The brain changes found at autopsy have been very great. (*Cf.* also Fischl's publication [a case of encephalitis in an infant of 12 days], *Prag. med. Woch*, No. 26-28, 1897.) See also in this connection the *Encephalitis interstitialis congenita* of Virchow (*Cf.* W. Ceelen's recent paper [Gehirnbefunde bei Neugeborenen und Säuglingen. Encephalitis congenita Virchow's. *Virch. Arch.* 227, 1920, H. 2.] and the *Pseudotetanus* of Escherich (Traité des Maladies de l'Enfance, Vol. IV, p. 766). An instructive case of this sort is given by O. Witzinger, Klinik des Pseudotetanus. *Zeit. f. Kind.*, Bd. v, H. 6. Here the condition (generalized tonic spasm) began 5 days after a blow on nape of neck. This "latent period" should be borne in mind. Cf. also abscess, "late hemorrhage," etc. Where there is a wound (in very young infants inspect the umbilicus!) *real tetanus* may be the cause. In some tetanus cases there is fever, in some none.

†Gowers found 3 5 of his own cases occurring in the first two years, ¾ in the first three years, ⅞ in the first five. He found them equally numerous in the first and second years. In the traumatic influenza and poliencephalomyelitis types, older children and adolescents were more often affected.

‡This symptom, however, is not as pronounced and severe as in a meningitis.

§This being central, *cortical*, does not involve the eyes—*i. e.* is a "mouth-face paralysis." It does not occur bilaterally. In the primary forms the facial paralysis occurring is for the most part *nuclear*, and hence complete. Occasionally, however, for some unexplained reason (partial involvement "of nucleus"?) the paralysis is not complete. In the epidemic form the paralysis is more often bilateral and includes a partial ptosis, due to involvement of the 3d nerve. For complete *differential* see under "epidemic" form.

*Aphasia is also frequent enough in the cerebral form of Heine-Medin disease; but it never occurs, or but most rarely, in epidemic encephalitis (which is not "cortical").

†See Cramer's article in No. 15. For Orzechowski's full study, see the Arbeiten aus dem Neurol. Institut von Obersteiner, Leipzig & Wien., 1907. Pbl. Deuticke.

form manifestations have been seen in poliomyelitis, but this is very rare. Thus Netter and Ribadeau-Dumas reported a case of paralysis of limbs and choreic movements of the face and protraction of tongue in a six-months-old infant. Necropsy showed typical poliomyelitis.

Cf. also two cases (the sporadic) of *acute infectious myoclonus multiplex*, published by J. R. Hunt.[16] In these cases there was temperature, shooting pain, delirium, *myoclonus* and *myokymia*, but no paralyses. The one autopsied case evidenced neither macroscopic nor microscopic brain changes that could be held accountable for the disease. The remaining (epidemic) cases of Hunt's, save that they were seen during the time we had epidemic encephalitis with us, seem to have little, if anything, in common with so-called "epidemic" or "lethargic encephalitis." Still Strümpell and others mention "epidemic" cases with very similar symptoms[17] which makes it appear that the virus of epidemic-encephalitis also can cause myoclonus.

An instructive case of myoclonus was shown at a psychiatric meeting at Bonn, June, 1911.[18] A man of 59, denying syphilis (wife, however, having paresis), noticed myoclonic movements in the left leg—no other symptoms. After a time sudden paralysis was added. There was spastic paralysis with Babinski and clonus, also decided anesthesia. In spite of the paralysis the myoclonus continued. Lumbar puncture showed no pleocytosis! Nevertheless patient was given antisyphilitic treatment, and in 20 days both the paralysis and myoclonus began to let up. Clonus disappeared; Babinski still present, likewise the anesthesia. "Probability diagnosis" a circumscribed syphilitic meningitis in the region of the cortical leg center. (In the same issue, No. 18, p. 1147, A. Westphal reported on two "odd" cases of *familiar myoclonia*, beginning at the age of 20 or so in two sisters. Westphal did not think the cases organic, yet wishes to separate them from hysteria.)

J. Hoffmann[19] also cites a case of myokymia in a syphilitic, which improved on antiluetic treatment. This patient, 21 years old, had had poliomyelitis at the age of 2½, both legs affected. He acquired syphilis at 20. Soon after weakness and twitching were noticed in the legs, and the myokymia gradually spread to all the muscles (which were not the seat of paralysis due to the earlier polio) up to the neck. In another poliomyelitis case of Hoffmann's, however, fibrillary twitching occurred *in* the paralyzed muscles. Brorström also mentions a poliomyelitis case with twitching in the arms and legs, lasting a day, no paralyses supervening (l. c. No. 30, p. 146).

Finally, *myokymia* has been noted in polyneuritis (l. c. No. 19a.,19 b.) and needs be kept in mind. (For a full discussion of these abnormal motor phenomena see under *epidemic-encephaltis*.)

If the left brain is the seat of trouble, aphasia frequently occurs. Sometimes there is a hemiparalysis of the tongue (which points to the paralyzed side) and conjugate deviation of the eyes and head. Occasionally there is visual disturbance due to involvement of one or both occipital lobes (see cases below). Optic neuritis has several times been seen (Oppenheim), but very rarely are other cranial nerves involved.* *This applies to the general, infectious-toxic forms, which are chiefly convexity or vertex affections.*

Psychic symptoms also occur, irritability, somnolence or sopor and delirium. Occasionally confusion, disorientation and excitable states bordering on mania have been described. Rarely (in adults) the disease begins with acute delirium or confusional states.† Very probably these are cases in predisposed individuals. These symptoms, however, need not be dwelt upon here, as they will be discussed more fully further on.

Keeping this postinfectious-toxic, chiefly secondary, chiefly convexity (vertex) form of the disease in mind, we must now note some special types, several considered from the viewpoint of etiology, several from that of regional involvement.

Influenzal Encephalitis.—The first of these is that associated in *Influenza*. Influenza, like scarlet fever and other infections, has produced secondary encephalitis. The Pfeiffer organism itself has been found in the brain (was, in fact, the first organism to be locally demonstrated in encephalitis). Such (sporadic) cerebral involvement occurred especially during grippe epidemics and often enough to make many observers term this (*i.e.* grippe encephalitis) the most frequent type of encephalitic disease. And now the "new" epidemic form again brings up the controversy through its apparently close association with epidemics of grippe. The influenza infection itself has characteristics we might for the moment recall: its spread in the body is disseminated and diffuse; it has a strong predilection for the nervous system;* its anatomopathological effects consist of many minute punctate ("flea-bite") hemorrhages—found in the various organs, so well demonstrated at times in the membrana tympani of the ear. And just this same diffuse, disseminated, punctate hemorrhagic condition has been found in the influenzal encephalitic brain at autopsy. *It is usually a convexity affection,† also usually involving but one hemisphere, and the motor area of that.*

This brain involvement may occur during the influenza attack, or just as it is clearing up and the temperature has declined; yet more usually, and this is interesting, it appears *after the infection has terminated*, possibly several weeks, even months, after. Suddenly the temperature again rises, there is vomiting, convulsions, possibly delirium, and coma. Lethargy may supervene or a strong tendency to protracted sleep. These symptoms are also noticed in the usual postinfectious type; only in the grippe cases they seem to be very marked when present, very intense, so that sometimes one can scarcely rouse the patient, or, as in a case of Heubner's, finds the condition quite uncombatable. There are cases, however, in which lethargy does not at all occur.

Very probably the psychic disturbances at times noticed after an influenza attack must occasionally (probably often) be attributed to an encephalitic process (*cf.* typhoid above). These may be severe.

---

*This is in contrast to epidemic encephalitis, in which outspoken optic neuritis has very rarely been seen, though slight affection of the discs has several times been reported while pareses and paralyses of other cranial nerves, especially the 3d and 7th are common.

†Delirium is often met in influenza; it is rarely, if ever, mentioned in poliomyelitis, or the cerebral form of that disease. It is not infrequent in epidemic encephalitis, and *is usual* with the choreic and myoclonic forms. It may, in fact, *per se*, constitute a "cortical type" of that disease. We must keep delirium in mind as being possibly only an accompaniment to temperature or toxemia in a (any) disease—especially occurring in nervous, overreactive children. It may occur as a postinfectious psychotic phenomenon, lasting beyond the disease itself. It is a usual symptom of certain poisonings, as with alcohol, belladonna, etc.

*Leichtenstern,[20] after the epidemic of 1890, recognized the fact that this infectious disease, and it preeminently compared with others, was characterized by its intense neurotoxic effects. Leichtenstern at the time also called attention to apoplectiform mono- and hemiplegias (and Jacksonian attacks), occurring on the basis of an acute hemorrhagic encephalitis.

†But occasionally sporadic influenza may also affect the bulbar nuclei, rarely, perhaps (?) the basal ganglia.

Hallucinatory confusional states, lasting for many weeks, even spells of mania have been seen, even in children (*cf.* Heubner, *l.c.*, vol. i, p. 572).

In an adult patient referred to me influenza had been diagnosed three months previous. Besides the catarrhal symptoms the patient had run a high temperature in which she sang and talked. This delirium lasted two months, an irregular temperature persisting all the while. The patient was said to have been decidedly nervous as a child (had fear of the dark and of certain people, enuresis up to 12), and was thus, without question, a predisposed individual. A neurological examination elicited little that was abnormal: the reflexes were strong, r.-l., the pupils were a trifle sluggish (this soon cleared up), the pulse was full and somewhat bounding, but not accelerated, the extremities normal. The gaze, however, was distinctly psychotic, "starey" and furtive. On the mental side the patient was restless, noisy, talked and acted "foolish," as the mother put it, that is, laughed and scowled without rhyme or reason, had illusions and delusions, and especially distrusted her mother, who had been taking the best care of her. Gradually, a month after I first saw her, improvement set in, and a month later she was entirely clear and well.

It appears that the psychopathic effects of influenza may be of all degrees, shadings and varieties. This is especially well brought out in an excellent series of reports of Menninger,[21] out of the Boston State Hospital. Not only is it evidenced here that the toxins of influenza may cause all forms of neuroses and psychoses, but that a normal individual may, through such influenza, become psychoneurotic, manic-depressive, or schizophrenic, etc., as well as the predisposed, and that existing abnormal conditions are made worse, a psychopathy become a psychosis a neurosyphilis a paresis, a moron, an imbecile, etc.

Just to what actual brain process the psychic and psychosomatic changes are to be attributed is not brought out in Menninger's studies. That an encephalitis is here and there the underlying cause, seems, however, apparent, the following case, reported with necropsy, being illuminating in this connection:

The patient, a woman of 43, came down with acute grippe Sept. 10, 1919. Palpitation and a fear of death kept her from sleeping. Taken to hospital, there 15 days, during which period she was agitated, querulous and complaint of pain. Went home was two weeks in bed, then 6 weeks up. Depressed, complained of impaired digestion, intense constipation, and that she could not possibly live. Made many pretended and one real attempt at suicide. Ten weeks after the influenza, brought to hospital. Was agitated, apprehensive. Examination negative, save for absent knee-jerks. On the sixth day after admission she was found unconscious, with a pulse of 140, temp. 104°. So she remained for ten days, when she died. The necropsy (brain examination by Dr. Southard) showed an extensive cerebral hemorrhage, with evidence of many petechial hemorrhages throughout the cortex, bloody fluid in the 3d ventricle and also acute leptomeningitis.

Two very typical cases of *influenza encephalitis* are reported by Högler,[22] the one with necropsy:

Case I. Patient 16 years old. Takes sick Oct. 17 with fever, headache, nosebleed, exhaustion, and coughing (with blood-stained sputum). On the 22d amaurosis abtains. On the 23d patient becomes unconscious. Urine shows albumin. Diazo positive.

Status Oct. 24: Unconscious. Temp. 40°. Subicteric. Multiple little bleedings into skin, especially in upper extremities. Opisthotonus. Kernig. Hyperesthesia of skin. Tonic-clonic convulsions in the extremities, occasionally in the entire body. Rigidity of muscles. Increased reflexes. Abdominal reflex not obtained. Abdomen scaphoid. Pupils wide, react to l. and a. Fundi normal. Pulse 112.

Oct. 26. Exitus. Necropsy: Suppurative bronchitis, abscess in lung, mycotic endocarditis of mitral valve. Metastatic abscess in liver and spleen. Bleedings into skin. *Encephalitis hemorrhagica of left occipital lobe, with secondary hemorrhage, hemorrhage into centrum semiovale of r. hemisphere with softening. Multiple encephalitic foci throughout the brain (including r. occipital lobe).*

Microscopically minute bleedings. The vessels show no wall infiltration, but *severe necroses of the walls, and necrosis of neighboring tissue.* Here and there small accumulations of polynuclear leucocytes, so that one had to think of beginning of multiple minute abscesses. The gray substance was less affected than the white.* [The cortical nature of the amaurosis is to be borne in mind.]

Case II. Patient aged 27. Gradually fever set in with headache, pains in the joints, general exhaustion, coughing and pain in chest. These symptoms for 5 days. In hospital Oct. 13. Dyspnea, unrest, pneumonia. Urine shows albumen. Pupils wide, react to l. and a. Reflexes lively. 16th: temperature high. 23rd: *temperature again, and now somnolence, headache, hyperesthesia* (involvement of brain). 24th: Sensorium strongly clouded. Some stiffening of neck. 27th: Still comatose, tonic-clonic seizures in right half of body, especially severe in right arm, with drawing of mouth to right. These (Jacksonian) spells of several minutes duration, 30 on that day. Following attacks coma severer. Reflexes stronger on r. No Babinski. 30th: seizures decrease, but occasionally trismus starts them. R. up. extr. paretic. Nov. 2: double-sided myringitis. Very soon now the arm clears up; sensorium clears slowly, yet still somnolent on Nov. 19. Still has headache on left. Recovers completely Dec. 7.

In both cases we find the brain involvement coming on several days after a general catarrhal infection had taken place.

An interesting case in a child is found in a report of a group of cases of Heiman's.[23] A girl 3 years old was admitted to the Mt. Sinai Hospital with a history of influenza two weeks previous. Four days before admission the mother noticed the onset of spells lasting about a half-hour and appearing every 3 or 4 hours, during which the child would cry and shout in wild excitement. This continued for several days in the ward. Recovery in ten days. (Details of case not given. Hysteria?)

S. Notkin (*Corr.-Blatt f. Schweizer Aerzte*, Dec. 14, 1918) reported a series of influenza (mental) cases, in two of which acute mania occurred, and in two others a latent dementia praecox was set into pronounced action. E. F. Sanz (*Revista de Med.*, etc., Madrid, Jan. 7, 1919) reports some severe cases arising out of mild influenza. In one case the psychosis took the form of an acute melancholia with suicidal tendency and refusal to eat. W. C. Sandy (*Archives of Neur. and Psych.*, August, 1920) discusses a very extensive series of neuro-psychopathic army cases in a decidedly "brief" way. In 73 cases influenza was deemed a causative factor. Of these there were 32 infective-exhaustive psychoses, mostly with delirium, 7 dementia praecox, several of which were entirely well up to the influenza, 4 manic-depressives, 19 psychoneuroses, 2 with constitutional-, 2 with mental-deficiency, 2 with paralyses of the facial nerve, 2 with neuritis, 2 with cerebral embolism, one with hyperthyroidism. It is to be regretted that these cases were not reported in detail and with data showing on what the diagnosis was made. A similarly undetailed report is one by E. W. Fell (Post-influenzal Psychoses, *J. of A. M. A.*, June 7, 1919). Out of 2500 influenza cases treated at the Walter Reed Gen. Hosp., only 4 cases developed psychotic states which required attention after the subsidence of the fever (and three of these had pronounced pneumonia consolidations). Beside these four, 16 other cases were admitted to the psychiatric wards, in which influenza

*Ziehen (*l.c.* No. 15) points out in his general chapter on Encephalitis that the usual pathological lesion is in the centrum semiovale near the cortex, more rarely in the cortex itself.

played some etiological part. The author divides these 20 cases into three groups, Manic-depressives, 8 cases; Infective psychoses, 7 cases; Dementia praecox, 5 cases. Predisposition seemed present only in the first group (cf. also L. Bouchert, *Rev. méd* March-April, 1919, and S. C. Jelliffe, *N. Y. M. J.*, October 26, 1919.)

Of considerable diagnostic interest, and rather instructive, is a post-influenzal (but not encephalitic) case reported by Langstein[4] in 1912, one which might have been dubiously diagnosed or later misinterpreted, if not attended by so careful an observer. This was an infant of one and a half years who, together with several other members of the family, had come down with bad influenza, the infection severely invalidating its heart (myodegeneration with very considerable dilatation). While under observation, it suddenly developed a complete right-hemiplegia, due presumably to *cerebral embolism*. There was a paralysis of the right face, arm, and leg. There had been no convulsion. On the other hand, "an enormous" painfulness of the left half of the head obtained, which only disappeared after 48 hours. Little by little nearly everything cleared up (now 3 months after the *stroke*), save for some slight spasms, especially in the arm, less so in the leg.

The impression obtained from the recent literature is that the influenza-caused psychoses far outnumber the non-psychotic (somatic) cerebral cases. Why the one and why the other? With the lack of care shown in gathering the anamnestic data in many of the above papers, it is impossible to say whether predisposition will explain this matter. There are other probabilities that come up. Some of the really encephalitic cases have no doubt been rubricced under meningitis, and are missed in these statistics. Still the number cannot be large. We might consider intensity of infection, *i.e.* intoxication vs. infection (with different degrees or forms of pathological process?). Or again electivity of areas involved (Flechsig's?, frontal?) with resulting diaschesis. The answer will in all probability be found in the domain of psychophysics, and in the electivity of cells (groups of cells) in which the *psychic phenomenon* is possible (*i.e.* psycho-physical parallelism), *versus* such in which no *psychic correlate* occurs[2a]. This electivity, it will presently be seen, is a decidedly important factor.*

(*To be continued.*)

SOME OBSERVATIONS ON THE NARCOTIC SITUATION.†

By EDWARD HUNTINGTON WILLIAMS, M.D.

LOS ANGELES, CAL.

About ten years ago the use of narcotics became the subject of popular agitation in the United States. There were good reasons for this agitation. The responsibility for a series of spectacular crimes occurring in the South was attributed to narcotic addiction. And criminal acts in varying degrees of atrocity occurring everywhere throughout the country, and with apparently increasing frequency, were laid at the door of drug habitues. Thus public attention was focussed upon the evils of the abuse of narcotics, and the inadequacy of our legal measures for controlling the situation. As a result, the Harrison Narcotic Law was enacted by the Federal Government on December 17, 1914.

This law was not a hastily conceived statute rushed through as an emergency measure. On the contrary, it was the result of the mature deliberation of persons intimately familiar with the narcotic situation. It was formulated with the knowledge and assistance of medical men, and of medical associations, thus bearing the stamp of approval of the very persons who, next to the narcotic users themselves, were most vitally affected by its provisions. For this law placed restrictions upon members of the medical profession and, in effect, dictated the manner of practising the profession of medicine to an extent scarcely approached by any legislation in recent years.

The law not only transgressed ancient customs heretofore held sacred to the judgment of physicians alone, but made it necessary for every physician to engage in irksome details and exacting clerical work quite foreign to the usual medical régime. All this with the approval and cooperation of the members of the medical profession, who appreciated the importance of and the difficulties involved in stemming the rapidly rising tide of opiate addiction.

Nor was it alone those most directly affected who approved the new statute. Popular approval was almost universal. And, as would be expected in the case of any law having such a background and such a backing, this statute became actively operative from the day of its enactment. Never for one moment has its enforcement been neglected. On the contrary, a veritable army of specially appointed officials—Federal, State, county, and city officials—have devoted their energies to the law's rigid enforcement.

From time to time the various courts have interpreted certain points in the law. And almost without exception these rulings have tended to tighten the net about the narcotic law breakers. There has been no trend toward leniency. So that at the present time practically every prescription written by a physician for a narcotic comes under the careful scrutiny of a competent inspector; practically every grain of narcotic dispensed by every pharmacy in the land must be accounted for to Federal and State inspectors; and a majority of the habitual narcotic users are known to the authorities even to the extent of knowing approximately the amount of drug they are taking and the length of time they have been taking it.

Nor is this narcotic knowledge a mere formality. Prosecutions of offenders who have broken the Harrison Narcotic Law, or are suspected of having done so, fill the calendars of the Federal courts. And other courts are equally well patronized.

In short, the Harrison Narcotic Law has been a popular measure for something like five years, and as actively enforced as is humanly possible.

What is the result of these years of almost unprecedented legislative activity?

The question cannot be answered in a sentence. But it seems to be the consensus of opinion of Federal, State, and county officials who are most closely in touch with the situation, that the number of drug takers and the amount of drug consumed today, after five years of this active legislation, is just as great as, if not, indeed, considerably greater than it was five years ago.

*It is interesting to note that where motor areas are affected we more often get *hypo* conditions (pareses and paralyses), but when sensory areas are affected we more often get *hyper* conditions (irritations).

†Read before the Los Angeles Society for Neurology and Psychiatry, April 20, 1921.

There is, however, a radical change in the method of obtaining opiates by the drug addicts. The closure of the legitimate channels for obtaining narcotics has brought into existence an illicit traffic of tremendous proportions. The elusive underworld "pedler," well supplied with drugs, now exacts his pound of flesh from his helpless victims, and tempts guileless "prospects" with free samples for the sake of future profits. Thus, without vitally affecting the actual evil, we have added criminality to what was formerly simply immorality.

With this situation existing after five years of active legislation it behooves us to take inventory of our weapons and fighting equipment against the narcotic evil. Why has the Harrison Narcotic Act failed to accomplish the purpose for which it is formulated? Certainly this failure cannot be laid at the door of inactivity on the part of officials, or lack of interest and cooperation by the public. Wherefore, it appears that there must be something fundamentally wrong with the inception of the law itself. A law that fails to effect its purpose when vigorously enforced, and after a sufficient length of time to give it fair trial, must be lacking in something not visualized in its original conception. There seems to be no other logical conclusion.

From a medical viewpoint the law has the fundamental defect of not giving sufficient consideration to the underlying cause of opiate addiction. In effect, it regards narcotic addiction as a purely criminal act wilfully indulged in by normal individuals, with only scant consideration to the possibility that disease may be a cause as well as a result of the condition. Stated in another way, the law emphasizes the legal aspect of the problem and subordinates the medical features.

Now, in point of fact, the vast majority of opiate addicts present an abnormal mental and physical condition closely akin in many respects to the condition known as insanity. And our present narcotic legislation presents many features similar to the older legislation for the control of mental diseases.

It is not medical men alone, however, who believe that narcotic addiction is often the result of an abnormal mental state, not merely a "bad habit." The veteran officers of the law eventually reach this conclusion, almost without exception. In the beginning, when their duties first bring the officers in contact with this class of persons, they usually regard the drug addict as a self-willed and responsible criminal offender. Their opinion is based on the popular conception of addiction, not upon practical experience. But later, after they have been closely in touch with every phase of drug habituation, their viewpoint changes almost invariably. Their original conception was based on ignorance; their later point of view is the result of experience. And no one will question that experience is a better teacher than ignorance.

A precisely similar change in mental attitude occurs in persons who are brought closely in contact with the insane. The novice in insane hospital work invariably thinks that a high percentage of his patients are not insane—that "there is nothing wrong with them." But as he gains in experience his viewpoint changes, just as in the case of the officers who are brought closely in contact with narcotic addiction. And thus we find the experienced narcotic officer inclined to deal leniently with the non-criminal type of drug addicts, because he realizes that he is dealing with persons who are not wholly responsible for their shortcomings.

It is apparent, therefore, that the comparison between insanity and drug addiction is not overdrawn. And in this connection we should remember that it is only within the lapse of a century that insanity has been legally recognized as a disease. Christian nations, for a period of more than fifteen centuries, had regarded insanity as a "possession by demons"—a crime. The unfortunate insane were imprisoned and subjected to every kind of cruelty, just as in the case of the vilest criminal. Yet persons continued to become insane, and usually incurably insane, in the face of the most hideous punishments.

America, the great haven of liberty, offered no sanctuary. Lunatics were beaten, imprisoned, chained in filthy dungeons, and specially maltreated here, just as in monarchy-ridden Europe. And as a culminating touch of persecution our ancestors burned at the stake that pitiful little group of old mad women at Salem.

But even this did not stop people from "going crazy." And at last even the law itself stood aghast at its futile folly.

Then a great French physician, Pinel, proclaimed the heresy that insanity is a disease, not a crime. And with the courage of his convictions, and, fortunately, with an influence that could not be disregarded, he struck the shackles from the inmates chained in their madhouse hovels. And behold! many of these mad creatures regained normal reason! The era of rational treatment of insanity had dawned. Lunacy had evolved from a state of incurable criminality to the condition of a curable disease.

There is an analogy between our present attitude toward opiate addiction, and the lunacy situation of one hundred years ago. Insanity was not thoroughly understood then, and naturally the lunacy laws of that time were inadequate and unjust.

The opiate addict, like the psycopath, is an abnormal individual. But in most instances his physical and mental abnormalities are not apparent to casual observation so long as his system is supplied with a sustaining quantity of the drug. When this necessary stabilizing narcotic is withdrawn, however, the abnormal physical and mental conditions quickly assert themselves with absolute certainty.

Yet even when the similarity between insanity and opiate addiction is recognized, our attitude toward the two conditions is utterly different, and is determined by the supposed underlying cause of each condition, rather than by the conditions themselves. We punish the opiate addict because his infirmity is self-imposed, just as formerly lunatics were punished because it was believed that they wilfully associated themselves with evil spirits.

But the present legal attitude is not consistent even if we accept the dictum that the result of self imposed vices should be punished, while unavoidable misfortunes should not. For it so happens that one of the most important and prevalent forms of insanity, general paresis, is the result of venereal

vice—a self imposed condition. At least 10 per cent. of all cases of insanity are attributable to this vicious cause. Yet the law makes no distinction between paretic patients, with their virtually self-imposed disease, and any other types of insane persons. The paretic is not punished, although in acquiring the specific infection which is the cause of his condition, he gratified a wilful indulgence scarcely more compelling, and generally regarded as for more reprehensible, than the craving for a drug.

It is evident, therefore, that the cause of insanity does not influence the legal attitude toward this disease. Such is not the case with opiate addiction. A drug addict is a malefactor in the eyes of the law whether he acquired his habit through pure viciousness, or whether, as is often the case, his addiction was thrust upon him unwillingly, as in the case of many maimed veterans from France.

It is true that there is a somewhat vaguely phrased distinction in the legal attitude toward persons who are criminally insane and other demented individuals. All insanity is disease, but in some States special hospitals are provided for the care of persons sufferings from "criminal insanity." But even so, a very great distinction is made between this type of insanity and ordinary criminality. No such distinction is made in the case of drug addicts. Yet we know that there are addicts whose drug taking makes them criminals; and others who regard criminal tendencies and criminal acts with just as great abhorrence as the highest type of normal individual. It is just as inconsistent to put these persons in the same class as it would be to place ordinary criminals and insane criminals on the same level.

The important thing about the existing narcotic laws, however, regardless of inconsistencies, is the fact that they do not appear to be getting adequate results.

One modification of the present law that naturally suggests itself is to increase still further the scope and stringency of the statute. But it would seem that this is scarcely possible without curtailing the legitimate use of opium. And opium, bear in mind, is our most useful and most important drug. Curtailing its legitimate use would cause untold suffering among countless numbers of innocent persons afflicted with painful diseases. These persons far outnumber the addicts. So that even the complete elimination of this relatively small handful of drug habitués would be scant recompense for such a sacrifice.

A less objectionable plan would be some slight modification in the existing narcotic laws tending to emphasize the medical side of the narcotic problem. There is nothing novel in this suggestion. Indeed, a practical step in this direction was taken in certain cities recently. For example, the Narcotic Clinics conducted in the cities of Los Angeles and San Diego for a brief period in 1920, were based on this principle, and produced results that were encouraging, to say the least.

The Los Angeles clinic was started as a department of the Board of Health, with the approval and assistance of the municipal authorities, for the purpose of giving preliminary medical treatment to the narcotic addicts. This clinic endeavored to supply persons who required the constant use of an opiate with the necessary amount of their narcotic in gradually decreasing doses and at a nominal price. It was conducted by physicians detailed by the Health Commissioner, and under the immediate direction of a Narcotic Board composed of prominent physicians, public spirited citizens, and Federal, State, and municipal officers who volunteered their time and services.

It was not the purpose of this clinic merely to supply the opiate addicts of the community with narcotics. On the contrary, the clinic was established for the purpose of medical treatment, with gradual withdrawal of the drug, and final cure when possible. Complete cure by this method would not be possible in most cases, of course; but it was possible to reduce the amount of drug used, and improve the patients' physical condition so that they could be treated successfully in some suitable institution at the proper time.

The things actually accomplished by this clinic attained, in a measurable degree, the object for which it was created. During the five months of its activity more than five hundred drug addicts applied for treatment. It was a motley company representing every walk and condition of life. Every degree of financial status was represented, every shade of dishonesty, as well as every grade of intellect. Some came from purely criminal motives, others with the exalted purpose of being cured of their habit. Still others, in the hope that they could escape the clutches of the illicit peddler and his extortionate prices.

A record of the obstacles that had to be overcome in putting this experimental clinic into practical running order, the mistakes that were made, the trickery and deception that were practised, as well as the honest endeavors of the deserving addicts and persons suffering from painful bodily afflictions, would make a volume of intensely interesting and variegated narrative. But the important things accomplished may be summarized in a few paragraphs. For one thing, illicit peddling was reduced to a minimum. When the patient could get morphine honestly for ten cents a grain, why be dishonest at ten times that price with a good chance of landing in jail into the bargain? The peddlers complained, almost openly, that they were "being ruined" by the clinic.

To the class of persons suffering from painful afflictions, such as tuberculosis and cancer, whose condition made the continued use of an opiate an absolute necessity, the clinic was a veritable godsend, for it enabled them to procure their necessary drug at a reasonable price and in a legitimate manner. Thus they were able to reduce the amount of the narcotic, since, curiously enough, the uncertainty of being able to get a supply of the drug always tends to make the addict use more of it.

The clinic made it possible for several individuals to engage in honest occupations for the first time in many months. Heretofore, the uncertainty of the source of supply, and the ruinous prices demanded by the peddler had kept these patients in such a state of physical dilapidation that they were unable to work. Thus the clinic enabled many of these victims to again become honest bread winners. Several of them were now able to provide for their families and again live in a respectable and self-

respecting manner. And meanwhile their general health was improved by the gradually reduced doses dispensed at the clinic, and the release from the harassing anxiety about obtaining their drug.

It is a fact well known to persons familiar with the subject, but not appreciated by the generality of people, that almost every drug addict wishes to be freed from his bondage. In many instances the desire is an inadequate and feeble one, of course, while in others it is insistent and compelling. The members of the clinic exemplified this in an amazing degree, all things considered. Within two months after opening the clinic, twenty-four individuals had made earnest application to be placed in some institution for the final treatment and cure of their addiction. And it is most illuminative that after the clinic was closed, no less than twenty-six persons were given this curative treatment in private institutions from the accumulated funds; and fully as many more had filed applications for taking similar treatment and were bitterly disappointed when they found that no more funds were available.

This alone, the fact that half a hundred persons out of a total of five hundred, were sufficiently earnest in their desire to be cured that they were willing to surrender themselves for radical treatment, is convincing evidence of the usefulness of this experimental clinic.

Moreover, the clinic enabled the officers to determine pretty accurately the number of drug addicts in the community, particularly the class of drug takers likely to become a public menace. And the surprisingly small number of these individuals seems to refute the popular idea that drug addiction is running riot in our communities.

The fact that so many of these clinic patients were anxious to take a final curative treatment in some proper institution, and that such a relatively large number of them actually did so is an indication of what might be accomplished with a clinic having hospital facilities at its disposal. Such an arrangement is, of course, the one now in vogue for treating almost all physical ailments; and even mental diseases are now so cared for in certain favored communities.

A similar arrangement, modified to meet the various conditions, would put the legal and medical authorities closely in touch with the addicted patients and with the narcotic situation, in a manner similar to our arrangements for controlling other serious diseases, such as tuberculosis. This factor alone, it seems to me, justifies the reestablishment of clinics along similar lines to the experimental ones tried with such a measure of success in Los Angeles and San Diego. Undoubtedly great modifications would be necessary. But great modifications are always necessary in any progressive experimental work.

In addition, some special hospital provisions should be made, just as in the case of insanity. And there should be some governing body of specially qualified medical examiners to determine the requirements of each case similar to the medical commissions that determine the status and dictate the treatment in insanity cases.

Unlike the existing laws governing insanity, however, the final decision about any case should not be left to the judgment of juries composed of laymen, for the average layman knows less about opiate addiction than he does about the psychoses. And one can scarcely expect intelligent assistance and cooperation from any body of men who know practically nothing about the subject they are called upon to decide.

Perhaps the best practical solution of the whole narcotic problem would be to place it unreservedly in the hands of the United States Public Health Service. This would bring it under control of intelligent physicians who also have legal authority to enforce any clinical or custodial measures that seem necessary.

In any event, the narcotic addict is with us, and like the poor, and the bad, and the unfortunate, he is likely to remain with us. Only the visionary idealist, or persons ignorant of human nature and of human history, can believe otherwise. No great compelling human vice or disease has ever been completely stamped out. And the best that we can hope to do by our most concerted efforts, for the present at least, is to reduce narcotic addiction to a state of reasonable control.

CONCERNING THE HEALTH PROBLEM.

By FREDERICK E. JACKSON, M.D.

INDIANAPOLIS, IND.

UNIVERSITY OF INDIANA SCHOOL OF MEDICINE

THE solution of the first part of the health problem, and by this problem is meant a more desirable relationship between the State, the patient, and the doctor, is dependent upon the education of the doctor. The solution of the second part of the problem depends upon the organization of the medical profession. These parts are interdependent, the educational part determining largely the organization, and the organization to a large degree determining the extent and kind of education to the individual doctor.

Any prevalent, thoughtful conception of medicine includes the general practitioner, the surgeon both special and general, and the specialists. Besides these are the special teachers and investigators of disease, and the affiliated professions of nursing and social service. Practice is confined to homes, offices, and hospitals.

The patients are divided economically into three classes, those unable to pay for any part of medical service, those able to pay for a part, varying from a small part to all excepting special fees in diagnosis and treatment, and those able to pay in full.

Among the organizations concerned are various charitable and fraternal organizations, insurance companies, industrial organizations, public health nursing associations, social service departments, municipal and State boards of health, various governmental departments and other agencies. In some indefinite position but with an undesirable relation are the osteopaths, the chiropractors, the self-styled christian scientists, and those who are opposed to any health system.

All this and these are included under one government called a democracy in which each individual believes to the uttermost in personal liberty and the majority of whom believe with Gladstone that "In the health of the people lies the strength of a nation," with Disraeli that, "The care of the

health of the people is the first duty of a Statesman," and with Franklin that, "Public health is public wealth." A vast majority of people believe these quoted remarks but through fear, ignorance, jealousy, and selfishness they have not solved the health problem. Many partial solutions have been offered but excepting parts, due to the unfairness not much progress has been made. Results prove that every attempted solution has been ill-considered in some respect, and that each proposition has been given with some special advantage to some class or organization other than the medical profession, the very profession which as its output produces the gain sought by the solution. In every case the profession has been treated more or less as a chattel, bonded, mortgaged into slavery, and given no encouragement for its future.

Few realize, or realizing fail to take into consideration that the health solution must accomplish two specific acts;—first, give the opportunity for health to every individual, at the same time protecting every individual against disease from those who do not avail themselves of this opportunity; and second, give encouragement to the profession of medicine by rewards commensurate with its services.

An industrial organization confronted by such a problem would solve it immediately, even though it involved the formation of a monopoly in order to make certain sufficient returns from the investment. It would absorb into the trust all competitors as they arose.

The solution of the health problem on a comprehensive scale has heretofore seemed to be the problem of no particular group. Yet each interested group has solved or thought it has solved its health problem, or has a proposed solution, and in each instance the solution is not only unfair to the medical profession but the medical profession has not been seriously considered. In many cases even those considered to derive benefits from the solution have been given a farce which they upon serious reflection do not want. All this has been done because health is not worth money!

Certain lodges for a small yearly due have undertaken to give a qualified amount of medical protection. The very fact that the yearly expense to the member is small is a guarantee that his doctor is underpaid for his services. If the lodge member will only reason from his own inclination he will conclude that his medical protection is not of the best for he knows that he, himself, will not give competent service when underpaid. The doctor being human he cannot expect more from him. The fact exists that in most lodges the medical job is farmed out to some one physician or layman for a certain sum. He in turn contracts doctors on small salaries to do the practice, keeping the larger amount for what he considers his more brainy service. Anyone can see that lodge practice in general is unfair both to the doctor and to the member. Such contract practice in no ultimate way solves the health problem.

Insurance companies are organized for profit. Medical service both to the community and the company form a bulwark against losses to the companies. Their basis for existence rests on the element of risk. Good health decreases the element of risk thereby decreasing the desire for insurance. This is shown by the inverse ratio existing between the state of health of the community and the removal of risk and the profit of the company. As the standard of health rises, the span of life increases, and the desire for insurance lessens. This increase in health postpones the fulfillment of the insurance contract, adding profit to the company but the decreased desire lessens the volume of business. The profit might bear the same relation as before if it were not for the ever lessening demand and the competition in the insurance field. The competition compels an increased effort to double the volume which in the face of the lessened demand can be increased only by lessening the cost of operation and insurance. An increase in the rate of insurance with the already decreasing demand would plainly defeat the purpose of the company. The doctor being considered only a servant in the formation of their profit, while still performing the same service necessarily must receive less consideration. These companies are so soundly organized that regardless of the fate of the insured the companies profit. Were the solution of the health problem able to remove the element of risk, insurance companies would have to go out of business, for their offerings would be no more desirable than many other forms of investment. Theoretically insurance companies cannot be interested in solving the health problem.

However true this supposition may seem it is erroneous. The reasoning is mostly theoretical for the element of risk added to other individual reasons as to why insurance is desirable can not be removed. This dissertation, however, serves to show that insurance companies, organized for profit, consider the doctor merely as a servant instead of a partner in the making of their profit. Their ethics being that of survival through profit contradicts that of true medical science which craves early death, through removal of the cause of existence.

Insurance statistics will aid in solving the health problem but they are the by-products necessary to the existence of a purely profit-making institution. While insurance companies may aid in bringing the opportunity for health to an increasing number of people the position necessarily given the doctor due to the nature of the organization will not alter the relation of the doctor to the community through their solution of the health problem in such way as to greatly encourage the profession.

Probably the most that charity workers and charity organizations have to offer the medical profession is an ever increasing burden. Each annual report points with apparent pride to a greater number of paupers aided. Such increase is seemingly observed as conclusive proof of added efficiency and justification of their system. These reports do not state that the charity worker is salaried, that every article of food and clothing given had yielded its normal rate of profit, that the fuel and rent were paid for at what ever rate of profit could be manipulated, but that the medical profession had donated its services. Not only will every doctor recall his free work to municipal hospitals and dispensaries, but also many cases referred to his private office under the pathetic plea

of the diplomatic salaried charity worker. When John Jones through misfortune or profligacy allows his family to starve, the collection is taken and food bought. When the children are sick the blessed doctor has the privilege of carrying John's burden without pay. Such charity system might make of the doctor a more divine man provided he can live under such without becoming internally vicious, but charity seems not to realize that a doctor's services bear the same relation to himself and patient as coal to the consumer and producer.

It is not quite fair to all social service workers and organizations and public health nursing associations to acquiesce in the charges of some that they have done nothing beneficial toward a proper reconstruction of the ideas of the public toward medicine and the doctor. Some of them have helped much from an educational point of view. They are, however, unless made up of volunteers from the sympathetic rich, salaried workers, dealing with the poverty stricken individual, thinking mostly that they must champion the rights of the poor against the medical profession instead of the rights of the poor against a system, or rather lack of system. Too much energy is used in prying better medical service out of the medical profession in favor of the patient instead of trying to get a new relation between the doctor and the public. They are mostly unconcerned as to whether they get more dispensaries with free doctors, State medicine with salaried doctors, compulsory insurance, in fact they are concerned about anything which promotes the interests of their organizations. Social service does not include in its function and organization any solution of the health problem. The medical profession is inclined to place serious charges against these organizations. While to some extent these organizations may be making grievous mistakes they are not unforgivable. The chief fault lies with the medical profession for not having enough constructive lime in its constitution to compel right relations. Social service and public health nursing associations bring better health conditions to the individual patient but very little do they improve the relation between the medical profession and the public.

Industrial organizations are primarily seeking returns from the investment. Apparently they are only now realizing the great expense from the inefficiency of afflicted workers. While this is especially realized in the inefficiency from venereal disease it applies to those afflicted in any way. Observation indicates that industry looks to the clinic or contract system, that it sees the greatest good in the free dispensary, the free hospital, the free treatment health center, or health department clinics.

One manufacturing concern, at a cost of $5,000 to $6,000 for installing a clinic for venereal diseases, reports a return of $40,000 from the investment. It will do no one harm to reflect upon the ultimate destination of this $40,000.

The U. S. P. H. Service has installed clinics for venereal diseases over the U. S. The department is not so sacrosanct that one should apologize for saying that what it has done has been, if accurately and fully accounted, at considerable expense, that it has added nothing to the knowledge of the treatment of disease, that it is promoting a system detrimental to the medical profession, that its ultimate results are questionable, and that its only good has been accomplished through compulsion and supervision, plus education. Education is a duty, compulsion and supervision are not necessarily restricted to the clinic system, but the quantitative clinic system is a breeder of routine treatment. Successful treatment of any disease is personal and individual.

Profit-seeking industry, whether it looks to the different health department clinics or to private clinics, offers no encouragement to the medical profession. It wants increased production but it looks to the medical profession only as a tool to this end. It will subordinate the profession to industrial organization, if it can, in order to produce larger returns. It fought compensation for sickness and accidents resulting from employment until it saw it could add the expense to the cost of production.

Economics assign man as the chief factor in production. The principal qualities which determine his capacity as a producer are (1) health, (2) physical strength and endurance, (3) intelligence, (4) judgment, (5) ambition, (6) energy, (7) perseverance, (8) imagination, (9) mechanical ingenuity, (10) technical knowledge. These qualities are either inherited or acquired. A cursory glance at the order of the qualifications of man in his capacity of producer will visualize to any one the prime importance of medical science. The circumstances influencing health and strength are well understood. The doctor, second to man himself, is the most important factor in production. Considering this relationship, some one in figuring the proportional economic rewards has been grossly incompetent in mathematics or illogical in reasoning.

The Red Cross, perhaps the largest charity organization in existence, is attempting something in the field of public health. Just what that attempt is and what the ultimate aim is no one seems yet to be able to understand. It is quite doubtful whether the directors themselves know definitely. Being an organization based entirely upon charity, it would probably be wisest to confine its operation to its original field of emergencies. When charity enters the competitive field of man's productive labor it is the proper time to withdraw the charity or for men to cease competing, withdrawing from the field and leave it to the pauperizing influence of charity. It is not sound economics nor socially just for any organization existing on charity to enter into competition with any productive or essential class. For any work other than that which the Red Cross has formerly done, it should make a public program. Such program under this organization can offer only contract medical practice which the ethics of the medical profession condemns.

Boards of Health, either municipal or State, have so much administrative work to do that it seems inadvisable to expect them to solve the health problem satisfactorily to the practising physician. In many cases these boards are composed of men entirely unappreciative of the problems of the attending doctor. It is a deplorable fact that some medical men are constantly grasping for power over other doctors, attempting to centralize into an autocracy or rather a bureaucracy the medical profession and practice. It should be the attempt of

every board of health, so far as not conflicting with their duties of protection, to maintain neutrality, to restrain bureaucracy and remove where possible the baneful effects and unjust burden of charity with which the medical profession is loaded.

Why should the profession shoulder this burden of charity? Because it is a question of health? As much so are good shoes, meat, bread, fuel, clothes. As a matter of health these essentials are just as important as a charity doctor. It seems there is made a great distinction between the refusal of the doctor to make a professional call on a charity patient and the coal merchant's refusal to sell three dollars' worth of coal to the same patient. The only reason such distinction can be made is on the basis of different principles governing the ethical relationships. But isn't the State guilty? Should the State permit a large class of its citizens to rest snugly upon the backs of another class? Should the State at the same time enter into competition with this already over-burdened class? There can be only one answer. That answer is "No," everlastingly "No!" The State exists for the individual. The paid representatives are servants of the people and these servants are duty bound not only to maintain equality of opportunity between individuals but also to prevent any essential class from being ravaged by another class. This duty has not been entirely fulfilled in the field of medicine. Perhaps the failure cannot be charged entirely to the State officials but more to the medical profession. While working always with the highest ideals, improving its members by increased requirements, striving in every way for the betterment of the human race, it has not consistently directed its organized energy to any attempt to protect itself as a class nor offered any comprehensive, constructive program for a solution of the health problem. Better health and better health education are being brought to the people but the profession is failing to insure the opportunity for health to everyone, to protect everyone and to perpetuate itself independently and with pride in its accomplishments.

The health problem, if it really exists, must be solved. And it either does exist or the socialists, social workers, and bureaucrats are making a concerted attack upon the medical profession in the creation of a new division of labor from which they expect to derive many good paying jobs. It is not plain as to why these self-styled promoters of the advancement of society make their chief attack upon the medical profession instead of upon the economic system, drug store syndicates, legal system, etc., unless it is because they think they have found in the medical profession the weakest organized opposition. This attack is unjust, probably not entirely altruistic, and unless diverted will in the end bring only grief to the attackers, the attacked, and the championed.

A problem, and it may as well be called the health problem, does exist. If nothing else has placed this problem squarely before the community and the profession the results of the examination of men under the conscription law has shown it in bold relief. Not many of the medical profession will fully agree with the dean of one medical college when he says, "when a State sees to it that only those doctors who can have a good effect on the community in which they practise are allowed that right, just so soon does it begin to remedy the weaknesses shown in the report of the government of the country on our men."

Acknowledging as a fact that the medical profession can be improved both morally and intellectually, surely the dean does not pay himself much of a compliment as an aid to the government or the community. The criticism for so many defective men, if it must fall upon the doctor, should not fall so heavily upon an unskilled profession as upon the lack of a constructive health system in which the doctor can fully use his skill. It is not the fault of the profession that there is a lack of hospital opportunity for every patient in such need, that there is not a competent nurse for each patient requiring a nurse's attendance, that there is not a qualified social worker for adjusting the social side of the pauper family and aiding the doctor in his therapeutics, nor that every qualified doctor cannot get the advantage both for himself and patient in every municipal or State hospital. Neither is it the fault of the profession that society considers the man or woman who knocks another man or woman in the head with a club a fit subject for a penitentiary sentence while considering with the bureaucrats that if the same man or woman transmits syphilis to another, he or she is a proper subject for free treatment and free board and bed in a hospital, one act being a crime punishable by society, the other act receiving one of the highest awards of society.

An indefinite minority of physicians and social workers in every program for improving public health attempt not only to carry the suggestion but to force the commitment of the government to compulsion and entire control. It may be an honest belief that this is necessary for success in public health, but such a socialistic program should be carefully studied as to its effect upon the profession, upon the patient, and upon the army of interested propagandists before any such system is forced upon the nation. Free health clinics, an untold multiple of social agencies, charity, free nursing, government control and compulsion, government bureaux, autocratic centralization, paternalism, political machines, is the composite picture contained within the entire range of vision of these advocates. Such tendencies and teachings propagate a Prussian autocracy with its doctrine of "verboten" and "mussen" only to end in socialism and bolshevism.

Health and protection of life in and from disease are precious and necessary to man's life. Because in them lies the wealth of a nation they are worth money. The profession which brings each year increasing strength and wealth to a nation is deserving of a health system which not only gives health and protection to the people but one which also satisfies the just ambitions of that profession. Tender minds and soft hearts, swivel chair health bureaucrats and politicians will not produce such system. Neither will the miserly bloodthirsty Doctor Shylock produce it. Such system should be the result of studied effort. Actual investigation by competent unbiassed students of the faulty systems of European countries should be made that their socialistic mistakes might not burden our

people and pauperize them as well as the profession. Such committee should include men and women experienced from every angle of the problem. But the part that concerns the medical profession chiefly is that any such group must include doctors who are thoroughly appreciative of every problem in medical life.

Production, Manufacture, and Transportation are being increasingly developed in this country. Such development will continue regardless of whether the medical profession solves the health problem or whether these industrial divisions will thrust some problematical solution upon a supplicating and procrastinating profession. The health problem belongs rightly to the medical profession. This is the portion of man's burden which the medical profession must carry. From this it can not rightfully escape and the successful adjustment of which will be its answer to society for its stewardship.

As a first step in suggesting a plan for the health solution it may be well to restate that such solution must bear two specific results. One is the opportunity for medical care to every individual who cares to accept, at the same time protecting every individual who chooses medical attention against those who do not choose or believe in medical science, and second, the encouragement of the medical profession to renewed energy in the development of that science by sufficient remuneration for its services. If medical science cannot prove beyond doubt that it is through this science disease is conquered, and that through medical practice as developed by medical science and not through the deceptions imposed upon the imaginations by ignorant charlatans national wealth is created, then the medical profession as an embodiment of medical science has no claim for economic remuneration nor claim for recognition as an essential division of society. If this were the largest problem the medical profession had in order to get a successful health plan the solution of the health problem would be arrived at in a day. All it would have to do is to point to diphtheria, smallpox, yellow fever, syphilis, typhoid fever, and many other diseases in which rapid strides have been made toward their eradication or cure. As to specific jobs it would point to the job it did in the building of the Panama Canal as opposed to the job of which it was capable a few years earlier, as to the job in the World War as compared to its work in the Spanish-American War. It takes no more than a semi-intelligent mind to see that medical science as practised by the medical profession, and not the quackery of ignorant cults who continually fight the profession, made possible the successful accomplishments of such great efforts. Sad to say it is more a problem of overcoming ignorance, prejudice, and the fear that the returns are not worth the outlay of money. Since it is not possible to overcome these obstacles in a day nor probable that they will be in the near future, and since it is necessary to improve our health system in order to increase national wealth, a workable system must be devised to satisfy and protect all according to the many ideas of individual freedom and of democracy. Society may not have a questionable right to force treatment upon an unwilling individual, but it certainly has a right to protect itself against such individuals. If society has a right to say the criminal shall forfeit his rights to freedom and must pay his way in some penal institution it is not far to reason that society has the same right to restrict the freedom of any diseased individual who when possible must also pay his way in some institution while such disease proves a danger to society. While at the present time it would be too radical to say venereal disease is prima facie evidence of a criminal act a rapid advance in such direction would lead to a lessening of such disease. Marriage laws protecting the individuals so far as medical science can protect them can be passed and if the State has the right to say who is competent to practise medicine it certainly has the right to say who is competent to offer the protection to the marriage applicant. Not only can such law apply to venereal disease, but also to mental, pulmonary, or any contagious or transmissible disease. If the State can create boards of physicians to examine the competency of graduates of medicine to practise, it can, if desired, create boards to examine the qualifications of doctors to treat any special disease. Marriage being an institution encouraged by the State, it is no more than right that the State pay the fees for one marriage.

There are three classes of medical patients. One class consists of those people financially able to pay for all service. To this class the State need pay no attention excepting to protect them against others and others against them. Such duties fall to the executive functions of State and municipal boards of health.

Another class consists of those who are able to pay for all ordinary service but who are unable to meet the expense of prolonged sickness, hospital fees, fees for special diagnosis, as laboratory and x-ray, or for the services of competent specialists. To this class the State owes a larger obligation. The State should see that there are sufficient hospitals where the communities are not able to build them, and should encourage the building of hospitals where the communities are able to build them. A hospital in every county would be ideal, but where impossible for financial reasons three or four counties might unite in building one hospital. State aid to the poorer counties is just as feasible in public health as such aid in public education. In these hospitals special services could be had when necessary and the community or State should make up the difference between what the patient could pay and a legitimate fee. In many poor communities perfectly respectable citizens are unable to pay for all the medical service they should have. This may be due to the nature of the service, or to distance from the doctor, or various other reasons. If the health and happiness of such citizens add to the wealth of the State, then the State owes something to the individual in return. This return can be given in health, education, and protection.

The third class consists of those unable to pay for any medical service. Each individual in this class, so far as health is concerned is a ward of the community. This is not necessarily a disgrace to the individual nor a criminal state of being. The blind, the deaf, the dumb, the epileptic, the insane, unless exceedingly fortunate in money, are con-

sidered without reproach wards of the State. Every child in a State educational institution may be regarded as a ward of the State. In many cases these children are forced against their will to attend school. These patients are not sick because they want to be sick and will continue to be sick against their will unless the socialist push the State too far into insurance, in which circumstance it is safe to say from the experience of England, Germany, and Austria that fifty per cent. of the sickness will be malingering. When these patients are working they are filling a permitted place in society, producing either a normal or abnormal profit for some one. This adds wealth to the State. It is essentially the duty of the State to care for them when ill. The tendency seems to be now to build health clinics placing salaried doctors in charge. Such system is unfair to the medical profession and unfair to the patient. If this class were small, or if entirely without self respect, the clinic would be all sufficient. But it is probable that not more than 25 per cent. of people are able to pay for all care. This makes 75 per cent. as the wards and partial wards of the State. Every doctor knows that his clientèle consists of those who like him and with whom he has been successful. To deprive 75 per cent. of the people from a free choice of their doctor is unfair to the patient, and unfair to the medical profession. Such system will eventually make of the majority of doctors a salaried class without much impetus to do good work. Such practice leads to careless routine, instead of competent, individual treatment. Such system will strike at the time-honored ethics of the medical profession. Some there will be who will say it is time to break away from the ethics of the past. But before this is attempted there must be a better understanding on the part of the layman of the history, reason, and philosophy of the medical profession, and then there will doubtless be no breaking away.

Perfectly true it may be that something and some one must improve the relation of the doctor to the State, but such relation must remove the suspicion of intervention by the State, and leave the practitioner unfettered and independent.

Such conditions will be met by the State's doing away with free clinics where patients congregate in the hands of a few overworked, half paid doctors, continuing the present system of private practice and private relations between doctor and patient, but the State paying the doctor's bill instead of the patient. In such system both the State and the doctor should be protected against abuse. Here comes in the proper sphere of Social Service. It protects both the State and doctor and acts as a social physician to the State patient either independently, in conjunction with, or under the direction of the physician as the case may require. Patients claiming State aid could easily be required to register for investigation in some social service station, receiving a card if worthy, being permitted to choose his own doctor, on whom the State's board had passed as qualified to give such service as the patient was in need. Such would be a great encouragement to the doctor to continue to grow, also aid the doctor financially. In case the patient needed home treatment he could call his doctor as at present. Where a nurse is needed the public health nurse should be at the command of the doctor in such State system. The public health nurse and the social worker, if properly educated and trained will more than pay the State for their services in the protection they offer the State and in the increased earning time to society which they with the doctor will add through their services to the patient. They in their mutual contact will help Americanize that class of citizenry most in need of Americanization. Many cases otherwise needing hospitalization will with the help of the nurse and social worker not need to leave the home.

Where it is necessary, the State should see that the patient has access to the hospital. In such case the family doctor should not be compelled as he is today to lose contact with his patient. The family doctor is the back bone of public health. He should be qualified to gather up the early cases and know what to do. If he loses an intimate connection in the hospitalization of his cases, he has nothing to carry back to his community, the very source of all reasons for the existence of the hospital.

In doing away with clinics some one may object on the ground of destruction of teaching material to medical students. Such objection can easily be met by permitting the medical school to have a clinic supported in the same way by the State for the State patients, the State also permitting if desired any one to receive treatment at the teaching dispensary and hospital in payment of a fee, but the State should not take out of the hands of the practitioner the patient whom he is willing and competent to handle for a reasonable fee.

For the purpose of special diagnosis and treatment either a reasonable fee can be arranged for the doctors prepared to do this work, or arrangement for full time doctors at the hospitals. Specialists can be used through the family practitioner. Such system herein suggested will require better educated doctors but the system will be sufficiently conducive.

Many questions will be asked as to details in regard to such system of medicine, especially in regard to the cost to the State, the position of many interested individuals and organizations. State and municipal boards of Public Health will necessarily concern themselves with a different part of the problem of health. Industrial disease and accidents, rightly placed under the cost of production, can be easily arranged for. There may be some necessity for the rearrangement of organizations, the elimination of some, but it will be better to unscramble and reorganize now than to wait until the system becomes worse than a Chinese puzzle or an Egyptian palimpsest.

The medical profession must come out from behind its intrenchments of the past, realize that the development of the country not only demand but will enforce new relations between the public and the doctor, that it cannot sulk in its tent and expect other organizations to settle this relation perfectly satisfactorily to it, that it must take its share of responsibility both in the interest of the profession and the public, and that the only way this can be done is in full cooperation with, and in lighting the pathway for, every organization and person concerned. The medical profession should come together with competent leadership. This can be de-

veloped out of the medical societies, making sure of wise spokesmen.

This paper in no way means to be unfair to organizations or to persons, not to close but to open discussion, not to harm but to help, not to lesson but to add interest to this vital question of the solution of the health problem. The medical profession must awaken, it must not become enslaved to politictians within or without the profession, to cranks, to bureaucrats, to members of those organizations created as therapeutic aids to the profession, and whose members due to an unscientific foundation become psychopathic, over emphasizing every newly acquired fact, or subjugated to any profit making organization.

There remains, however, one charming beauty in American life, that in the supreme test, life, the good of humanity, the rights of man take precedence in the ideals of the American over the rights of property. So it is not beyond the truth to say that any group regardless of temporary disadvantage to it when shown correct values will decide rightly.

Small groups in ignorance or selfishness often cast thick shadows over truth permitting only soil devastating tendrils to grow into woody plants. These plants can never grow into giant trees for the germs of corruption and decay omnipresent in darkness permit only the growth of shrubbery without verdure. Sunshine will soon drive out these germs, the propagandist of selfishness, ignorance, and early decay in the social order.

There must not be in the plea for suffering humanity a monopoly of producing or essential minds. If medicine is not productive, if it is not essential, then it must be abolished. But if it is essential it must be as untrammeled as private ownership and have perfect freedom of initiative.

CHLOROSIS A TOXEMIA NOT A PRIMARY ANEMIA.

By S. R. SALZMAN, M.D., F.A.C.P.,

TOLEDO, OHIO.

CHLOROSIS, or anemia of girlhood, is a condition not infrequently met with by the physician. It has been quite extensively studied, yet nothing very definite as to the etiology of the condition has been brought forward. A great many theories have been advanced, none of which has satisfactorily explained the symptom-complex which is usually present, nor the manner in which iron therapy has brought about an improvement in the condition. Because anemia of various grades is present in the majority of cases of chlorosis, it has been classified as a primary anemia, without any definite proof to bear out this classification.

Virchow assumed a congenital defect of the vascular system. Iron therapy could scarcely be a specific in the presence of a congenital defect. Immermann's theory of congenital weakness of the blood forming organs can be eliminated for the same reason as Virchow's theory. v. Bunge attributed the condition to a disturbance in the iron metabolism. Zander regards chlorosis as due to a disturbance of the absorption of iron. Gastroptosis, chronic constipation, the wearing of tight corsets, etc., all have had their day. von Noorden attributed the disease to a disturbance of the ovaries. The ovaries, according to von Noorden, exert a stimulating influence upon the blood building organs. Loss or weakness of the internal secretion of the ovaries leads to chlorosis. Grawitz considered chlorosis as a neurosis. Morowitz does not believe that anemia is an essential factor of the disease, but merely a part of the general syndrome, and thinks that iron acts through its beneficial effect upon the cause of the disease rather than by its action upon the blood per se. Morowitz believes that the disease is best explained by assuming the disturbance of a number of glands of internal secretion. This is a very alluring theory and certainly has many factors in its favor, such as its resemblance to hyperthyroidism, Addison's disease, and ovarian disturbances; however, it is not sufficient. No pathology has even been found in any of the glands in cases going to necropsy from accidental death, and the complete and prompt recovery under iron therapy does not bear out this theory. Iron certainly has no effect on any of the internal secretory glands in other conditions in which they are known to be affected.

Frederich Müller calls attention to the similarity between chlorosis and mild hyperthyroidism.

As has been stated none of these theories, nor any combination of them, explains satisfactorily the nature of chlorosis and the manner of its supposed cure by iron medication.

It is my purpose in this paper to bring forward a theory as to the cause of chlorosis which I believe will explain its various manifestations, and also to put forward a suggestion as to the manner in which the anemia is produced, and also why iron is of value in this condition.

I believe that careful consideration of the symptom-complex of chlorosis would lead to an appreciation of the correctness of a part of Morowitz's claim that chlorosis is not a primary anemia and that the symptoms are not due to the anemia itself. This is borne out by many facts. Perhaps the most important might be considered the fact that many authentic cases of chlorosis are on record by Morowitz, Laache, Naegeli, Grawitz, and others, having all the symptoms of chlorosis, except that the blood findings are normal, or almost so.

A. F. Byfield[1] describes a typical case of chlorosis in which the blood examination showed 90 per cent. Hb. (Sahli corrected); red blood cells 4,600,000; very slight poikilocytosis and anisocytosis. The symptoms complained of in this case, very thoroughly described by Byfield, are chiefly: Drowsiness and tendency to sleep the greater part of the morning, despite a good night's rest; feels better towards noon; frequent headaches; palpitation and slight edema; presence of cervical glands on both sides; temperature of 99.2° in the afternoon; blood pressure 95 65; presence of a slightly enlarged thyroid gland. These symptoms are all typical and characteristic of the type of condition present in a certain type of low grade infection in the tonsils, which I described recently.[2] In ruling out the chronic latent infection, Byfield states, "tonsils, teeth, etc., seem entirely normal." The presence of cervical glands in this case must be explained. Are they not due to infection from the tonsils, extending along the lymphatics to the glands? Formerly,

before the days of the Wassermann test, we were taught to put great reliance upon one or two glands in the posterior triangle of the neck in the diagnosis of syphilis. Why shall we lightly pass over a chain of glands in the anterior triangle? They probably indicate a source of infection that should be investigated.

The fact that the disease occurs in all classes of society, without regard to hygiene or mode of living, is suggestive. The infections are present in all classes. Osler's mention of the occurrence of the disease in Irish immigrant girls shortly after arrival at Montreal, suggests that a change of climate may result in activating latent infection in the tonsils, and the development of a symptom-complex called chlorosis. The drowsy, heavy headed feeling in the morning can scarcely be due to anemia, especially in the types showing a very mild blood change. I have seen this particular picture clear up often within twenty-four or forty-eight hours after the removal of the tonsils.

Hypotonicity of the cardiac muscle as a common condition in chlorosis has also been described in cases showing no blood changes, and is also mentioned in Byfield's case. Is it not more reasonable to explain this as due directly to a toxin acting upon the heart muscle? Low blood pressure, which is usually present, can be explained by the action of this toxin elaborated within the tonsil tissue on the adrenal gland. This gland, we know, is readily affected by infections, notably that of influenza, tuberculosis, and dipththeria. Vasomotor disturbances are not frequently noted as due to anemia, but are found in infections and toxemia.

At the meeting of the Ohio State Medical Society, held in Toledo in June, 1920, Dr. Crile mentioned the fact that he had developed an instrument for measuring the temperature of various organs *in situ*. He has found that the temperature of the brain is directly affected by adrenalin chloride injected into the blood stream. It may be possible to show a decrease of cerebral temperature in these cases if the adrenal gland is involved.

The albuminuria common in chlorosis cannot be explained by the anemia, especially when mild or not present. Severe grades of anemia may cause albuminuria by changes in the renal epithelium, yet we not infrequently see cases of pernicious anemia showing no albuminuria. Huebner examined at autopsy a kidney from a case of chlorosis dying from other causes, and found it to be normal. I have shown[3] that albuminuria is very common in cases showing tonsil infection, and that the albuminuria clears up very promptly upon removal of the tonsils, providing, of course, no other organic renal changes are present.

Osler mentions the occurrence of thrombosis, particularly in the femoral veins, as occurring in chlorosis. I have seen one such case. I believe that infection would be a more logical explanation for this thrombosis than anemia. The case which I saw, in a girl of fifteen, had infected tonsils, with a clinical picture of chlorosis and thrombosis, both femoral veins and many of the tributaries were involved. While in the hospital she developed a subacute attack of tonsillitis. Her tonsils were removed with complete recovery from the clinical picture of chlorosis. The presence of a subfebrile temperature in many of these cases is suggestive of a focus of infection.

The suggestion that chlorosis resembles hyperthyroidism in view of our present-day knowledge of the part played by infections in this condition is also suggestive. Simple enlargement of the thyroid gland is not an infrequent accompaniment of tonsil infection. The association between chlorosis and thyroid enlargement was brought out in a paper on "The Goitre of Puberty" published in 1915.[3] At this time the factor of tonsil infection was not appreciated. However, this triad of tonsil infection, enlarged thyroid, and chlorosis is so common that once the attention of the physician is called to the fact, he cannot help but notice it. Summing up the symptomatology of chlorosis, a low grade toxemia from a focus of infection somewhere in the body will more logically account for the clinical picture than will primary anemia. Indeed, the anemia itself is merely an expression of the toxemia, and is not infrequently met with in adults under toxic conditions.

Iron has always been considered a specific in the treatment of chlorosis. The manner of its action has not been definitely settled. Its mode of action is thought to be by stimulation of the bone marrow, and in supplying a sufficient amount of iron for the hemoglobin required by the red blood cells. The average body needs to maintain a normal iron equilibrium of from 5 to 10 mgm. per day. The normal diet contains more than sufficient iron for the bodily needs of the individual. Yet the excess of iron in the food is not sufficient to prevent chlorosis. There is no evidence of blood destruction in chlorosis. This, together with the plentiful intake of iron, has made it difficult to determine how and why the anemia results.

The suggestion offered here will explain both the method of production of anemia and its relief. The fact should be mentioned at this point, a fact well worth observing, that cases of chlorosis put upon iron in sufficiently large doses will show a subjective improvement within a few days. This improvement is manifest long before there is suffi cient improvement in the blood picture to attribute it to a decrease of the anemia. This fact I have noted time and again. It has therefore led me to believe that the symptoms of chlorosis are produced not by the anemia, but by some other factor, and I believe it is due to the toxins sent into the circulation from a focus of infection. This focus of infection is uniformly located in the tonsils in cases of chlorosis. This toxin is probably an endotoxin, or, if we accept Vaughan's theory, a bacterial protein. According to Gray[4] these are identical.

According to Vaughan these bacterial proteins are not specific and do not produce an immunity. The symptomatology depends upon their affinity for certain organs in the body, rather than upon their specific character. This is probably true here, as will be brought out later, and probably accounts for the differences in the clinical picture of so-called chlorosis in the girl, and the picture present in boys and adults suffering from the same type of infection. In attempting to explain the value of iron, we can assume that the iron has a particular affinity for this bacterial protein and forms a combination with it, possibly in the nature of an albuminate.

This combination "fixes" the toxin, rendering it inert. Assuming that this does happen, we can account for the anemia as follows: The iron taken in the food immediately after being absorbed into the blood, forms this combination with the free toxins, and is therefore not available for conversion into hemoglobin. If the individual is not getting unusually large amounts of iron in the food, anemia will result after the iron stored up in the liver has been used up. When iron is given for the cure of chlorosis it is given in large doses, so that there is sufficient to "fix" the toxin and also a sufficient amount is left for use in the manufacture of hemoglobin, and perhaps some also for storage in the liver. In this way we can account for the prompt relief of the symptoms within a few days, because the toxin is neutralized as soon as it is liberated from the tonsils and thrown into the circulation. The patient, therefore, is not suffering from a toxemia and will feel well, even before her anemia is overcome.

This theory will also explain the relapses so common in chlorosis. In giving these large doses of iron we have a storage of iron in the liver, sufficient above the quantity needed for fixation of the toxin, sufficient to last a variable length of time after withdrawal of the medication. When this stored-up iron has been used we again develop a subjective and objective change of chlorosis, to be again relieved by the second course of therapy.

The question might well be asked as to why chlorosis, if it is due to a focus of infection in the tonsil, occurs only in girls. A number of reasons might be advanced to explain this fact. In the first place it might be stated that chlorosis in boys has been recorded by Formanoli, Ferrari, Byrom, Bramwell, and others.[5] Secondly, it is possible that the type of food in the two sexes is somewhat different, the boy getting a greater amount of iron daily because of a larger quantity of green vegetables in the diet, while the girls at this particular age are prone to indulge in candies and sweets, thus reducing the appetite for other foods. Third the boys at this age indulge in healthy sports, outdoor exercises to a greater extent than do the girls. Fourth, there is undoubtedly some difference in the sensitiveness to toxins between the girl and the boy. We know that girls and women are more susceptible to powerful drugs, such as morphine, than are boys and adults. Might not this same susceptibility be present to certain toxins? Fifth, a very important factor is the normal conditions associated with adolescence in the girl. There is certainly a greater strain upon the bodily function in the girl during adolescence. The development of the sexual organs; the call upon the thyroid in association with the development of the ovaries; the greater degree of constipation which is usually present in these girls, as a result of improper habits, backwardness in leaving class rooms for attention to the bowels, etc., all are great factors in putting extra strain upon the body, thus lowering its resistance to infection, and making it more difficult to overcome infection when present.

It might furthermore be said that cases of tonsil infection in boys between the ages of 14 and 20, associated with debility, low blood pressure, general fatigue, and headaches, without the blood changes and greenish yellow color of chlorosis, are not at all uncommon. It is probably more a question of degree between the boy and the girl than it is a question of chlorosis being exclusively a disease of girlhood.

Indeed I might say that it has been my experience on questioning adult females who have been suffering from tonsil infections of the type described in the article referred to,[3] to obtain invariably a history of debility, languidness, variable appetite and poor general health during adolescence, suggesting that all these patients had chlorosis at this time, and later continued to suffer from the effects of toxemia, not classified as chlorosis.

Turley,[6] in studying the bacteriology of tonsils removed at operation, found in thirty-six cases the following bacteria: Gram-positive bacilli in seventeen cases; Gram-negative in nineteen; influenza bacillus in one; large *Staphylococcus albus* in six cases; medium-sized staphyloccus in twenty-six cases; small staphylococcus in four; *Staphylococcus aureus* in three cases; only one case showed no staphylococci; diplococcus in one case; pneumococcus in three cases; no streptococcus was found. These findings correspond to the bacteria ordinarily found in tonsils when cultures are made for the purpose of making autogenous vaccines for treatment. As these tonsils studied by Turley were taken from patients from early childhood to advanced life, they probably include a number of cases between the ages of 14 and 20, the age of chlorosis, and might be taken as representative of the type of bacteria ordinarily found within the tonsils at this age. A further study of the bacteriology in cases of chlorosis would probably reveal nothing new. In any consideration of cases suffering from tonsil infection it must be borne in mind that infected tonsils are capable of producing changes in the body in one of two days; first, by reason of entrance of bacteria directly into the circulation with a production of such conditions as appendicitis, cholecystitis, gastric ulcer, endocarditis, etc., or secondly, by reason of the entrance of the toxins into the circulation.

Rosenow has shown that under certain conditions some bacteria have an affinity for different organs of the body at different times. The infection of a given organ by bacteria from a tonsil is in no sense a specific one. The same can be said for the toxins. Vaughan has shown that bacterial protein from various bacteria produces the same general symptomatology and special features of any given disease resulting from these bacteria are due to an affinity shown by the toxin for definite organs. The symptomatology of chlorosis can very readily be explained on the basis of a non-specific bacterial protein. Turley raises the question as to the greater susceptibility of the female to tonsil infections. In his series of thirty-six cases, twenty-three were females and only thirteen males. However, in my series of thirty-eight tonsillectomies from July 1, 1919, to August 15, 1920, twenty-one were females and seventeen males. This series includes cases suffering from all of the causes mentioned in Turley's paper, in addition to eight cases of chlorosis.

The proof that the cause of chlorosis is a toxemia, the result of an infection within the faucial tonsils,

is easily had. If that is the only and sole cause, removal of these infected tonsils should bring about a prompt cure. This it does. The relief from the symptoms of chlorosis is very prompt. The subjective complaints disappear in less than a week. The improvement in the blood picture follows very shortly, and this without any medication whatsoever. Within the past year the tonsils were removed from eight cases of typical chlorosis. All of these cases showed a very prompt and decided improvement. Only one of these cases had any medication given after tonsillectomy. This case had a hemoglobin of 50 per cent., and I thought it advisable to give large doses of iron for a period of ten days to bring about a more rapid improvement in the blood picture. Each of these eight cases has been seen or heard from since and they have all made a complete recovery. I have not seen a case of chlorosis occur when the tonsils have been removed in childhood.

I have no desire at this time to enter into a discussion of whether tonsillectomy should be done in every case of chlorosis or whether iron medication should be used as heretofore. My present purpose is to call attention to the fact that chlorosis has a definite specific etiology, which is capable of demonstration and is therefore not a primary anemia.

Conclusions.—1. Chlorosis is not a primary anemia, but is due to a non-specific toxemia.

2. This toxemia is a result of a focus of infection in the tonsils.

3. Iron therapy acts beneficially by reason of its ability to combine with the toxin, producing a harmless organic compound; this not only preventing anemia, but improving the general condition of the patient, but not producing a permanent cure.

4. A permanent cure can be brought about only by removal of the tonsils and elimination of the focus of infection.

REFERENCES.

1. A. F. Byfield: Medical Clinics of Chicago, Vol. ii, No. 5, p. 963.
2. S. R. Salzman: "Tonsil Infections," MEDICAL RECORD, July 17, 1920.
3. S. R. Salzman: "Goitre of Puberty," *Med. Rev. of Rev.*, N. Y., Nov. 15, 1915. Vol. xxi, p. 658.
4. F. A. Gay: Oxford Medicine. Vol. i, p. 223.
5. Quoted by Falta, "Diseases of Ductless Gland," First Edition. p. 428.
6. L. A. Turley: *Annals of Medicine*, Vol. i, No. 1, p. 42.

216 MICHIGAN STREET.

MOUNTAIN SICKNESS.

BY DOUGLASS W. MONTGOMERY, M.D.,
SAN FRANCISCO, CALIF.

MOUNTAIN sickness is an asphyxia which occurs in the rare air of high altitudes. Not alone is the respired air thin and poor in oxygen, but its alveolar tension and barometric pressure are low, so that it is not pressed into the blood with the same force as at the sea level. Recently, on a trip to the high plateau of Bolivia and Peru, I had an experience with this distress, which is called by the Andean mountaineers, "soroche" or puna.

A striking peculiarity of this asphyxia is its stealthy onset. In ordinary asphyxia the distress follows immediately on the application of the cause, as in choking. In mountain sickness, however, the cause acts slowly, and the asphyxia comes on equally slowly. There is another cause, however, for the slow, stealthy onset of the asphyxia than the mere ascent into a rarer, lighter atmosphere and the consequent deprivation of oxygen, and this is the equally low alveolar tension and the increased facility for the escape of the carbon dioxide gas from the lungs. This can only be appreciated by considering more closely this phase of the physiology of breathing.

The Cause of the Incentive to Breathe and of the Distress on Being Smothered.—The incentive to breathe is not caused by a lack of oxygen, but by an increase in the acid H_2CO_3 ($CO_2 + H_2O$) in the blood. This acidity acts on the respiratory center in the medulla oblongata, stimulating the person to breathe. If an apparatus is constructed so as to absorb the CO_2 as it is exhaled in breathing, and at the same time prevents the replacement of the O_2, a person can, with such an apparatus, be smothered without any distress.

In going up a mountain the CO_2 gas escapes with greater and greater facility into the atmosphere which is becoming thinner and lighter. This is still more facilitated if the air is very dry, and the rush of water vapor out of the lungs is correspondingly great. And at this point there comes in the peculiar solubility of CO_2 gas in water.

As an instance of the solubility of CO_2 gas in water take the following: Leaves (cellulose $C_xH_xO_x$) in the bottom of a creek decompose, forming about equal parts of marsh gas (CH_4) and carbon dioxide. If these leaves are stirred up with a stick, bubbles will arise, and if these bubbles are caught they will be found to consist of marsh gas only. The CO_2 does not form bubbles, because it is so soluble that it is dissolved and floats away in the stream.

In the watery vapor leaving the lungs, therefore, the CO_2 gas finds a ready vehicle for escape. If the air is dry, the watery vapor with its carbon dioxide gas leaves the lungs quickly; if the air is rare and light, it also leaves quickly; and if the atmosphere is both dry and rare, it leaves very quickly. In ascending the western slope of the Andes all three of these conditions are combined. One ascends very rapidly to a great height, nearly 13,000 feet, in a few hours, where the air is very light and poor in oxygen, and as it never rains on this part of the South American coast and the country is a desert, the air is also very dry.

The elimination of the carbon dioxide gas from the blood under these circumstances is very rapid, and not enough accumulates to stimulate the respiration to the increased rapidity and depth required to enable it to meet the deficiency caused by the rare air, poor in oxygen. This deficiency in oxygen, therefore, grows more and more marked and, up to a certain point, without any warning whatever, till suddenly, usually on making some movement, the deficiency passes the point of tolerance and a most distressing choking sensation, with the feeling of impending death, is experienced.

We had left Antofogasta the previous evening, and all three of the party were in excellent health. We had thought of staying at a mine about 8,000 feet up to see one of the largest copper mines of the world and to adjust ourselves more gradually to the altitudes. Everything seemed so favorable, how-

ever, that we went forward, and we attained the high tableland without incident. I had left the compartment and had lingered perhaps longer than I realized talking to a passenger in another car. On my return one of our party was suffering severely from mountain sickness. The picture presented was most alarming. The cutaneous surface about the mouth, including the red of the lips and the outer surface of the eyelids, was a deep violet. The face was mottled red, and the eyes were lacrymose and injected. The whole attitude was one of keen distress, and the throat was gulping for air.

Each passenger had his favorite remedy. Aspirin was offered, not because it would be of any use, but because it was a medicine they had. Ammonia salts were also suggested, which would have further embarrassed an already embarrassed respiratory system. The natural remedy would be artificial respiration, done with the least expenditure of energy on the part of the patient, so as to take advantage of what air there was, and to give rise to the least amount of CO_2 gas. Adjustments would also gradually take place if the patient was not too much interfered with. Of course, the great remedy is, like that for seasickness, to return the patient to his natural habitat—in the one case to remove him to a lower level, and in the other, to land him on terra firma. This remedy, however, is not always feasible. In the present instance, by remaining on the train, we dropped to a slightly lower level, and we interrupted our journey at the nearest considerable town, which happened to be Oruro.

The headache is sometimes terrific, confining the patient to bed for days, and this also was present in the case mentioned.

There is a great individuality in the symptoms, some people going to great heights without any trouble whatever, while some have a feeling of suspension of respiration for a number of seconds, and others have insomnia with a tormenting lucidity of mind. A dentist whom I met in La Paz said that for hours he lay awake, but tranquil. Others have oppression, a feeling of fatigue and vertigo, throbbing of the temples, and a sound of rushing blood in the ears. Nosebleed is very frequent.

I knew one man who lived in Oruro at 12,500 feet elevation for some time without any embarrassment till one day, on making a sudden exertion to catch a passing vehicle, he tumbled over, and had to be sent down to the sea immediately in order to save his life. He had overstrained his heart. And this man's experience is interesting in another way, for a very quick ascent and an equally quick descent, especially when unaccompanied by exertion, are not particularly noticed.

We crossed the Transandino Railway from Valparaiso to Buenos Aires without any inconvenience whatever. While at the altitude of over 10,000 feet I even took fairly vigorous exercise in order to warm up, and did not notice any respiratory or circulatory trouble. But when one ascends to a still greater height and remains at this elevation, as one does on the high Andean plateau, it is a different matter. Before adjustments can take place the organs become fatigued and their reserve is used up.

Individual susceptibility varies greatly, and there are some who quickly acquire a resistance, their blood, their chest, their heart, and their nervous system adjusting themselves to the new conditions. The adjustment of the blood consists, among other things, in an increase of the red blood corpuscles, and this physiological increase is sometimes taken advantage of as a curative measure in anemia. While some people can adjust themselves fairly quickly to high altitudes, others require a long time to attain comfort. Other patients continue to be sensitive to altitude, while some others again become comfortable after a long or short stay, but on going to the sea level and returning, go through all their old misery.

It is said that lack of appetite and unreasonable behavior are symptoms of mountain sickness. Any lack of appetite we experienced could be accounted for in other ways than in terms of altitude. It is said that the conduct of some people on Pike's Peak (14,100 ft.) was so unreasonable as to require the presence of a deputy sheriff, and Bayliss suggests that unreasonable people met with under ordinary circumstances may be really suffering from want of oxygen. In our group I did not note any more than the ordinary differences of opinion, and we did not have to call in a policeman to settle these.

Among the natives I did not note any symptoms of mountain sickness as evidenced by blue lips; their dark integument precludes it showing on their hands. Many Europeans, however, had distinctly blue lips and hands. In Oruro I met an acquaintance, a young man, who had recently arrived. On the way up he did not suffer from mountain sickness, although he had passed over an altitude of 12,900 feet, but when I met him in Oruro, a couple of days after arrival, his lips and fingers were blue and tremulous, and he spoke hurriedly and nervously. He was going to a dinner that night at which he would be up late and probably overeat, and he was to take the train early next morning. As mountain sickness is an asphyxia involving both the respiratory and the blood circulatory apparatus, any undue exertion or indulgence impinging upon either of these systems is to be avoided. I did not see this man again, but to my mind he was taking a very great risk.

As we have seen, the reason for the unobserved incidence of the asphyxic attack is the lack of notice given to the respiratory center by the carbonic acid in the blood. To prevent this, therefore, the will should act as a substitute, and every two or three minutes a few deep breaths should be taken. More than a very few it is inadvisable to take, because even at sea level, if one breathes deeply several times in quick succession, it will lower the quantity of CO_2 too rapidly, and will cause dizziness, and this lowering of the CO_2 would be nearly as great an evil as a paucity of O_2.

Oruro, the town at which we stopped to recover our atmospheric equilibrium, is a wretched place, a decayed mining town. It is situated in a brown, stony desert covered with sagebrush, which resembles that part of Nevada one crosses on the railway. There are the same rounded mountains—those nearby, brown, those farther away, blue. There are the same steep-cut, dry watercourses, and the same sharp shadows of the clouds moving slowly over the plain. There is also the same clear air, and the beautiful sunsets, with transparent blue skies and distant purple hills.

Near our hotel there was a small plaza, mean and ordinary looking, but one evening in passing

through it we found it lit up by the wonderful desert glow, which made it enchanting.

Llamas and mankind are the chief pack animals, then come asses and mules. There are very few horses, as all their forage has to be brought in from a distance. Llamas are very cheap, costing from two dollars and a half up to nine dollars, and their cost of maintenance is also very low. They are turned out on the desert to eat a small, almost unobservable plant. In fact, natives told me that they eat earth, which serves to indicate how very unobservable the plant is. They are also fed on barley, which grows, but rarely ripens, in this climate.

Fuel is scarce, poor, and very dear; it principally consists of bundles of twigs gathered from the sagebrush on the desert. A bundle, an armful, costs about twenty cents. Llama dung is also employed. It struck me that a cheap llama would make a cheaper, better fuel than either sagebrush or the llama dung.

The climate, at this elevation, is cold. Although the spring was well advanced men came down to the dining room in their overcoats, but the Indians, for the most part, went barefoot, or wore leather sandals. They wore a warm woolen cap with ear lappets, and a good deal of clothing about the body, but how they endured the hardship of their bare feet on the cold earth was always a mystery to me. I have seen them in their bare feet at Crucero Alto, at the snow line, fourteen thousand six hundred feet altitude.

The human being is a bald tropical monkey, clothed with a coat of good protective hair only in certain situations. He has been enabled to live in inclement regions by means of the invention of clothing and habitations, and by his control of fire. Clothing and habitations, however, when not constantly renewed or kept clean, render him, by their very nature, one of the dirtiest animals, and the Indian of this high plateau is a striking example of this state of affairs.

The bread was a small brown loaf, sad in consistency and made of a coarse inferior flour. It was responsible for a continual looseness of the bowels from which I suffered while in this elevated country. The milk and butter were canned, and the coffee was unrecognizable as such. A dirty boy brought the "coffee" into the bedroom on a tray, which served as a beer advertisement, and was set down on a center table furnished with a dirty old table cover, but with no tablecloth. And this was the place that Fate had landed us to await adjustments to new conditions.

This is the natural habitat of the potato, and the dean of all the potatoes resides up here, but, as Father Zahm has remarked, a good mealy potato is not to be found throughout the length and breadth of the land. And Father Zahm is no complainer—he is one of those travelers to whom everything is delightful as long as he is on his way. I myself felt few effects from the altitude. Previous to starting out on the South American trip, my heart had been interrupting, giving rise intermittently to a slight, but disagreeable choking sensation in the throat. I was naturally interested to observe what it would do when I took it up nearly two and one-half miles high. It acted all right. On slight ascents it would accelerate its beat a little, as it should. And the steadiness acquired there has endured ever since. I suppose that my cardiac organ, itself so well supplied with nerves, reasoned as follows: "This fellow to whom I belong has a higher nervous system that is none too good as regards the secretion of what is called "judgment," or he would never have taken me to this place. I, therefore, shall have to brace up and meet the emergency myself." And it did.

One of the strangest features of our stay in Oruro was that, with all its dirt and discomfort, we enjoyed it. Our rooms were so situated that they looked right down into the principal plaza of the town, and we really were intimately in the midst of its ever shifting life. The people with their dirty strange costumes and shiftless ways were a constant source of interest and pleasure. The character of the people was so different from ourselves that they seemed actuated by entirely different motives, or not actuated at all. Take for instance the matter of peanuts. With us the peanut vendor is an alert little merchant with his wares done up in paper bags exactly measured and contained in a highly polished brass receptable, which keeps them piping hot, and which has attached to it a merry high-keyed steam whistle. In Oruro the vendor was a squaw, squatted on the sidewalk with the cold peanuts in a flat basket in front of her, and her only measure was her hand. She did nothing particularly to attract your attention, but if you wished some peanuts, she would stop a moment from chatting with her neighbor and take up a handful, more or less, and give you them for so many centavos. And this measure by the handful was only one instance of a striking lack of utensils seen throughout the whole high plateau.

Soroche, or mountain sickness, and its opposite, caused by too dense an atmosphere, and called "caisson disease," seem to have been more interesting to physiologists than to physicians. One of the best notes on mountain sickness I found is in that charming and highly instructive book, Bayliss' Physiology. Yandell Henderson has also studied this phase of respiration most interestingly, and many a time on the high plateau I wished I could have had fifteen minutes conversation with him.

After passing over Lake Titicaca and dropping down to Cuzco, which is about eight thousand feet, a decided amelioration was experienced. A still further drop in descending along the Urubamba River to Ollentaytambo brought still further relief to one of the party, who had, up till then, experienced a subconscious oppression in the chest unnoticed until so relieved.

It was not, however, till we reached Arequipa, on the western slope of the Andes that we became aware of the relief from the light air, the sombre skies, and the chilly atmosphere of the high tableland.

Besides its delightful climate and its cheerfully green irrigated fields, Arequipa looks clean, for it is built of an easily worked white pumice stone quarried in the vicinity. That it looks cleaner than it really is is quite another matter. The spotlessly clean English steamer that we embarked in shortly afterwards at Mollendo was an appreciated luxury, and when we reached the hotels on the Canal Zone we could hardly credit our senses.

323 Geary Street.

A NEW PHARYNGEAL TUBE FOR ANESTHESIA IN ORAL AND HEAD SURGERY.*

By RAYMOND C. COBURN, M.D.,

NEW YORK.

PREVAILING methods of general anesthesia for the surgical removal of infected teeth are not entirely satisfactory. The method in most general use is ether by insufflation, with the tubes passed through the nares. It requires a deep anesthesia, however, to pass the tubes into the pharynx, whereas only a light anesthesia is needed to meet the surgical requirements.

Gas and oxygen administered with a nasal inhaler is also unsatisfactory for this work, as the inhaler prevents the surgical removal of the front upper teeth, and interferes with such removal of the side upper teeth. Besides, with this procedure, there is often considerable hemorrhage, so it is advisable to have the upper pharynx well packed with gauze, and this greatly interferes with respiration.

To overcome these objections I have devised a flexible and noncollapsible pharyngeal tube of sufficient size to maintain respiration unrestricted, and permit gas and oxygen to be administered, with the upper pharynx well packed and, at the same time, not interfere with the work of the surgeon.

The pharyngeal tube consists of a spiral wire

FIG. 1—Pharyngeal tube, uncovered, showing flexibility.

tube covered with a thin rubber tubing to make it air-tight. The spiral tube is very pliable, readily adapts itself to the shape of the throat, and remains patulous, even when tied in a knot (Fig. 1).

The distal end of the tube is attached to a rubber bag by means of an exhaling valve or nipple (Fig. 2). The tube is of such length that the bag is kept away from the patient's face.

I have been using a stand that has an ether attachment on it, but an ether dropper may be placed in the connection between the tube and bag.

Method of Use.—The patient is anesthetized with gas and oxygen, using the face inhaler. A little adjuvant anesthetic is added, if necessary. The inhaler is then removed, the mouth gag applied, the pharyngeal tube inserted over the base of the tongue, the pharynx well packed with gauze, preferably using one strip, and the administration of gas and oxygen (with an adjuvant anesthetic, if indicated) is continued through the flexible tube.

The tube is either fastened with a couple of strips of adhesive plaster to the side of the patient's face or held in place by the anesthetist. The breathing back and forth into the bag has a tendency to work the tube out of the pharynx, so attention must be paid to this feature. The tube is kept on the side of the oral cavity that is away from the surgical field.

This pharyngeal tube may be placed in position under a much lighter anesthesia than the nasal tubes in ether insufflation. Likewise, a much

FIG. 2—Pharyngeal tube covered and attached to bag.

lighter anesthesia may be maintained by it throughout the operation.

After use, the rubber tubing should be removed for cleaning and drying the spiral wire.

If the pharynx is well packed, a slight pressure will develop in the bag during insufflation. This may be relieved with either the pliable exhaling valve or the manometer.

I have used this method of administering gas and oxygen in operations lasting from a few minutes to two and a half hours, with satisfaction both to the surgeon at the time of the operation and to the patient after the operation.

Instead of using gas and oxyen, an insufflation or Junker apparatus may be substituted, either with or without the bag.

Another valuable method of using the tube is

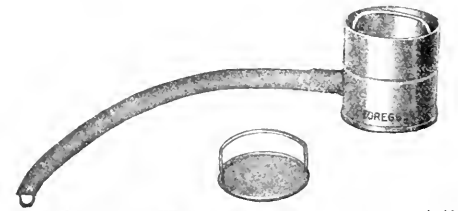


FIG. 3—Pharyngeal tube attached to ether cup; gauze shelf detached.

to connect the distal end to a cup (Fig. 3), which has a removable shelf for gauze. The anesthetic is dropped on this gauze, making it practically as open an administration as a face mask, with the additional advantage that the upper air passage is kept open, and the face and head are free for the surgical field.

I wish to acknowledge indebtedness to Dr. Henry A. Cotton, medical director, and Dr. John W. Draper, New York, visiting surgeon, N. J. State Hospital, Trenton, for the privileges extended in developing these methods of anesthesia.

HOTEL BRETTON HALL.

Spontaneous Spirochetosis in the Rabbit.—Levaditi, Marie and Isaiac have discovered a spontaneous spirochetosis in the rabbit which bears a notable resemblance to rabbit syphilis. Lesions of the nose and genitals were found to be due to a spirochete closely resembling the *Treponema pallidum*. Such lesions appeared to be papillomatous. Monkeys were found to be immune to attempts at inoculation with the newly discovered organism, and Levaditi and another also inoculated themselves with the same negative results. —*La Presse Médicale.*

SUPRAPUBIC CYSTOTOMY RING.

By EDGAR G. BALLENGER, M.D.,

PROFESSOR GENITOURINARY DISEASES, ATLANTA MEDICAL SCHOOL, MEDICAL DEPARTMENT, EMORY UNIVERSITY.

AND

OMAR F. ELDER, M.D.,

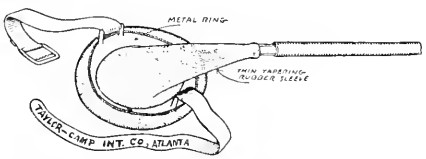
ATLANTA, GA.

ASSOCIATE PROFESSOR GENITOURINARY DISEASES, ATLANTA MEDICAL SCHOOL, MEDICAL DEPARTMENT, EMORY UNIVERSITY.

AFTER suprapubic cystotomy there is always a time when it is necessary to remove the tube which has been provided for the passage of urine, except when there is an inoperable malignant growth of the prostate and it is desirable to maintain permanent drainage through a tube.

There is consequently a period during the convalescence after suprapubic bladder operations when it is difficult to collect the urine and carry it to a bottle at the bedside. There are obvious disadvantages in employing a retention catheter, mainly for three reasons: (1) On account of the urethral irritation. (2) Because the urine frequently will not flow through it, but persists in passing out through the partly healed incision. (3) The patient cannot get around in a rolling chair with comfort with the urethral catheter in place.

After many years of using various devices we have adopted a very simple plan which has many advantages over the previous methods we em-



ployed. It consists of a large nickel-plated ring with two elevated connections for a webbing band similar to that used for trusses. These connections are sufficiently elevated to give the necessary downward pressure when buckled in place. A thin rubber sleeve is placed around the ring, as shown in the illustration, and connected at the other end to a rubber tube. This sleeve is of the thickness of an ordinary rubber glove.

After the removal of the suprapubic tube, the skin is covered with sterile vaseline and the device, which has been sterilized by boiling, is placed over the incision and buckled tight enough to hold the ring and rubber sleeve close to the skin around the incision. Within two or three hours it may be loosened or tightened, as required.

The tube is carried to the bottom of a bottle containing an antiseptic solution. As the tube fills with urine, the hydrostatic suction causes the thin rubber sleeve to collapse and stick close to the skin, leaving little or no space for residual urine. If desired, Dakins solution may be injected into the sleeve and the tube clamped so as to cause it to be retained in contact with the incision for a half hour or longer. This treatment is easily administered every two or three hours.

The urine will not leak around the rim unless the patient is very thin or lies on his side. He may sit up with comfort, and by this means we are able to get our patients out of the bed after prostatectomy earlier than formerly. Furthermore, being so simple to employ, the patient or some member of the family can fix it in place and adjust it, and the patient can leave the hospital earlier without having the discomfort of a wet bed. It is also easy for an interne, orderly, or nurse to place it in position and for the patient to loosen or tighten the band, as required.

The entire appliance can be boiled to sterilize, and the rubber sleeve may be renewed at small cost. It is made in several sizes, and with shoulders of different heights for the bands in order to obtain the downward pressure necessary for thin patients. The ring should be large enough not to press on the incision, and the appliance should be removed every few days and the incision and skin surface around it bathed with an antiseptic solution and covered with vaseline.

While this device somewhat resembles the conventional colostomy cup, it differs from it in several important respects; namely, it is more durable and may be boiled without injury, it is larger in size and may be applied without pressing on either end of the incision, and it is much less expensive.

The ring with a heavy rubber glove affords a satisfactory colostomy cup. The glove is thus substituted for the much more expensive bag supplied with the colostomy outfits.

HEALEY BUILDING.

Medicolegal Notes.

Procedure for Appointment of County Health Officers in New Mexico.—The New Mexico Supreme Court holds that the approval of the State Department of Health is a prerequisite to invest the nominee for county health officer named by the board of county commissioners of a county with authority, and without such approval there can be no such officer qualified to act. The disapproval by the State department of the nominee and the failure, neglect, or refusal to nominate one who is approved by the State Department of Health constitutes a failure, neglect, and refusal of the local health authorities to do the work which chapter 85, Laws 1919, designates shall be done by said State department, and authorizes the State department to perform such work at the expense of the county.—State Department of Health v. San Miguel County (N. Mex.), 195 Pac. 805.

Limitation of Actions—Tort Action for Malpractice Subject to Two Years' Statutory Limitation.—The Kansas Supreme Court holds that an action for malpractice in which it is in substance alleged that the defendant, in disregard of his obligations as a surgeon, performed an operation upon the plaintiff in a negligent manner, and not in accordance with the custom and practice followed by good, reputable, and ordinarily prudent surgeons, with a result that she suffered great pain and injury, for which she asked damages, is one arising on tort, and not on contract, and the Kansas statutory limitation of two years applies to such action.—Ericson v. Charles (Kan.), 194 Pac. 652.

Effect of Colorado State Board of Examiners' Decision as to License to Practise.—The Colorado Supreme Court holds that where the statute under which an applicant applied for a license "to practise chiropractic" made the State Board of Medical Examiners a tribunal to determine whether or not he came within the provisions of the law, and the applicant has been allowed a hearing upon the matters involved, and the determination of the question presented to the board was within its jurisdiction, the board's decision denying the application cannot be disturbed by the supreme court on writ of certiorari.—State Board v. Boulls (Colo.), 195 Pac. 325.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, July 23, 1921.

THE RADIOGRAPHIC STUDY OF THE RENAL ARTERIAL CIRCULATION.

FROM recent work done on this subject by Gérard, Castiaux and others it would appear that there is never a complete suprapyramidal arterial arch; the peripyramidal arteries converge toward each other at the base of the pyramids but never anastomose. The peripyramidal arteries divide individually at the borders of the cortical and medullary substances at a more or less considerable distance from the surface of the kidney, giving off innumerable lobular arteries — radiated arteries — exclusively destined for the cortex; they are parallel, directed toward the capsule, and are terminal and quite independent. Therefore, each pyramidal artery is autonomous and terminal, apparently destined for a lobe of the kidney. The arteries of the kidney are grouped in autonomous terminal territories. Each of the branches of the renal artery becomes subdivided, but each arterial territory of the kidney is derived from a branch of the renal artery. The territories are to be divided into two different areas:

(1) An upper, middle and lower territory following horizontal planes, as found in the pig, cow, sheep and man; (2) in front of and behind a frontal plane passing almost exactly around the circumference of the kidney, in anterior and posterior territories, as in the dog, rabbit, and polecat. This division is schematic, since some territories belong to both the vertical and horizontal planes. There is no radiographic evidence of the existence of straight arteries in the medullary substance and the vessels described as such must be connected with the very visibly distinct veins which form the dark rays of the Malpighian pyramids.

Castiaux has frequently found rather numerous fine collaterals arising directly from the peripyramidal arteries over the entire extent of the lateral aspects of the pyramids and which are directly distributed in the medullary substance of the latter, as well as to Bertin's columns. The capsulofatty arterial circulation, described by the classical writers, does not exist. It is present only in areas where fat is abundant. The vessels are few and are derived from either the perforating arteries or branches of the renals themselves. Fine arteries are found in the fat of the hilum and sinus arranged in a plexus which likewise furnishes the *vasa vasorum* of the vascular pedicle. Finally, the ureteral arteries, usually derived from the inferior branch of the renal, sometimes anastomosed in a plexus around the renal pelvis and ureter, are derived from three very different sources: (1) From the renal artery, near the hilum; (2) in the hilum, and (3) in the renal parenchyma, in which latter case they are given off from a peripyramidal artery.

This description will suffice to indicate the modern views of the arterial circulation in some mammiferous animals and man. The renal artery divides into two, three, or four branches either near the aorta—in which case it is premature—or near the hilum or even in the sinus—a tardy division. These branches in turn divide on the one hand in front of the vein and renal pelvis to irrigate the anterior frontal segment of the kidney; on the other, behind the renal pelvis—there is always a retropyelic artery—to supply entirely or in part the posterior frontal segment of the kidney. Each of the branches is destined for a portion of the organ. It gives off a certain number of ramifications which, by division in the sinus or Bertin's column, give rise to the peripyramidal or lobar arteries. The lobar arteries travel through Bertin's column between two pyramids and furnish both collaterals and terminals. The collaterals—which do not exist in all preparations examined—are represented by frail branches derived from the lobar artery in its course through Bertin's column, which branches to the right and left in a more or less oblique direction into the medullary substance; they are destined for the pyramids.

At the base of the pyramids the lobar arteries bend toward each other without anastomosing and furnish branches which in turn do not anastomose and it appears very probable that a *complete* superpyramidal arterial arch never exists. The lobar artery or its branches give off innumerable branches. These are the interlobular radiated arteries which go directly toward the periphery of the kidney and are destined exclusively for the cortex. They are terminal vessels and give off the afferent glomerular branches. Some of the radiated arteries directly perforate the renal capsule and plunge into the perirenal fat. The existence of straight arteries appears very doubtful; the arterial circulation of the pyramids is perfectly assured by the medullary collaterals which do not appear to have been described until recently by Castiaux.

Briefly, the arterial renal circulation seems to be effected very simply, each of the last branches of the divisions of the renal artery becoming an autonomous territorial vessel. It is the lobar arteries that give off the collaterals—medullary arteries, and the terminals—cortical radiated arteries.

VENTILATION AND EFFICIENCY.

So far as the practice of medicine is concerned, signs seem to signify that its future course is largely in the direction of preventive medicine, and while there will always be plenty of scope for the practice of curative and remedial medicine, the energies of the profession will be concentrated more and more on the preventive side. Also, treatment will be directed rather to preventing disease from going beyond its early stages than to treating and endeavoring to cure disease when developed. In order to be able to do this properly, one must learn how to detect the early symptoms of disease and so to treat them that their development may be arrested. Prompt diagnosis is the crux of this problem, and Sir James Mackenzie with great foresight, is demonstrating at St. Andrews, Scotland, how this may be brought about. In the field of preventive medicine, wide as it is, no part is so important as that of industrial medicine.

The fact that the efficiency of the worker, and therefore the prosperity of a country, greatly depends on the conditions under which he works, is beginning to be thoroughly recognized in every civilized country. Factories and workshops are being reconstructed on sound sanitary and hygienic principles and in all progressive industrial establishments able and adequate medical services have been established. Of the hygienic measures calculated to maintain the health of the worker in factory and workshop at a high standard good ventilation is one of the most essential. A constant supply of fresh air is necessary for the conservation of sound health. Where there is not such a supply workers are certain to suffer in fitness. An interesting review of certain work done along this line appears in the June number of *Tubercle*. Dr. Leonard Hill is one of the foremost authorities of the world on ventilation, and one of his chief contributions to atmospheric science is the devising of the kata thermometer. By this instrument the physiological value of any atmosphere can be estimated. It is pointed out that for the moment this instrument appears to be finding favor with those interested in industrial hygiene rather than with physicians. The review first deals with Report No. 11, 1921, of the British Industrial Fatigue Research Board written by Messrs. W. Hambly and I. Bedford. The report discusses observations made with the kata thermometer in boot and shoe factories, workers in which have been shown to suffer unduly from pulmonary tuberculosis. The position is accepted that the air in a well ventilated room should be cool rather than hot, dry rather than damp, diverse in its temperature in different places and at different times, moving rather than still. The authors note the conditions they found, suggest what standard of ventilation they consider should be maintained, and show how such a standard may be attained. They direct attention to the fact that the standard should vary for different types of work and suggest a mean temperature of 66° F., with an air movement of 8 feet per minute for sedentary work requiring delicate finger movement; a mean temperature of 62.5° F. with an air movement of 10 feet per minute for work of medium activity; and a temperature of 57° F. with an air movement of 10 feet per minute for heavy physical work. Emphasis is laid on the value of check temperatures as a guide to demands which are being made on the heat regulating system of the body and on the need, in order to minimize fatigue, of avoiding visible sweating. Daily and seasonal variations in ventilation were found, the evening being worse than the morning, and the winter than the summer. Ventilation was discovered to be better maintained in many story factories, probably due to greater exposure to windage, than in single story ones. Generally speaking, no effort was found to be made to adapt temperature and air movement to the nature of the occupation, and conditions unsatisfactory as measured by recommended standards were found prevalent.

The second report discussed emanates from the Rand gold fields.* These workers, using the kata thermometer for examining the air under working conditions in the mines, set themselves the task of measuring the effect of atmospheric conditions upon output and fatigue. Efficiency taken at 100 with a cooling power of 6, measured by the dry kata thermometer, was found to fall to 50 when the cooling power fell to 1. As a result of observations made throughout a section of the mine, the authors concluded that 21 per cent. of the output was being lost through inadequate cooling of the air. By the simple device of stirring up air in oppressive conditions so that a current blew over the operators, 46 per cent. of increase of output was obtained on one day and 32 per cent. on another.

These reports, the second one in particular, demonstrate the closeness of the relationship between ventilation and efficiency and thus between good ventilation and national prosperity. They show convincingly that work cannot be done, as it ought to be done, unless plenty of fresh air is supplied to the workmen. Moreover, good ventilation, which signifies in the main movement of air, is only one, albeit a most important one, of the essentials of good work. Industrial sanitation and hygiene well carried out in all their aspects should go far to dispel the unrest now pervading all ranks of society. Unless the worker is prosperous and contented everything will go awry and eventually chaos will result. Industrial medicine has a great part to play in the settlement of the world.

FOSSIL MEN.

Two fossilized human skulls from Java, recently described to the Royal Society of Amsterdam by their discoverer, Dr. Eugene Dubois, have thrown new light on the history of the human race, or perhaps we should say human races, for several extinct human types are now known, as different from existing black, yellow, or white man as the chim-

*"A Contribution to the Study of the Influence of Mine Atmospheric Conditions on Fatigue." A. J. Orenstein and H. J. Ireland, *Journal of the South African Institution of Engineers*, March, 1921.

panzee is from the gorilla. Dr. Dubois himself discovered the most notable of these, also in the rocks of Java, a low-browed creature, definitely human, and yet so apelike that the designation Pithecanthropus erectus, the "erect ape-man," was coined for it. He found the portions of the skull and thigh bone, on which all our knowledge is based, in the early nineties, but had also brought back two larger and more complete skulls discovered some years previously.

In 1918, Dr. S. A. Smith, of the University of Sidney, published an account of a fossil human skull from Pleistocene beds in Queensland, showing that man was present in Australia in the remote age when Great Britain was covered with ice. This skull had anatomical features closely similar to those of existing Australian natives, but it was more robust, with a larger brain-cavity and extremely massive jaws. Dr. Dubois, reading this description, remembered his Java skulls, took them from their cabinet, and examined them with care. They likewise are of the Australoid type, robust, large-brained, and with massive maxillaries. They have been associated by a recent English writer with a fossil skull found in the Transvaal and also with a famous skull found some seven years ago at Piltsdown, in Sussex, England. These, too, had exceptionally large brain cases and massive maxillaries. The brain of the former might have been larger than that of Bismarck, and the jaw of the latter was so remarkable that a certain American anatomist "jumped the English claim," and named from it a new species of fossil chimpanzee.

The skulls from Australia, Java, and South Africa have now supplied evidence on which we can dismiss the strange notion that a Sussex gravel-pit should have contained a unique human skull without an inferior maxilla and a unique chimpanzee lower jaw without a skull. But they seem to establish the existence of a widespread primitive human type possessing an ape-like lower jaw and a brain at least as large as that of modern man. Metchnikoff once suggested that man had arisen from the apes as a sudden large-brained "sport"; but why may the ape not just as well be a descendant of idiot man? There are other qualities in brains than those dependent merely on size, but mental ability is looked upon as the leading factor in the differentiation of man from animals.

The Pleistocene large-brained men may also remind us of many other discoveries establishing the existence of civilizations long antecedent to those of which we have historical débris. However proudly we may trace the development of existing institutions, we may do well to remember that they have followed other civilizations, as great or greater and also possibly as confident of their own superiority and permanence.

Quinidine in Complete Arrhythmia.

Quinine at one time had a reputation as a cardiac poison, but it has also been used not infrequently for its sedative effect in angina pectoris and tachycardia, especially in exophthalmic goiter. The use of quinidine as a cardiac goes back only to Wenckebach, in 1914, who obtained favorable results in arrhythmia perpetua. For some years nothing more was heard of this use of the drug, but in 1918 Frey showed that it was superior as a cardiac to quinine and cinchonine and that in about half the cases it could control fibrillation. Still better results were obtained by Bergmann, who showed that it always helped fibrillation and abolished it in over half the cases. This was confirmed by Wybouw, who published convincing electrocardiograms. It cannot replace digitalis but enables us to spare that drug by alternating the two. The sulphate appears to be the better salt but the optimum dose has not yet been determined. Half a gram three times daily appears to be the running dose suitable to these cases, but others have chosen to begin with a small dose and push it to tolerance. In certain cases, evidently those which are refractory, the ordinary dose may be increased, but there is nothing mentioned higher than two grams (30 grains) in 24 hours. There is no rule concerning the length of time of exhibition but from 3 to 8 days appears to be sufficient. Cheinisse, from whose article in *La Presse Médicale* of May 28, 1921, xxix, 43, we obtain these data, cites one unfavorable report, by Klewitz, who obtained completely negative results with both quinidine and quinine. It is certainly advisable to test this drug in arrhythmias.

News of the Week.

Decline in the Death Rate.—Statistics compiled by the Metropolitan Life Insurance Company show a marked decline in the death rate during the last six months. The rate for the half year is 23 per cent. below that for the first half of 1920. The most marked declines are in influenza, pneumonia, tuberculosis, and organic heart disease. The death rate for influenza for the first six months of this year was about one-ninth of that for the first half of 1920; likewise the mortality from pneumonia for the first half of 1921 was about one-half that for the corresponding period of last year. These decreases, together with drops of 19 per cent. in the tuberculosis rate and 9 per cent. in that for cardiac diseases, are the chief elements responsible for the remarkably low mortality rate. Cerebral hemorrhage and Bright's disease have also registered considerable declines. Measles and whooping cough were slightly lower than for last year.

General Hospitals and Tuberculosis Patients.—The United States Public Health Service has issued a bulletin expressing the belief that the opening of wards in general hospitals for tuberculosis patients, as recommended by the American Medical Association at its recent annual meeting in Boston, marks a distinct advance from the standpoint of prevention as well as of treatment. The treatment of tuberculosis in a general hospital has the advantage that the diagnosis will not be made public, and at the same time all precautions will be taken to avoid the infection of others. In support of this new policy it is argued that in many small cities two hospitals, one general and one for tuberculosis, can be run only at a loss, but if combined would pay operating expenses, especially as a combined hospi-

tal would draw many secret tuberculosis cases. Another advantage of the plan is that it would enable people in moderate circumstances to obtain preliminary treatment in their home towns, and such treatment would habituate the patient to the regimen essential to his cure and to the protection of others, and would enable him to go home and get well under home treatment. From the standpoint of the physician, his visits to the patient in the hospital would familiarize him with the treatment of tuberculosis and would enable him to recognize cases earlier. It would also train him in the supervision of home patients.

Welfare Committee of the Medical Society of New Jersey.—This committee, recently appointed by Dr. Henry B. Costill, president of the State Society, met in Trenton, June 29, 1921, and outlined a legislative campaign, which included a proposed measure to deal with the demands of the osteopaths to practise medicine and surgery by the setting up of a single standard of qualifications for all who would receive an unlimited license to practise. There is also the intention to seek an amendment to the workmen's compensation law, which would provide for what the physicians think would be a fair compensation for both the hospital and the physician in the care of persons injured in industry. It was decided to ask the State Board of Institutions and Agencies to place a physician on the board of managers of the various State institutions in which the care of the health of the inmates is a large factor. The committee also recommended that a physician be placed in an executive position on the State Rehabilitation Commission. The committee is composed of Dr. Wells P. Egleton, Newark; Dr. T. W. Harvey, Sr., Orange; Dr. D. C. English, New Brunswick; Dr. John McCoy and Dr. Donald Meyer, Jersey City; Dr. Frederick Quigley, Union Hill; Dr. S. J. Quinn, Elizabeth; Dr. W. A. Carrington, Atlantic City; Dr. H. L. Rose, Camden, and Dr. Fred H. Morrison, Newton.

Bronx Physicians Start a Medical Center.—Bronx physicians have established a medical center which will serve as a common meeting ground for physicians as well as laymen, where problems relating to medicine and of mutual interest to both will be given consideration. In order to keep the practitioner abreast of current advances in medicine the organizers of this center plan to conduct a continuation school for physicians where they may both give and receive instruction. This Academy of Medicine will also undertake special research work in all problems of benefit to the public health and welfare. For the public, lectures will be regularly delivered on topics of child welfare, preventive medicine, public health education, and first aid to the sick and injured. All these lectures will be previously revised and approved by groups of specialists. This new organization is to be known as the Bronx Physicians' Club and will comprise the members of various medical societies and those active in hospitals, dispensaries and the Health Department. The scientific activities, however, will be open to all physicians, whether members or nonmembers. To carry out these plans the Bronx Physicians' Club is seeking $500,000 with which to erect and maintain an edifice within easy access to the population it is to serve. In order to raise funds a bazaar will be held from October 8 to 15, 1921, at the Second Field Artillery Armory at 166th Street and Franklin Avenue, Bronx.

American Nurses' Memorial in Paris.—The new Florence Nightingale Training School for Nurses, established at Bagatelle, a suburb of Valence, was recently dedicated, at the laying of the cornerstone, to the 284 American nurses who gave their lives in the war. The new school was erected by the nurses of America through small individual subscriptions. Rear Admiral Thomas P. Magruder, American naval attaché in France, presided at the ceremony. The cornerstone was laid by Miss Helen Scott Hay of Savanna, Ill., chief nurse of the American Red Cross in Europe, in behalf of Miss Clara D. Noyes, president of the American Nurses' Association, and chairman of the Fund for the Memorial.

Nurses' Home for St. John's Hospital.—A contract has been awarded for the erection of a new three-story and basement fireproof building for the accommodation of seventy-five nurses connected with the training school of St. Johns' Hospital, Long Island City, N. Y.

New Jewish Memorial Hospital.—Plans have been completed for the Jewish Memorial Hospital to be erected at Dyckman Street, New York, overlooking the Hudson River. The new building will be dedicated to the memory of the Jewish soldiers, sailors and marines who died in the World War. The Magdalene Home, which now stands on the site, after extensive reconstruction, will be utilized as a part of the hospital, and this with the new building will afford accommodations for 165 patients. A dispensary will be conducted in connection with the hospital. It is estimated that the completed structure will cost $350,000.

Campaign for American Hospital at Neuilly.—Subscriptions for a new 100 bed addition to the American Hospital at Neuilly have totalled 1,045,800 francs during the first fortnight of the drive for funds. The fund committee will continue its efforts until 5,000,000 francs is obtained. Construction work will be begun at once without waiting for the completion of the fund.

Physicians and Nurses Needed in Alaska Medical Service.—The United States Bureau of Education is undertaking to do what it can to check the ravages of tuberculosis and other diseases among the native races of Alaska. For this work physicians and nurses of good educational qualifications, successful experience, upright character, and altruistic motives are desired. A physician in the Alaska Medical Service is required to supervise one of the small hospitals maintained by the Bureau of Education or, under the direction of the District Superintendent of Schools, to make tours of inspection of the schools in his district, furnishing medical relief to the inhabitants and endeavoring to maintain sanitary conditions in the homes and villages. The salaries paid to the physicians in the Alaska medical service range from $1,800 to $2,800 and those of the nurses from $800 to $1,400 per annum. The Bureau defrays traveling expenses. Persons desiring these positions are not required to pass an examination, but must make application on the form prescribed by the United States Bureau of Education.

Women Physicians Accused of Libel.—The for-

mer president of the Board of Trustees of the New York College and Hospital for Women has started a libel suit in Rockland County for $50,000 damages against four women physicians formerly interested in the institution, charging that the women libeled him in a report of the Alumni Association of the college to the American Institute of Homeopathy. In their reply the defendants reiterate the charges made in the report, namely, that the plaintiff and two colleagues managed the affairs of the institution so that the building became the property of a corporation of which they were trustees.

Doctors Reduce Fees.—The physicians of Conway, Ark., have put into effect an agreement which returns their charges to pre-war levels. For day visits within the city limits the charge is now $2 instead of $3, and for night visits inside the city the fee has been reduced from $4 to $3.

Italian Liner Brings Smallpox.—A sixteen-year-old boy developed smallpox on the voyage from Genoa on the Italian Liner *Giuseppe Verdi* which arrived at the Port of New York on July 13. The 935 steerage passengers were transferred to Hoffman's Island for vaccination.

Course of Training for Public Health Nurses.—The Bedford College for Women, University of London, announces a course for the training of public health nurses. The course has been established in order to seek out in all countries the nurses who by reason of intelligence and training may become leaders in the evolution of nursing ideals in their own country. These women will be trained to become pioneers in public health nursing, where that service is just being started. During the past year nineteen students from eighteen countries have taken a similar course under the auspices of the League of Red Cross Societies. These students will return to their countries as trained leaders and staunch advocates of more efficient public health nursing services.

The International Congress for Protection of Infants began its three days' sessions in Brussels on July 15 under the patronage of the King and Queen of Belgium. One of the features of the first session was a paper by Nathan Strauss, who described the way in which he had succeeded in introducing pasteurized milk into New York and the benefits that had accrued from its use.

Dr. G. A. Jordan has been appointed Hospital Commissioner of St. Louis, to succeed Dr. Cleveland H. Shutt, who resigned in April after sixteen years of service.

Dr. John C. Hupp has been appointed Health Officer of Elm Grove, W. Va., to succeed himself.

Dr. Alfred S. Burdick has been elected to fill the vacancy as president of The Abbott Laboratories of Chicago caused by the death of Dr. W. C. Abbott.

Dr. Edward T. Hull has removed his office to 304 West Seventy-eighth Street, New York City.

Medical Society Elections.—THE SOUTH DAKOTA SECTION OF THE AMERICAN COLLEGE OF SURGEONS, at its meeting held in Aberdeen, June 28, 1921, elected the following officers: *Chairman*, Dr. G. G. Cottam, Sioux Falls; *Secretary*, Dr. F. A. Spafford, Flandreau; *Counsellor*, Dr. F. L. Putnam, Sioux Falls.

THE ARKANSAS STATE MEDICAL SOCIETY, at its organization meeting held in Little Rock, June 10, 1921, elected the following officers: *President*, Dr. W. F. Smith, Little Rock; *Vice-President*, Dr. W. H. Toland, Nashville; *Secretary*, Dr. J. W. Walker, Fayetteville; *Treasurer*, Dr. J. T. Palmer, Pine Bluff.

THE COUNTY AND CITY HEALTH COMMISSIONERS OF SOUTHWESTERN OHIO, at their annual meeting held in Cincinnati, June 8, 1921, elected the following officers for the ensuing year: *President*, Dr. C. A. Neal, Hamilton County; *Secretary*, Dr. H. H. Panzing, Montgomery County.

Obituary Notes.—Dr. ALFRED D. SAWYER of Fort Fairfield, Me., died after a lingering illness, on June 20, at the age of sixty-six years. He was graduated from New York University Medical College in 1880. He was an ex-president of the Maine Medical Association and a member of the Maine House of Representatives in 1919-1920.

Dr. WILLIAM BROOKS SWASEY, a graduate of Bellevue Hospital Medical College in 1867, died of cerebral hemorrhage at his home in Cornish, Me., on June 2, at the age of seventy-eight years.

Dr. DE FOREST S. TIFFANY, a graduate of the State University of Iowa College of Homeopathy, died suddenly of heart disease at his home in Waterloo, Ia., on May 29, at the age of forty-nine years.

Dr. W. A. ORENDER, a practitioner under the registration law, died in Mansfield, Mo., on May 31, at the age of seventy-four years.

Dr. HARLOW H. WHITNEY of Northfield, Vt., died at his home in Enosburg Falls on May 20, at the age of forty-five years. He was a graduate of the University of Vermont College of Medicine in 1907, and formerly college physician at Norwich University.

Dr. JOSEPH MATTESON, a graduate of the Northwestern University Medical School in 1878, died at his home in Chicago on June 1, at the age of seventy-two years.

Dr. CHARLES A. STILLWAGEN of Pittsburgh died on June 4, after a long illness, at the age of fifty-five years. He was a graduate of Jefferson Medical College in 1892, and took post-graduate courses in Berlin and Vienna. He was a member of the surgical staffs of the Pittsburgh and Columbia hospitals, and a captain in the M.C., U.S.A., during the World War.

Correspondence.

TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—From a paper on fractures by Dr. Ethan H. Smith of San Francisco (MEDICAL RECORD, July 9) I quote as follows: "In fractures of the neck of the femur whenever the lower extremity is abducted, the adductor muscles serve as a fulcrum while the upper extremity of the femur adjoining the neck serves as the short arm of the lever, while the whole thigh and leg serve as the long arm. The adductor muscles pull not only inward, but upward. The fragments involved in the fracture are unnecessarily jammed and over-riding of the neck of the femur by the shaft is almost sure to follow. Shortening of an inch or more is the rule, rather

than the exception. It does not matter who the surgeon is, or whether he uses a Hawley table or not, the above mentioned holds good."

The abduction treatment, which the writer evidently has in mind, is applied under anesthesia and therefore during muscular relaxation. The "fulcrum" is not the adductor muscles, but the capsule of the joint. The position of complete abduction places the fragments in an end-to-end relation so that mutual pressure, the best assurance of security in this, as in other fractures, is provided. Exaggerated abduction would not cause "over-riding" but would have exactly the contrary effect.

It is interesting to note that Dr. Smith is apparently perfectly satisfied with the conventional traction and sandbag routine. In his experience this assures comfort, freedom from pneumonia, while "recovery with shortening scarcely to be demonstrated is the rule." In the practice of others treatment of this character has proved practically futile in so far as intracapsular fractures are concerned, and neither comfortable nor free from danger.

The abduction treatment which applies surgical principles, and which assures the demonstrable opportunity for functional repair, is designed in the interest of reform to supplant what has been termed the surgical ritual based "on the straight pull with the old-time weight and pulley." For this reason it seems proper to suggest that Dr. Smith's misapprehension of the mechanical principles on which the abduction method is based, and his consequent lack of experience in its proper application, manifestly lessen the value of his opinion on the subject.

ROYAL WHITMAN, M.D.

NEW YORK.

ALL OUT OF STEP WITH JIM.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In a letter to the *New York Medical Journal*, published June 1, 1921, signed by Dr. Alfred C. Prentice, there are some observations concerning narcotic drug addiction with a reference to certain ideas voiced by me and many others, which he calls "plausible romance." In an article in the *Journal of the American Medical Association* of June 4, this same doctor offers a more extended discussion of the addiction matter from his particular point of view. In this article there is an inference to the effect that those differing with the doctor in opinion and giving voice to their ideas are propagandists or worse. Some of their statements, or his apparent idea of their statements, are feebly classed as "fallacies." It appears from this article that quite a considerable number of what have always been regarded as responsible publications have been guilty of printing things of which this Dr. Prentice does not approve, and which he consequently calls "fallacies."

In the list of journals appear *American Medicine*, *Illinois Medical Journal*, *American Journal of Clinical Medicine*, MEDICAL RECORD, *American Journal of Public Health*, Washington *Post*, Chicago *Tribune*, New York *Tribune*, *New York Times*, New York *World*, New York *American*, *Harvey's Weekly*, *New Republic*, *Metropolis*, "and others." By the way, "and others" is right. There might be added to the list given by the writer of the article a very considerable number of "others." In fact, a survey of the literature on narcotics and addiction reveals a very comprehensive list of conservative and reliable publications, medical and lay, which have at one time or another qualified for admission to the group mentioned in criticism by Prentice as publishing things with which he does not agree, in other words, "fallacies." There is also a rather impressive amount of material from legislative, judicial, administrative, committee, and other study and investigation which belongs to this collection of "fallacies."

In fact, there is so much of this sort of material that consideration of it in connection with some of the announcements of Prentice recalls a song that was popular a short time ago. According to the song, a proud and fond mother watching her son, a "rookie," parade with his regiment, made the startling and illuminating discovery that in the company of marchers to which her son belonged,

"They were all out of step but Jim."

A good deal of sympathy ought to be extended to Prentice because so many reliable and responsible publications and experienced workers are out of step with him. Finding it out must have been considerable of a shock. Perhaps it is inexplicable to him that all these publications and people can't get out of their minds the accumulated evidence on this subject, forget all that past experience has taught, and so get into step with him. Facts are stubborn things, and there are a lot of them now on record and known to a lot of people, like editors and judges and doctors and health workers and writers and legislators and administrators and others, all of whom are certainly *"out of step with Jim."*

Prentice's complaint against publications that print things that he doesn't like might be extended to other publications than those he names. Among these is an official report to the Medical Society of the State of New York, adopted at its last Annual Convention, which refers in rather specific detail to certain oppositions to the ideas Prentice is on record for sponsoring. This is the Report of the Committee on Legislation of the State Medical Society, to be found on page 209 of the June issue of the *New York State Medical Journal*. It received added endorsement by the election of the chairman of this committee to the Presidency of the Society. The report refers to the certain committees which were appointed in this narcotic matter, whose reports are "apparently written *ad hoc* by an interested group comprising not more than ten men in the medical profession and a couple of lawyers" with whose activities the committee on legislation is not in accord and whose representations do not, to say the least, represent a consensus of opinion of the medical profession. Of how many of these committees Prentice is a member and whether he is one of the "not more than ten men in the medical profession and a couple of lawyers" we do not know, but evidently this report from his own State medical society seems to be another thing that is "all out of step with Jim."

I wonder sometimes in reading some of these articles if those who write them are not getting just a little nervous about the facts. Criticising every-

body who is out of step, without giving any satisfactory foundation for the criticism is not always a sign of strength and assurance. There was a situation a good deal like the present one only a few years ago in which efforts were made to pass legislation and secure interpretation along much the same lines and "formularizations" that Prentice is interested in. The situation got so bad finally that there had to be an investigation by a joint committee of the legislature working for two years to get at the real truth. The testimony in the report of that committee, the Whitney Committee of New York State, seems to be another thing that is "all out of step with Jim."

Then there are the various discussions, hearings, etc., in the matter of the Cotillo Bill and the Fearon-Smith Bill, referred to as the "second Smith" bill in the Legislative Committee Report, among whose proponents was and apparently still is Prentice. The Cotillo Bill effort came during an early period in his interest and activity in the subject—indeed, so far as I can find out, when he was a "rookie" in narcotic activities. In opposition to this bill was an imposing array of men who had had real experience in the subject and who knew what they were talking about—judges, district attorneys, health authorities, doctors, legislators, and others, all of whom were very much "out of step with Jim."

It would be a little unfair to close this note without calling attention to at least one statement from Prentice which seems to the writer to be, in part at least, not debatable. In a recently published letter he says that he has never been engaged in the treatment of drug addicts in his practice, and further disclaims "any personal interest whatever in their treatment, institutional or otherwise, save only the common interest in the public welfare to be gained through a proper solution of the narcotic drug problem." As to how the carrying out of the ideas and policies which he seems to support have already affected and reacted upon and would still further affect and react upon "public welfare" is a matter upon which there is a lot of reliable testimony which is "all out of step with Jim."

It really seems rather too bad when men in the position of Prentice disclaim any "personal interest whatever" in the treatment of narcotic addicts, and appear to be unfamiliar with so much of what is written and easily accessible upon the medical and scientific problems of the subject. The last report on this subject from the New York Academy of Medicine expresses the opinion that the "whole question of drug addiction needed a dispassionate, thorough-going consideration in its various aspects on the part of the medical profession." The report of the special committee appointed by the Secretary of the Treasury expressed interest in and hope that there would be undertaken "studies to determine the nature of drug addiction with a view of improving the present forms of treatment or evolving new and more efficient methods," etc. Apparently Prentice's "personal interest" lies along other lines. Perhaps that is one reason why so many men who have taken a real "personal interest" in the study of the subject and its medical, public health, and public welfare problems are so abominably "out of step with Jim."

Sometimes it is not wise to go too far and stir things up too much and ignore too long the facts and what a lot of really experienced people and unbiased and responsible publications think about a situation. The Kaiser tried it, and see what happened to him.

ERNEST S. BISHOP, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, June 21, 1921.

The Rockefeller Foundation.—A dinner was given by the British Government in London on the evening of June 13 to the members of the Rockefeller Foundation, now on a visit to this country for conference purposes. The speech of the evening was made by Mr. Winston Churchill, the Colonial Secretary. Mr. Churchill, in proposing the health of the guests, coupled with the toast the name of Mr. George E. Vincent. The last occasion on which Mr. Vincent conferred with British scientific men was for the purpose of devising means whereby German life might be destroyed. Now they were gathered on a very different errand, the cause not of death but of life, not of destruction but of organization, and of placing all the animals in their proper spheres and cages, from the irritating mosquito which flaunted its wings on the banks of the Niger to the objectionable bacillus which infected the milk of the Malta goat, and the detestable tsetse fly which omitted to brush its teeth and so, when it had taken its breakfast from an unhappy sleeping-sickness-infected native, was bound to transfer that objectionable reminiscence to the next object of its attachment. It all brought them back to the great saying that dirt was good matter in the wrong place. They were not against the mosquito, or the tsetse, or the bacillus, but they wanted them in their proper sphere. In fact, it was no use being against them, because one never knew when they would turn up. Mr. Vincent had been telling him of a scheme which was being developed for uniting cows and sticklebacks in the mission against mosquitoes. The mosquitoes laid their eggs in the grass which overhung the water, and the sticklebacks would like to eat them but could not for the grass, so then they brought in the cows. So the place where the white man was stricken became a salubrious spa. It was all a question of organization. The achievements which scientific bodies had made in this great sphere were well known. Yellow fever had been practically stamped out. Malta fever was wiped out by a simple discovery. Tuberculosis was now being attacked by the Rockefeller Foundation throughout the length and breadth of France. These were wonderful crusades, and they had this feeling in regard to them, that, as they marched forward, they were marching not only on the path of science, but on the path of mercy, along a road which, as they pursued it higher and higher, stage by stage, would set free the human spirit and every form of spiritual activity. So far as the Colonial Office was concerned, he extended to them the same facilities as his predecessors had extended. Everything they could do to

assist the work and further the aims of the foundation would be done, for well they knew how great was the need of their aid in the solution of these problems. How many young Englishmen were ruined every year in their health by the climatic conditions under which they lived! The study of tropical diseases was a work of mercy and urgency similar to that which prompted men to hurry to the seacoast on a stormy night and take the lifeboat out to a ship in distress. It was a line of defense in which all could join hands, friends or foes, wherever they might be found. Science moved forward, and the victory which was gained in any part of the field was immediately shared in every other part. Mr. Churchill ended an eloquent address by saying that all well knew the high and impartial spirit, far above small prejudices and passions, in which this great foundation was administered, and all that the British Colonial Office and the British tropical empire could do to assist their work should in the future, as in the past, be done. Mr. George E. Vincent, in reply, expressed the appreciation of the Rockefeller Foundation, and especially the International Health Board of that Body, for the opportunity the British Colonial Office had offered for work in the tropics and various parts of the world. It had been the privilege of the International Health Board to cooperate with governments in eighteen divisions of the British Empire, and in that work there had been complete enthusiasm and the greatest of persistent good will and kindness. He paid a tribute to the contributions of British medical men in regard to the whole science of preventive medicine and the administration of the public health. Their contributions were of the greatest importance. In America they were accustomed to speak with pride of the work accomplished by Surgeon General Gorgas in the Panama Canal or that of Doctor Heiser in the Philippine Islands. What was the first thing they did? They came to Britain in order to familiarize themselves with the procedure of public health administration worked out so successfully in this country. The difference between the scientific mind and the lay mind was that the scientific mind was always open and never closed. The lay mind liked to jump at conclusions. It was in a scientific spirit that he ventured to suggest tentative conclusions of their experience. They were impressed with the fact that the public health was a unified thing. While there might be a division of tropical medicine, after all the public health was the essential, and the one outstanding thing was the health of the public, and that had to be dealt with in a large, comprehensive, and statesmanlike manner. Their great concern had been to apply the knowledge gained on a large scale, and for this reason they had to ascertain what the problems of administration were and to see what things, theoretically admirable, had to be modified when applied in the mass. They realized that the application of what scientific knowledge they had was an extremely important thing. In these matters they had come to realize that men were vastly more important than money. Unless there were well-trained people to concentrate on the work, money might be a curse instead of a blessing, and they had often been in the position of having more money than people who could wisely utilize it. Therefore, at the Johns Hopkins University a school had been established which had prospered so well that they were promised a full complement of students in the next two or three years. There was also to be organized a school of public health administrators in connection with Harvard University. But, while research was essential to all progress, the work was greatly assisted by practical experience in the field.

Diplomas for Foreign Students in Medical Research at Cambridge.—Dr. P. Giles, vice-chancellor of Cambridge University, sent a letter to the London *Times* of June 14, last, with regard to diplomas for foreign students. He began by referring to the difficulties which face the medical man from a foreign country who desires to pursue research in the medical schools of Great Britain. So far as he is aware, such students have no serious difficulty in obtaining admission to university laboratories where their researches may be pursued with advantage; the difficulty arises in obtaining recognition by means of a degree or diploma for work done. To the knowledge of the writer, the impossibility of obtaining such recognition by foreign students has in some cases been keenly resented. It is pointed out that the real difficulty is that a medical degree in Great Britain constitutes a statutory qualification to practise medicine, and it is obvious that any attempt by the universities to extend their privileges to persons whose previous training was unknown or uncertified by authorities recognized by the General Medical Council would meet with opposition from that body, and rightly so. Consequently, neither a medical degree nor the diploma of public health, which can be taken only by those qualified to practise medicine in Great Britain, is available for foreign students, however distinguished. The University of Cambridge has had the difficulty under consideration for a considerable time, and on June 13, by grace of the Senate, passed regulations for a new diploma in hygiene. The diploma is constituted on similar lines to the diploma in public health, but will be available for foreign students, many of whom, it is believed, are anxious to pursue the study of sanitary science in Great Britain and to return to practise in their own countries with their qualifications attested by a British university. The letter goes on to show that the position with regard to advanced medical or surgical study is different. In a country town, like Cambridge, the number and variety of diseases are not such as to make the university a suitable center for advanced professional study in medicine and surgery; that it is a suitable center for the pursuit of studies ancillary to them is evident from the numbers who wish to come and the resentment that the lack of recognition evokes. For these studies a medical degree cannot be given, but the university has, subject to the approval of the King in Council, established the degree of Master of Science, which will be obtainable only by research and will be open no less to students of medicine than to students of other departments of scientific knowledge.

Oxygen in Mountain Sickness.—Doctor Kellas,

lecturer on chemistry at Middlesex Hospital Medical School, who died suddenly while on the Mount Everest Expedition staff, was educated at Aberdeen, Edinburgh, University College, London, and Heidelberg University. He was a keen mountaineer and deeply interested in the scientific problems involved in his favorite pastime. The difficulties of breathing at high altitudes and the possibility of overcoming them by the use of oxygen had for long engaged his attention, and he had frequently visited the Himalayas to carry on his investigations. Last year he attempted the ascent of Mount Karmet and the winter and spring he spent in mountaineering in Sikkini. He purposed to climb Mount Karmet again this year with a view to furthering his researches into the use of oxygen, but the Mount Everest Committee invited him to carry out his experiments on Mount Everest instead of on Karmet and he accepted the invitation. In expressing their appreciation of his services and experience, which had been placed at their disposal, the committee point out that the use of oxygen for the climbers is not an essential factor of the plans for the expedition, which will not be affected by the deeply regretted death of Doctor Kellas.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 7, 1921, 185, 1.

1. Diagnostic Pitfalls. The Late Effects of Gassing and Tuberculosis. John B. Hawes, 2nd.
2. The Postoperative Treatment of Urinary Lithiasis. Edward L. Young, Jr.
3. A Cancer Question: R. S. V. P. S. W. Little.
4. Symptoms and Treatment of Cardiac Failure. Report of a Case. Thomas J. O'Brien.
5. Vesico-Intestinal Fistula: Report of a Case: End Results. F. F. Dogett.
6. Prolapse of the Uterus During Pregnancy. G. M. Garland.
7. Weight Prediction in the Formula of Bernhardt, of von Pirquet and of Dreyer. G. Gray and Howard F. Root.

1. Diagnostic Pitfalls. The Late Effects of Gassing and Tuberculosis.—John B. Hawes, 2nd., finds that in the endeavor to make an early diagnosis of tuberculosis many physicians, particularly the younger ones, manifest a tendency to make the diagnosis of tuberculosis too frequently. This is true more especially in those men gassed in France during the summer and fall of 1918. In making a distinction between late gas poisoning and tuberculosis it is well to bear in mind the following points: 1. Do not take it for granted that a given process is tuberculous, even with a suggestive *x*-ray. 2. Do not do the reverse. 3. A general appearance of robust health, with marked symptoms, is against tuberculosis. 4. Bear in mind that the lung complications resulting from gas are usually basal and no apical processes. 5. And that the usual signs found are those of a thickened pleura and often a localized bronchitis. 6. And further, that following gas, there is marked to be an increase in nervous symptoms of every kind. 7. Do not take it for granted that these men who have been gassed are *not sick* and do not need treatment, even if you do decide that they have not tuberculosis or, indeed, not much wrong with their lungs in any way. 8. Treat the man who has been gassed and not his lungs.

2. Postoperative Treatment of Urinary Lithiasis.—Edward L. Young, Jr., quotes statistics demonstrating the very high percentage of recurrences in urinary lithiasis which he believes may be prevented to a certain extent by proper postoperative care. Taking into consideration the chemical factors involved, the first thing to do on removal of a stone is to have an accurate chemical analysis made. Whatever the chemistry all the channels of elimination should be kept open. If the stone is calcium oxylate, it is best held in solution by a strongly acid urine, especially when the acidity is due to the double acid phosphate and in the presence of an increased amount of magnesium and with a lessened amount of calcium. Therefore a diet containing a high amount of oxalic acid should be interdicted, and acid sodium phosphate and magnesium may be administered. If the chemist reports a uric acid or urate stone, we know that this form of stone is more soluble in alkaline urine. Therefore meat and meat extractives should be eaten sparingly and salt also should be used sparingly. An abundance of fruit or fruit acids is beneficial. In dealing with bladder stones irrigation is the main thing, and probably does the work by a mechanical process rather than by any means of special drug used. The drugs which may be used by mouth are boric acid, sodium benzoate, acid sodium phosphate, and hydrochloric acid, the two latter agents being the more effective. A sufficient amount of water should be taken whatever the nature of the calculus to insure that the patient shall void two quarts of urine daily. The ideal routine for any patient after operation is to have *x*-rays at regular intervals, short at first and gradually lengthening, if no tendency to stone formation is shown, and at the same time regular pelvic lavage until infection is gone. Make dietetic restrictions sufficiently simple so that the patient will cooperate in carrying them out over a long period of time.

Journal of the American Medical Association.

July 9, 1921, 77, 2

1. Acute Postoperative Dilatation of the Stomach. Emil Novak.
2. Treatment of Chronic Nephritis without Edema: An Evaluation of Methods. James S. McLester.
3. An Automatic Method for Serial Blood Pressure Observation in Man. M. A. Blankenhorn.
4. Further Clinical Studies on the Use of Mercurochrome as a General Germicide. Hugh H. Young, Edwin C. White and Ernest O. Schwartz.
5. Medical Jurisprudence: The General Rules of Law Governing the Compensation of Physicians and Surgeons. Laurence A. Steinhardt.
6. Uterine Prolapse: Permanent Fixation by Fascial Flaps. W. Burton Thorning.
7. Intracranial Birth Trauma of the Newborn from the Standpoint of Obstetrician. Hugo Ehrenfest.
8. Blood Pressure Changes During Abdominal Operations. Alexius McClannan.
9. Tropical Bronchopulmonary Mycosis. Ralph W. Mendelson.
10. Waskia Intestinalis: Its Cultivation and Cyst Formation. Mary Jane Hogue.
11. Nervous Symptoms in Ex-Soldiers. Sanger Brown, 2nd.
12. Suturing Blood Vessels: With Report of a Sutured Brachial Artery. J. Shelton Horsley.
13. Treatment of Arteriovenous Aneurysm: Report of Ten Cases. John F. Connors.
14. Experience with More Than One Hundred Cases of Epidemic Encephalitis in Children. Josephine B. Neal.

4. Further Clinical Studies in the Use of Mercurochrome as a General Germicide.—Hugh H. Young, Edwin C. White, and Ernest O. Schwartz report their results with mercurochrome-220 during the past two years, and refer to the satisfactory results recorded by others who have used it. They conclude that mercurochrome is a very valuable drug in acute gonorrhea, but the intense pain is a drawback to its use by the patient. Acriflavine is free from this objection and, although not so good a germicide, is often preferable in acute cases. In chronic infections of the urethra, prostate and vesicles, the great value of mercurochrome has been amply proved. It penetrates deeply and may be found in the prostatic secretion several days after posterior instillation. The results obtained in many chronic cases of cystitis are remarkable, long standing infections often clearing up in a few treatments. In some cases which fail to become sterile, constant reinfection of the bladder is found to occur from kidneys or prostate. Mercurochrome is less irritating and produces less reaction in the renal pelvis than silver nitrate solutions, while possessing about equal germicidal powers; but in some cases both drugs should be used alterately, and sometimes silver is better. In some cases of pyelitis, infection comes from the teeth, tonsils, etc., and sterilization of the pelvis is impossible until the primary focus is cured. Continued use has proved it to be a most satisfactory dressing for venereal ulcerations and bubos. In general surgery, reports indicate that mercurochrome is very valuable in dressing open wounds and sinuses. The germicidal efficiency of the drug in

other branches of medicine and surgery has been proved, especially in the treatment of infections of the throat, nose, sinuses, ear and eye, and teeth. It is reported to be most efficient in disinfecting the throats of diphtheria carriers.

8. Blood Pressure Changes During Abnormal Operations.—Alexius McClannan presents a study based on 394 abdominal operations performed by the members of the staff of St. Agnes Hospital, Baltimore. A simple hernia occurring in an otherwise healthy young adult gave the opportunity for studying the effects of surgical operation on the blood pressure without complicating factors. Forty such cases were studied. Nitrous oxide and oxygen caused a rise of from 10 to 30 points in pressure. As a rule this higher pressure continued throughout operation. In about half of the other cases there was no primary change, and the primary rise, when it did occur, was never sustained throughout the operation. In 60 per cent. of cases in which general anesthesia was used the manipulation was accompanied by a fall in pressure. The fall in pressure was most noticed in patients anesthetized under ether. Operation under procaine or procaine nitrous oxide was without change in pressure in 50 per cent. of the cases. In 35 of 50 cases of acute appendicitis opening the peritoneal cavity caused some change in blood pressure. Similarly there was a pronounced effect from manipulation incident to delivery of the appendix. When appendicitis was complicated by peritonitis the sensitiveness to anesthetics as well as to peritoneal manipulations was increased 50 per cent. The reaction to opening the peritoneum was very slightly altered in character, but the manipulations produced marked lowering of the pressure in most cases. In general the blood pressure changes during gallbladder operations resembled those occurring during operations on the appendix. In operations on the stomach the blood pressure fell rapidly when the peritoneal cavity was opened. Hysterectomy gives changes in blood pressure almost the same as those noted in appendectomy. When vaginal and abdominal operations were combined there was a frequent fall in blood pressure after the patient was changed from the lithotomy to the Trendelenburg position.

12. Suturing Blood Vessels, with Report of a Sutured Brachial Artery.—J. Shelton Horsley says that the field for suturing blood vessels is not great. There are, however, instances in which it is indicated as the referable operation, or even the only treatment that should be employed. Collateral circulation develops much less readily in adults after the age of thirty-five than in the young, and there are certain locations in which injury to a large artery is particularly likely to be followed by gangrene. There has been an impression that suturing blood vessels can only be done by a few operators of peculiar skill and that it should not be done by the average "practical surgeon." This is unfortunate, because a technique that can be used only by the exceptional surgeon is not of much real value, and the art of suturing blood vessels may be acquired by any competent operator who is willing to spend some time in experimental work on the lower animals. The technique for suturing blood vessels is that in which broad surfaces of vascular epithelium are approximated and held by a double mattress suture applied under uniform tension. Since the writer published the description of his technique in 1915 there have been no material changes except the substitution of olive oil for petrolatum, since pertolatum and lanolin are all irritating to the peritoneum. Unfortunately olive oil has poor lubricating qualities, and it is necessary to boil the arterial thread and needle in petrolatum and to apply a small amount of petrolatum on the buttons of the suture staff in order to make the thread run smoothly and hold parts in apposition.

14. Experience with More than One Hundred Cases of Encephalitis in Children.—Dr. Josephine B. Neal. (See MEDICAL RECORD, July 2, 1921, p. 35.)

The Lancet.

June 18, 1921, cc, 25.

1. The Relation of Heart Disease and Pregnancy. Section III. James Mackenzie.
2. Lettsomian Lectures on Surgery of the Lung and Pleura. Lecture III. G. E. Gask.
3. The Operation of Ventrofixation with the After-results in 220 Cases. J. E. Gemmell and A. Leyland Robinson.
4. The Treatment of Urinary Incontinence by Electrical Methods. F. Hernaman-Johnson.
5. Squint: The Question of Early Operation. W. B. Inglis Pollock.
6. The Treatment of Cases of Syphilis Having a Permanent Positive Wassermann Reaction. C. F. Marshall and A. G. Shera.
7. The Creative Force as a Factor in Women's Work. A. Louise McIlroy.

2. Lettsomian Lectures on Surgery of the Lung and Pleura.—G. E. Gask gives a historical review of surgery of the chest and lung during the past 600 years, which shows that surgery of the chest has at times receded and at times advanced, and that at no period has it made such progress as during the last war. He reviews the development of surgery of the chest during the war, showing how surgeons overcame their dread of opening the closed thorax and learned to repair a wounded lung and restore it to its normal function. It has also been demonstrated that in civil practice it is possible with safety to the patient and without expensive apparatus to open the chest widely and to deal with discarded processes which were previously unrelieved. Evidence is brought forward to prove that the operation of thoracotomy is a sound and reasonable one. The writer submits that more and more operations on the chest should be undertaken and that with a wider experience the operation of thoracotomy will become as useful and ordinary as that of laparotomy.

3. The Operation of Ventrofixation with the After Results of 220 Cases.—J. E. Gemmell and A. Leyland Robinson endeavor to show that a properly performed ventral fixation is free from undue risk, does not interfere with subsequent pregnancy or labor, and in a large majority of cases permanently cures the patient of those symptoms for which operation is undertaken. The operation they recommend is as follows: Through a 2 or 3-inch median incision the peritoneum covering the bladder is picked up in the middle line with a succession of Spencer Wells forceps arranged in file and extending from the utero vesical attachment to the upper border of the symphysis pubis. Using these forceps as guides, a catgut suture is inserted in the center of the uterovesical fold and continued as a running stitch through the peritoneum covering the bladder, passing downward, forward, and upward in the middle line until the paricta peritoneum is reached at the lower angle of the wound. This stitch is both continuous and interrupted, the two ends being knotted at short intervals, thus bunching the peritoneum into one mass and forming a median septum stretching across the uterovesical pouch between the uterus and the abdominal wall; the two ends of the suture are finally brought through the rectus fascia on each side, just above the symphysis pubis. This septum effectually obliterates the space which would otherwise exist below the fixation area. It is merely a safety device and not intended to act as a uterine support. The uterine wall immediately related to the uterovesical fold of peritoneum is part of the lower uterine segment; its function during labor is passive dilatation. Examinations during cesarean section have failed to show any elevation of the level of this reflection. The anterior surface of the uterus immediately above the attachment of the uterovesical reflection of peritoneum is therefore selected as the fixation point. This type of ventrofixation is a simple and useful operation for a bulky, tender, fixed retroverted uterus, such as frequently follows labor and some degree of infection. Postoperative intestinal complications do not occur. In this series of 20 cases, 179 patients described themselves as cured (including 43 women with 72 pregnancies). Forty-one patients complained of symptoms due to factors beyond the control of the surgeon, namely, labor, over-exertion, recurrence of infection, the menopause, and neurosis.

4. The Treatment of Urinary Incontinence by Electrical Methods.—F. Hernaman-Johnson finds that taking all types of patients, at all ages, a cure of urinary incontinence by a combination of electrical treatment and suggestion may be expected in about 50 per cent. of the cases. The simplest method of making the electrical application is to introduce a metal bougie into the bladder and pass a faradic current through it up to the patient's limit of tolerance. A second method is to fill the bladder with a weak solution of zinc

sulphate and pass into the bladder a rubber catheter containing a wire of soft metal. Care must be taken that the wire does not come in contact with the wall of the bladder or urethra. A current of 10 to 15 milliamperes is then passed for ten minutes. A pad is placed beneath the patient to form a negative pole. This procedure may be repeated every day for a fortnight. The time required to effect a cure in favorable cases is about a month.

The Lancet.

June 25, 1921, cc. 26.

1. Unsolved Problems in Obstetrics and Gynecology. W. Blair Bell.
2. The Relation of Heart Disease and Pregnancy. Section IV James Mackenzie.
3. The Epidemiology in a Rural and Residential Area. Ralph E. M. Pickett.
4. Necessity of Notification of Measles. Reginald Dudfield.
5. A Further Consideration of Sanatorium Controls. E. Ward.
6. Modern Artificial Limbs. The Work of the Arm-Training Center at Roehampton. C. Jennings Marshall.

2. The Relation of Heart Disease and Pregnancy.—Sir James Mackenzie, in summing up his four lectures in this subject, says that as the danger attending pregnancy in women with heart disease is the occurrence of heart failure, the physician must keep clearly before him the symptoms by which this can be recognized. An absence of a clear conception of the nature of these symptoms has too often led to a misunderstanding of their significance. No sign manifested by the heart itself gives information as to the functional efficiency of the organ, and consequently the signs of heart failure must be looked for in other directions, and more especially in those structures whose blood supply is likely to be reduced by the weakening of the circulation. Extreme heart failure is shown by such signs as dropsy, enlargement of the liver, edema of the bases of the lungs, or cyanosis. Early heart failure may be revealed by no sign when the body is at rest, and may only be discovered by distress evoked when some effort is made which the patient was wont formerly to perform in comfort. The signs of distress, so far as women in the child-bearing period are concerned, are breathlessness and palpitation. Pain on effort may be present in certain cases of mitral stenosis and aortic disease, but as a rule the pain of grave heart failure is a sign which occurs much later in life. From this it follows that no single sign shown by the heart itself, however abnormal it may seem, should be a bar to pregnancy. If they occur in hearts that show no other abnormal sign, and if the patient's response to effort is good, they should be ignored. If they are associated with other signs of heart disease the prognosis should be based on these signs and not on the systolic murmurs. The same rule applies to the irregular actions of the heart due to respiratory arrhythmia and extrasystole. In women with easily excitable hearts, who suffer at times from pain of varying degrees of severity (the neurotic heart or the toxic heart), when the organ is normal in size, or only slightly enlarged, the heart trouble constitutes no bar to pregnancy. This applies whether systolic murmurs are present or not. The form of heart disease which gives most occasion for anxiety in pregnant women is mitral stenosis. This usually has followed an attack of rheumatic fever. In such cases great care must be taken to differentiate between dangerous and not dangerous forms of the malady. The latter include instances in which the cicatrizing process, which produces the stenosis, is stationary or is only progressing slowly. Such slow progress is shown by the character of the murmur. If there is present ten or fifteen years after the causative attack of rheumatic fever only a presystolic murmur, and if the heart's size is normal, its rate regular, and the response of the patient to effort good, then pregnancy may be undertaken with a fair prospect of safety. If, on the other hand, there is present within a few years of the causative attack of rheumatic fever, a diastolic murmur as well as a presystolic, there will be danger. This will be particularly the case when there is evidence also of the heart muscle being damaged—that is, enlargement of the organ and much distress on effort. When in addition to the mitral stenosis there is fibrillation of the auricle, pregnancy should be forbidden. If pregnancy has taken place then the case should be watched; and if grave signs of heart failure occur, pregnancy should be terminated. In cases of aortic regurgitation, if the heart is normal in size and the response to effort is good, pregnancy may be undertaken. If, on the other hand, the ventricle is much hypertrophied, and there is marked "Corrigan" pulse, the probability is that the heart will be so permanently impaired that it will cripple the patient severely if she gets over her confinement.

British Medical Journal.

June 18, 1921, No. 3156.

1. Remarks on Radium Therapy in Uterine Cancer. A. E. Heywood Leach.
2. The Treatment of Acute Pyogenic Infection of the Knee-joint. A. H. Southam.
3. The Results of Ninety-eight Cases of Nerve Suture. Paul G. Dane.
4. Five Cases of Rat-Bite Fever. Two Cases Successfully Treated by Neosalvarsan. P. W. Easton-Fanning.
5. The Treatment of Cutaneous Anthrax. W. H. Ogilvie and A. W. Hall.
6. Cryptogenetic Pneumococcal Septicemia. Sir John Lumsden.

2. The Treatment of Acute Pyogenic Infection of the Knee-joint.—A. H. Southam has had little success with the Willems treatment of acute suppurative arthritis, and finds it very difficult to persuade patients to move an acutely inflamed joint. A method which has given better results in his hands consists of thorough irrigation with saline in an early stage, followed by the application of bipp. The insertion of drainage tubes into the knee joint he considers not only unnecessary but harmful. The joint cavity must be left open after the irrigation, otherwise pus will accumulate under pressure, and, burrowing through the capsule, spread in the fascial planes. Extension must be applied to the limb during the early stages. Mobilization and massage must be instituted as soon as the stage of active inflammation has subsided, usually within fourteen days.

3. The Result of Ninety-eight Cases of Nerve Suture.—Paul G. Dane reports failure in about 50 per cent. of this series of ninety-eight cases of nerve suture. The explanation of these failures he says involves many factors, such as concomitant injury to the blood vessels and other nerve trunks, and improper preoperative and postoperative treatment. In practically every failure there has been neglect of preoperative and postoperative postural treatment by means of splints, etc. This is especially true in regard to the delicate intrinsic muscles of the hand, which are easily pulled out of position by the contracture of antagonistic groups. With regard to postoperative treatment, the writer has not been much impressed with electrical methods, and in the future will employ them not at all or only to a limited extent. There is one thing which these cases require above all, and that is complete rest, which can only be secured by the application of appropriate splints, and later gradual reeducation of muscles that have been injured by denervation.

5. The Treatment of Cutaneous Anthrax.—W. H. Ogilvie and A. W. Hall quote from a circular issued by the Ministry of Health, in which the serum treatment of anthrax is recommended and the statement made that incision is unnecessary. To this statement the writers take exception. A series of cases treated at Guy's Hospital gives evidence that the death rate when both methods are combined is notably lower than when either is used alone. Excision by itself will assure a cure in about 90 per cent. of cases in a disease having a natural mortality of something like 50 per cent., while serum at best cannot be relied upon to avoid a fatal issue in all cases. Excision and serum treatment is probably the most rational and the safest course in all cases of cutaneous anthrax which have not reached the stage of septicemia.

Bulletin of Johns Hopkins Hospital.

May, 1921, xxxii, 363

1. Epidemic Encephalitis. A Clinical Study. W. M. Happ and V. R. Mason.
2. Studies on Experimental Rickets. III. A Pathological Condition Bearing Fundamental Resemblances to Rickets of the Human Being Resulting from Diets Low in Phosphorus and Fat-Soluble A. The Phosphate Ion in Its Prevention. P. G. Shipley and E. A. Park and E. V. McCollum and Nina Simmonds.

3. *Giardia* (Lamblia) *Intestinalis*. A Common Protozoan Parasite of Children. Kenneth F. Maxcy.

3. Giardia (Lamblia) Intestinalis. A Common Protozoan Parasite in Children.—Kenneth F. Maxcy undertook the study reported in this communication to determine the frequency of this parasite in the intestinal tract of apparently normal children in the United States. In pursuing this study attention was directed toward demonstrating only the encysted Giardia, and incidentally the other common intestinal protozoa which show encysted forms, viz., *Entameba, coli, Entameba histolytica, Endolimax nana, Chilomastic* (Tetramitus) *mesnili*, coccidia, and blastocystis. The specimens were obtained for the most part without the previous administration of a cathartic, and were usually formed stools. Two "wet smear" preparations were made from each specimen, distilled water being used. Material for the one was scraped from the exterior of the stool, any clumps of mucus visible being included; material for the second was taken from the interior. A drop of 1 per cent. water soluble eosin was added to the preparation. The field took a pink stain; the viable cysts remained unstained and stood out rather sharply as clearly defined, pale green, refractive ovals against the pink background. Whenever cysts were found to be present another preparation was made and stained with iodine (iodine 1 part, potassium iodide 2 parts, distilled water 100 parts). This solution differentiates the structures a little more clearly and brings out the iodophilic inclusions. When possible each patient was examined on two occasions at intervals of two or more days. The children examined were miscellaneous medical admissions. Excepting a small group of "feeding cases," these children were admitted because of acute infectious disease, and were free from gastrointestinal disturbance. Of the total of 89 children examined, 18, or 20 per cent., were found to be harboring intestinal protozoa of some type. It is noteworthy that in a group of 15 "feeding cases" under one year of age no infestations were found. The youngest positive case was a little girl 17 months of age whose stools showed large numbers of *Entameba coli* cysts. From the second year on there was an increasing number of positive cases with advancing age, so that the group of children from 6 to 12 years old showed a decidedly higher percentage of infestations than the children between one and five. *Giardia intestinalis* (alone) was found in ten cases; *Giardia* and *Entameba coli* in one; giardia and blastocystis in two; giardia, *Hymenolepsis nana* and *oxyuris vermicularis* in one; *Entameba coli* (alone) in four. The most interesting fact brought out by the study was the large number of children who harbor *Giardia intestinalis*. The percentage of infestations appears to be much higher in childhood than in adult life.

Indianapolis Medical Journal.

May, 1921, xxiv, 5.

1. Streptococcic Osteomyelitis of the Temporal Bone. Harry Boyd-Snee.
2. Eye Injuries in Relation to Industrial Organizations and Insurance. No 3. Walter N. Sharp.
3. Eye Conditions of Interest to the Man in General Practice. Joel Whitaker.

1. Streptococcic Osteomyelitis of the Temporal Bone.—Harry Boyd-Snee draws the following conclusions from an experience based chiefly on the observation of 258 cases, the majority of which were encountered in the United States Army Base Hospital at Camp Pike, Ark., during the period from November, 1917, to March, 1919: (1) Streptococcic osteomyelitis of the temporal bone is a clinical entity and is to be diagnosticated as such. (2) The etiological factor is the streptococcus microorganism. It is identified as a Gram-positive diplococcus, cultures from which the pneumococcus has been excluded by test show typical chain formation, and are typed as *Streptococcus mucosus capsulatus, Streptococcus hemolyticus* and *Streptococcus nonhemolyticus*. (3) Recovery of the streptococcus organism from the tympanic exudate in a case of otitis media, either acute exudative or acute suppurative, is sufficient evidence to support the diagnosis. (4) The diagnosis is an absolute indication for immediate operation. (5) Closure of the wound, partial or complete, should never be done.

Wiener klinische Wochenschrift.

March 31, 1921, xxxiv, 13.

Narcolepsy.—Somer concludes a continued article on this subject which contains an account of two personal cases. In regard to true narcolepsy the sleep of this affection should be natural and preceded by fatigue. The subject may fall asleep in any position, with preference for positions in which ordinary subjects are most prone to fall asleep. The depth and duration of sleep are by no means constant and depend on external circumstances. There was the suggestion of cataleptic inhibition, while an affective frame of mind as well as the phenomena of overexertion were seen. Thus one man when on the point of angrily beating his son was seized with the phenomena of muscular relaxation. It is well known that catalepsy frequently supervenes amid affective behavior. Affects are associated with peculiar vasomotor behavior and in one of the author's cases the face was flushed during sleep while the other patient showed, instead, pallor. Both subjects showed pupillary contraction, slow pulse, and other evidence of exhaustion of the sympathetic system. If the totality of cases is considered many vasomotor phenomena could be quoted. There is, in fact, a liability of the vasomotor center in these narcolepsies. Several writers see in genuine narcolepsy a disturbance of endocrine secretion, and especially of that of the hypophysis. On the other hand, in certain cases of symptomatic narcolepsy it might be more fitting to accuse this gland in connection with organic disease of the sella which has been diagnosticated in at least one case *intra vitam*, and once at autopsy. Extreme overexertion with accumulated fatigue toxins simultaneously affecting the endocrine glands and vasomotor center might explain attacks in the predisposed. The author believes that the autopsy table will yet explain the mystery of this affection, for thus far it has not occurred in a lethal setting to any great extent.

Gazette des Hopitaux.

April 12-14, 1921, xciv, 29.

Repopulation of France.—Dr. W. W. Keen of Philadelphia contributed this article at the time of his presidency of the V. International Congress of Surgery, held last July in Paris. It appears to have been composed as a reply to a request by the editor for Keen's personal opinion on the subject of repopulation. He first cites two French laws which relate to illegitimacy of French children. The first has to do with legitimizing children born out of wedlock, and the second would give to the mothers of such children the status of legal wives, including the right to bear the name of the father. The agitation for these laws was the result of the sudden mobilization to meet the German invasion, for it was evident that dispensing with formalities in a very large proportion of these cases was not deliberate immorality, and that in times of peace such formalities would have been forthcoming. Many fathers of such children died on the battlefield and deserved to have their war infants legitimized. Of the two laws, that which deals with the children is already in force and has the author's approval. In regard to the second proposed law, not yet established at the time of writing, it would in the author's opinion be an injustice to the mother to refuse legitimacy to her when it had been granted to her child. But now that the war is over the author is not in favor of legitimizing the children and mothers in times of peace. Instead, he would sanction the opposite course of illegitimizing the father. In regard to race suicide, one of the chief causes is that children are now a liability, whereas not many years ago they were an asset—a good investment. The only way to restore the *status quo ante* is for the state to make it an object for the parents to bear children. A subject much agitated recently is telegony, the existence of which has been accepted by some animal breeders. Women of France who have been forcibly impregnated by Germans have a certain fear that further offspring might exhibit Teutonic traits. Keen quotes from Conklin of Princeton that telegony is a myth and that none of these women has anything to fear from bearing children to Frenchmen.

Book Reviews.

DIAGNOSTIC AND THERAPEUTIC TECHNIC. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By ALBERT S. MORROW, M.D., late Lieut.-Colonel, M.C., U.S.A., Attending Surgeon to the City Hospital, and to St. Bartholomew's Hospital, New York City; Consulting Surgeon to the Nassau Hospital, Mineola, L. I. Third Edition, Entirely Reset. Price, $8.00. Philadelphia and London: W. B. Saunders Company, 1921.

THIS volume was originally intended for the use of the hospital interne and the general practitioner, to be supplemented for special use by referring to the larger textbooks. The author has gathered and brought together information from a number of books and from practice, and has performed a valuable service to his profession. All the procedures have been given in detail and as a result the volume is of great value, which only requires to be supplemented by practice. Nothing really essential to the purpose has been omitted. The fact that a third edition has been called for, speaks for the value which has been found, and the careful revision and additions have together brought it thoroughly up to date.

PRÉCIS DE RACHIANESTHÉSIE GÉNÉRALE. Par G. LE FILLIATRE, Chirurgien de l'Infirmerie Centrale des Prisons de France, etc. Prix 8 francs. Paris: Libraire E. Le François, 1921.

THIS is a 16mo volume of 126 pages, with 29 illustrations. There is a preface by Victor Panchet, the well-known authority on the subject matter, in which the method of the author is warmly commended for its simplicity. The technique is so standardized that the method is applicable at any level. The work has nine chapters devoted to history, evolution of spinal analgesia, anatomical considerations, technique (under seven subdivisions), duration and progress of analgesia, incidents of the method, failure and accidents, examination of spinal fluid, contraindications and points of superiority over other anesthesias. Were it not for the comparative indifference to spinal analgesia in this country the volume would deserve a translation, conversely a translation might stimulate interest in the method.

ATLAS DE SYPHILIMÉTRIE (100 GRAPHIQUES). Les Conditions Experimentales de l'Extinction de la Syphilis. Par ARTHUR VERNES, Directeur de l'Institut Prophylactique de Paris. Paris: P. Boll, 1920.

THIS atlas, so-called, is devoted, as the title indicates, to the march of the seroreaction, as that it is made up entirely of graphics of curves. Blood and spinal puncture curves are given and the influence of various kinds and plans of treatment. The activities of the Institut Prophylactique form a brief supplement. A feature of the *graphiques* is their length, for some of them go back to the early days of serodiagnosis, and are brought down to date. Graphic No. 35 begins in June, 1911. The seroreaction was negative for a brief interval in September, disappeared again in June, 1912, and, under periodic testing, has been negative for the past eight years. Disease curves extending over nine consecutive years must be unique and appear to justify the use of the term syphilimetry.

L'ANNÉE THÉRAPEUTIQUE. Par LE DR. L. CHEINISSE, Charge du "Mouvement Thérapeutique" dans la *Presse médicale*, ancien redacteur de la *Semaine médicale*. Année 1920. Paris: Masson et Cie., 1921.

THE author has made these contributions to medical journals for the past ten years but this is the first time that they have been reprinted in book form. The arrangement of topics is alphabetical, beginning with acidosis and ending with vertigo of Menière. The subjects in this series are limited to diseases, but there is a brief series of supplements on drugs and technique. The general plan is simple. Under the heading of the diseased condition the remedies of the year are discussed. The author does not indorse them and hardly comments at all. Under another are mentioned vaccination (specific and nonspecific) and benzoate of benzyle. Under epilepsy are discussed Borno-potassic tartrate and luminal. The method notably restricts the responsibility of the writer, and makes him a news distributor rather than a censor.

THE STORY OF THE AMERICAN RED CROSS IN ITALY. By CHARLES M. BLAKEWELL. Illustrated and containing 253 pages, including appendices. New York: The Macmillan Company, 1920.

FROM the begining Italy's role in the World War was marked with spectacular activity. For two years before America entered the strife, Italy's resources were becoming exhausted, her man power was gradually depleting, and her need for medical aid was urgent and great. It is at this time that the story of this instructive volume begins; not a history of bringing charity to a nation, but one of alleviating, through justice, the sufferings brought on by twenty-four months of incessant warfare in the common cause of the allies before our own country took up arms.

The activities of the American Red Cross extended to the principal cities of Italy including Genoa, Turin, Milan, Padua, Venice, Florence, Rome, Naples, Calabria, Sicily, and Sardinia. Some of the war's aftermath, more especially tuberculosis, is discussed, and the measures of offsetting the economical and human disasters incident to these conditions are rehearsed.

The book is in no sense statistical but narrates in interesting fashion the historical activity of the American Red Cross organization actuated with an enthusiasm common to America and Italy and inspired by common ideals.

AMERICAN RED CROSS WORK AMONG THE FRENCH PEOPLE. By FISHER, AMES, Jr. Containing 178 pages and 8 illustrations. New York: The Macmillan Company, 1921.

THIS work is a descriptive résumé of the activities of the American Red Cross among the French people during the period of the war and the months immediately following. It is stripped of all technical rehearsal and deals only with the broad character and scope of American Red Cross efforts. Beginning with Paris, the outlines of the activities are presented, extending soon into the French hospitals and the canteens at the front. The description includes also a discussion of the mutilated and maimed and extends to the indirect effects of war, the suffering children. Activities in French cities other than Paris are briefly reviewed, the book ending with a rehearsal of the scourges of the white plague that affected the war-worn and health-depleted French.

In no way does this volume pretend to be a full and exhaustive treatise of Red Cross activities; but it presents only such salient features of the beneficent accomplishments of this organization, familiar alike to those who shared in its activities during belligerent times and to those who contributed in effort and assiduous zeal to its triumphant success.

DISEASES OF THE SKIN; a Text-book for Students and Practitioners. By J. M. H. MACLEOD, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital; Physician for Diseases of the Skin, London Hospital for Tropical Diseases; Physician to the Skin Department Victoria Hospital for Children; Lecturer on Dermatology, Charing Cross Medical College and London School of Tropical Medicine; formerly Editor of the *British Journal of Dermatology*, etc. Price, $16.00. New York: Paul B. Hoeber, 1921.

THIS book of considerably over 1200 pages is a most complete treatise on diseases of the skin, written for the guidance of the general practitioner chiefly, though there is much in the book, especially in the illustrations, which will prove helpful to even the experienced dermatologist. The illustrations are worthy of special mention; there are four hundred and thirty-five of them in the text and on plates, in addition to twenty-three colored pictures on plates, most of them original or from sources not familiar to American readers. The classification followed, so far as possible or practical, is an etiological one, although at times it is found necessary to form a regional grouping or one by the character of the lesions. The text is as commendable as the illustrations, and the combination of the two makes clear what to the non-optimist is usually a difficult subject. The book is a valuable addition to dermatological literature.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirty-sixth Annual Meeting Held at Atlantic City, May 10 and 11, 1921.

DR. W. S. THAYER OF BALTIMORE, PRESIDENT, IN THE CHAIR.

(*Concluded from page* 128.)

Second Day—Wednesday, May 11.

Dr. A. D. HIRSCHFELDER of Minneapolis asked if Dr. Wolbach had met with fever or other manifestations as the result of individuals feeding apparently normal lice from an apparently normal source. When they were working on the development of substances to kill lice they had an experience which they were not able to find duplicated in the literature. Professor Moore, the entomologist, was feeding about 2000 lice per day, and came down with what seemed to be German measles when there was an epidemic of that nature. A few months later he had a second attack break out with a second rash. He had glandular enlargement with some fever. They then studied the effect of feeding lice on volunteer workers and took careful records of the temperature. The lice were grown from eggs taken from the Minnesota lumber camps. Three out of four individuals developed fever and glandular enlargement, and they found an eruption similar to German measles. The fever came on within an hour after feeding. One individual who took exercise had a temperature of 103°. Four individuals had a slight fever without glandular enlargement. Three out of four had fed lice during the previous summer and they thought that there was some phenomenon of hypersensitiveness to account for the three individuals having had a greater reaction than the four who had never fed lice before. They had been able to find fever as the result of feeding apparently perfectly healthy lice. The permanence of the reaction and substances indicated that it was not trench fever.

Dr. EMANUEL LIBMAN of New York said that before discussing the question of *Rickettsia prowazekia*, he would like to go back a little bit and discuss Dr. Wolbach's work. They should see if there was any relation between this organism and the bacillus of Plotz found in 53 per cent. of the endemic cases in New York and in Russia in 100 per cent. It occurred early in the disease. It was never found in the blood in infected animals, but it occurred in the blood of human beings 36 hours after the crisis. The blood was then no longer infectious for animals. In two cases in Russia the epidemic typhus-fever bacteria were the same as those in the endemic cases. In the endemic cases there were 0.7 colonies to the cubic centimeter of blood, and in the epidemic cases 1.5 c.c. There were 168 colonies in 12 c.c. of blood in one case studied by Dr. Baer in Russia. The organism was constantly found in typhus, but not after the blood had ceased to be virulent. Some years ago Anderson and Goldberger infected guinea pigs with the virus, and kept a strain three and one-half years. Then it was put into a monkey and they got typhus. The blood of the monkey gave the typhus virus. The organism might then be called a concomitant invader. In typhus fever there was a reaction against proteus X 19, that reached a height at the crisis and then disappeared. All the immune reactions were not present before the crisis; they were increased after the crisis and were highest at the end of the second week. In guinea pigs there was no complement fixation and no agglutination, but after the crisis in guinea pigs, and in human beings after the crisis one could get the Dale reaction. On account of accidents the cross immunity tests could not be made. In Mexico Dr. Olitsky found typhus bacilli in nine groups of lice, which seemed to be a virulent type. What then was the relation to Rickettsia? The Plotz bacillus was Gram-negative the organism was found in lice as a Gram-negative bacillus, but became Gram-positive later. Were Rickettsia bacteria? Were they identical with the Plotz bacillus? Evidence so far showed that it was probable that Rickettsia were bacteria. If one took the Plotz bacillus in the Gram-negative state and transferred it to fluid media, one got an organism indistinguishable from Rickettsia, that was Gram-negative. The next generation would stain with blue. When one got back to the solid medium it was Gram-positive. If one used a fluid medium the organism stained pink with Gram. It did not take aniline dyes. There was no proof that Rickettsia were not bacteria. Those who grow Rickettsia from lice must prove that they were not typhus bacilli.

Dr. R. P. STRONG of Boston said that from Dr. Wolbach's investigation one must regard Rickettsia as a group of microorganisms of which two species were pathological for man, one giving rise to typhus, the other to trench fever. There was a third species, apparently saprophytic for man, and there might be others occurring in the gut of normal lice. There might also be parasitic ones.

Dr. THEOBALD SMITH, Princeton, N. J., asked if Rickettsia had been transmitted to the egg of the host.

Dr. H. NOGUCHI of New York City said that in looking over the microphotographs, it seemed to him that the arrangement of the bodies was like that of chlamydozoa. There was an intracellular invasion by the organism, indicating morphological changes. Trachoma bodies also had cell inclusions; when they entered the cells they seemed to break off into minute granules. They took Giemsa stain. This might be a special group of organisms, not bacteria, but there were similar morphological changes in other organisms. Trachoma bodies occurred in two forms: (1) Large triangular bodies staining blue; (2) at the stage of conjunctivitis, they appeared as very minute diplococci.

Dr. HOMER F. SWIFT of New York City said that a similar experiment was performed with Rickettsia by the British. The lice were placed upon a patient with trench fever. Part of them were kept at a temperature of 30° C. Another group were kept at 15-17° C. Those kept at 30° C. developed Rickettsia and the others did not. Both sets were infectious by the subcutaneous test, therefore Rickettsia might be a degeneration form of cells. He did not believe that personally, but that was the experiment done.

Dr. N. E. BRILL of New York asked if they saw any relationship between Rickettsia and the bodies found in Mexico in the dermacentor typhus.

Dr. WOLBACH, in closing, said that none of them had any ill effects from normal lice, even from as many as 2000. After completing controls to their own lice they took lice from Polish people, collected from the public bath house. Mr. Baker collected these. He became ill. Before his illness they found Rickettsia in the lice. They were of the extracellular type. He had a typical case of trench fever. It was a matter of thirteen or fourteen days when the Rickettsia bodies began to appear. Sections were made of these lice. Mr. Baker, after his recovery, continued to infect clean lice with these bodies. Dr. Libman had brought up many interesting questions. They made one series of attempts to cultivate the Plotz bacillus, using ascitic fluid. There were thirteen early cases at the end of the second week. They made cultures by the Plotz method, controlling the cultures with other tubes, without the addition of blood. They used anaerobic broth culture, and got cultures in 50 per cent. Some were contaminations. The late stages of the disease showed a high percentage of streptococci. The attempts were not adequate controls of Plotz's work. Dr. Libman has laid more stress on tinctorial reactions than they did. The Giemsa stain was a tricky stain; one could make it blue or pink, according to the fixative used. They were forced to drop work on many points, such as the immunological side of the work, and to stick to work which was regarded as crucial. There were some inconsistencies, but the Plotz bacillus and Rickettsia might prove to be the same organism. There were astonishing things in biology. There was a sequence in the development of Rickettsia in lice that made them regard them as distinct from ordinary bacteria. To take up Dr. Swift's question, they found great difference in the Rickettsia according to the degree of temperature. Examination of lice for Rickettsia required very careful search. Dr. Todd's patience was monumental in this work. Often there was a large form coiled in the cell. In the second stage, the bacillary forms, there was an enormously distended cell with minute forms.

That was characteristic of the group. Bacot had reported a similar organism in bedbugs in England. The filamentous forms in smear preparations stained bluish with Giemsa. They broke up into granules. One might use the direct method of settling the question by making a few experiments injecting the eggs. One worker found infected eggs in the Mexican typhus. As to chlamydozoa they were probably similar, but there was no relation to the streptococci in trachoma.

Experimental Pigment Cirrhosis and Its Relation to Hemochromatosis.—Drs. F. B. MALLORY, FREDERICK PARKER and ROBERT N. NYE, Jr., of Boston presented this topic. Dr. Mallory said hemochromatosis was a rare disease. When the pigment appeared in the skin, in the earlier stages it was common. In a large number of autopsies (1465), including cirrhosis (alcoholic, syphilitic, infectious), acute yellow atrophy, etc., pigment was frequently found in the liver. In the alcoholic cases it was found in 50 per cent. The liver cells became packed with hemosiderin up to a certain stage, then suffered necrosis. The endothelial leucocytes took up the pigment and deposited it in the periportal tissues where it remained for years. Later the heart, pancreas adrenals, fatty tissues, and skin became pigmented. In experimental work the pigment could be produced in animals by definite chemical substances. Cirrhosis of the liver occurred in a few months and the animals died quickly, as the bile became very toxic. This state was produced by the combination of certain metals, such as copper, with hemoglobin. The copper salts acted on the liver, and the combination with hemoglobin on the heart. Now that prohibition was in vogue and private stills were common, one might expect to see more of this disease in the human subject in the near future.

Dr. N. F. BRILL of New York asked if the doctor saw any difference in the pigment from that found in pernicious anemia in the spleen and bone marrow. In hemachromatosis there was no increased destruction of the red blood cells, such as occurred in hemolytic conditions.

Dr. L. G. ROWNTREE of Rochester, Minn. asked if the doctor saw any evidence of toxicity from the copper salts. Were there any blood changes?

Dr. T. SOLLMAN of Cleveland, Ohio, said he would like to understand the effect of copper salts on the blood pigment; he thought they converted the hemoglobin into hematoxylon.

Dr. F. B. MALLORY, in closing, said that copper salts did not affect the red blood corpuscles at all. Lead would kill the red blood cells, copper salts did not. On the other hand, physiologists said that a large number of red blood cells were destroyed every day, so there must be free hemoglobin. This was taken up by the copper salts, and became a toxic agent because it was insoluble. There was no enlargement of the spleen, and no effect on the bone marrow cells.

Some Novel Effects Produced by Stimulating the Nerves of the Liver.—Drs. W. B. CANNON, J. E. IRIDIL, and P. E. SMITH of Boston presented this paper. They said that the denervated heart could maintain its function as long as the temperature was uniform. Stimulation of the hepatic nerves increased the rate of the denervated heart. This rise was due to some substance given off by the liver itself; probably aminoacids supplied by the intestinal tract, and taken into the liver, were given off again by this organ.

New Evidence of Thyroid Secretion Following Stimulation of the Cervical Sympathetic.—Drs. WALTER B. CANNON and P. E. SMITH of Boston presented this paper. They found that if the cervical sympathetic nerve were stimulated with the thyroid nerve in, adrenalin would raise blood pressure more quickly. This did not occur if the thyroid had been removed. By use of the denervated heart it was possible to get evidence of control of the thyroid and to get reflex response. With slight stimulation of the gland for two minutes the heart rate was considerably increased after ten minutes. The submaxillary did not cause this effect. It made no difference if one removed the adrenals or not.

Dr. H. SEWALL of Denver asked if the author had made any observations on the volume of blood entering the heart? Was it increased? That would explain the increased pulse rate on other grounds.

Dr. CANNON, in closing, said they had gone carefully through the literature and had failed to find variation due to the flow through the coronary arteries. These statements were thoroughly supported by numerous observations of their own.

Experimental Studies of the Pharmacology of Quinidine.—Drs. A. E. COHN and R. L. LEVY of New York presented this communication. They quoted one patient who said that his cardiac attacks (auricular fibrillation) were stopped by taking quinine. It was tried on other patients, with success in some cases. Other derivatives of the drug were studied in order to stop fibrillation. Quinidine gave success in 50 per cent. of cases. Experimental studies on dogs showed that contraction of the auricle became less, and that with faradization after quinidine dosage, one could not start fibrillation. Other effects noted were increase of height of contraction and fall of blood pressure in the peripheral arteries. There were no constant results on the T-wave or on the conduction time. The conclusions were that there seemed to be an alteration in the muscle which made it refractory to faradization as regards fibrillation, and there was a striking effect on contraction. These were artificial experiments, not likely to be carried into the clinic. Experiments were now being made as to the effect of the drug on the fibrillatory process.

Dr. A. D. HIRSCHFELDER of Minneapolis said he would like to ask if the speaker also tried atropine on the heart after the fibrillation had been stopped by quinidine. In 1908 he was able to show that some, but not all, cases of experimental fibrillation to faradic stimulation of the vagus were stopped for a time. The beneficial effect of slowing of the heart by digitalis did not stop the fibrillation, which was largely a vagus effect and could be cut off sharply by atropine. In the laboratory they had cut it off by nicotine which slowed the rate of the ventricle, without stopping the fibrillation as a not peripheral central effect.

Dr. G. C. ROBINSON of Baltimore said that to throw some light on the problem one must know why the auricles fibrillated and what was the mechanism of the fibrillative movement. The auricles were affected by a chemical substance and the tendency to fibrillation reduced. In an experience he had with a patient who was poisoned by hydrogen sulphide, he noted the fibrillation lasted two days and the rhythm then became normal. There was no evidence of cardiac lesion or disturbed circulation, so that fibrillation could be induced. It had been a problem to determine why diseased hearts got into fibrillation and an attempt had been made to find a lesion that might be responsible. An anatomical lesion was not necessary to alter the fibrillation of the auricles, either to get into or out of this state.

Dr. A. E. COHN, in closing, said that the dose of this drug clinically was one of 0.2 to 0.4 gram, to test for drug idiosyncrasy, and then administration at half-hour intervals of 0.4 gram doses by mouth, and usually the effect had been obtained by a total dosage of 1.2 grams.

Dr. ROBERT L. LEVY of New York, in closing said that they had administered atropine after quinidine, and in these patients there was no return of fibrillation.

The Relation Between Obstruction to Pulmonary Ventilation and the Size of the Lungs.—Dr. C. F. HOOVER of Cleveland, Ohio, read this paper. Biermer had studied asthma in 1875, and supposed it to be a vicious circle caused by active compression of the lung in the expiratory phase. Bronchial spasm was an impairment of the compressibility of the lung. Against this theory were the facts that one could have pronounced emphysema, and expiration might be passive, not active. There might be another phase. After taking adrenalin the patient was relieved of bronchial spasm, which did not fall under the all-or-nothing law, but one might have partial spasm, or hypertonus of the bronchi. Adrenalin raised the vital capacity with disappearance of the symptoms, and removal of the abnormal respiratory excursion. Did active expiration produce expiratory dyspnea? This did not take place in experiments on animals. Could a patient have an increased volume in the lung with resistance in the trachea? One did not often see incomplete tracheal

stenosis. In one patient where this existed there was no change in lung volume. One man had aneurysm of the arch of the aorta compressing the trachea, and he lifted the aneurysm in the expiration, which was broken into sharp hisses. The volume of air was not increased in the lung; there was no emphysema. In another patient with aneurysm of the descending arch of the aorta with compressed bronchus, on lying down there was reduction of the vital capacity to 1200 c.c. The left diaphragm lifted and then the right. The left lung was stabilized, but when upright they were equal. Lying down he had expiratory dyspnea. Dr. Hoover said emphysema was not equally distributed over the lung, because there was not equally distributed hypertonus of the bronchial tree. Adrenalin affected the entire bronchial tree, but clinical asthma affected parts of the bronchial tree unequally.

Dr. H. SEWALL of Denver said that in 1859 Gaertner studied pulmonary conditions and thought that this one was the result of inspiratory obstruction. This should be taken into consideration. Dr. Hoover spoke of displacement of the diaphragm; in clinical observations they did not pay attention to the physiological feature of diaphragmatic action—or tonus. In a very septic patient there was liver dulness at the fourth rib on the right. Later the liver dulness dropped to the sixth space, and as the toxemia passed off it dropped to the normal level. One might believe that the diaphragm muscles had a tonus with the heart tonus, which, as the relaxation increased, would be gradually expanded. Perhaps the lung dropping down would be diaphragmatic tonus.

Carbohydrate-fat Ratio in Reference to the Production of Ketone Bodied Diabetes.—Dr. W. W. PALMER of New York and (by invitation) Dr. W. S. LADD, presented this paper. He said that studies had been made to determine a sufficient diet in diabetics which would maintain nitrogen equilibrium. High carbohydrate was started with low fat, and later the carbohydrate was lowered and fat increased. The patients maintained weight during the experiment. The limits of carbo-hydrate-fat ratio in diabetes were studied. If one figured that one-half of the amount of protein should be carbohydrate, this was added to the carbohydrate amount, so that one kept within the one-to-four ratio to be on the safe side. There was probably a relation between glucose in the diet and the fatty acid. It might require one triose molecule to oxidize one *B*-oxybutyric, so that when one calculated the total available carbohydrates it seemed probable that one molecule of glucose had been oxidized instead of one of triose. In the test tube, aceto-acetic acid oxidized very slowly, but when glucose was added it oxidized rapidly.

Objects and Method of Diet Adjustment in Diabetes.—Dr. R. T. WOODYATT of Chicago made this presentation. He said that in spite of the work of Allen and Joslin, there were many varied opinions as to diabetic diets. In some cases the strictly limited diets gave good results. One characteristic of diabetes *per se* was inability to use glucose in excess of a certain amount. The pancreatic secretion was altered in this respect. The quantity of food which might be normally oxidized by the body was determined by the quantity of glucose which was oxidized. Therefore one must bring glucose within the limits of the body's power. In a fasting state the body used endogenous supplies for its nutrition; even on a maintenance diet, endogenous food was used. There were thousands of combinations of fat, protein, and carbohydrate, but all carbohydrate must become glucose before it could be oxidized. One hundred grams of protein would yield 58 per cent. glucose, and 100 grams of fat would yield 10 per cent. glucose; and in giving these elements one must watch for the critical point at which acetone appeared. One must adjust carbohydrate to the highest possible level, because it would carry more fat than protein would, and therefore spared protein. If one added protein one must remember to subtract calories. The addition of fat reduced the quantity of glucose going into the metabolism. Cream was very useful in this respect, and spared protein.

Dr. L. N. NEWBURG of Ann Arbor, Mich., said that this work was another step away from the forced starvation diet. From the clinical point of view he believed it was wrong to subject the diabetic to the prolonged effect of under-nutrition. He had tried to devise a diet which would not produce under-nutrition, and would prevent glycosuria and acidosis. He found he could do this with the addition of large amounts of fat to the diet. Dr. Woodyatt, working from another angle, had arrived at the same conclusion. He had worked out the optimum diet on the basis of the lines of metabolism, using the metabolic expression of the optimum diet as it should be fed to the diabetic. With this method he had arrived at a diet high in fat. Treatment would be advanced as soon as proven that this method was of use in diet.

Dr. E. P. JOSLIN of Boston said that there was more in Dr. Woodyatt's paper than one could appreciate to-day. He had spent several hours upon it and was impressed with it. His general attitude toward the matter was this: What Dr. Allen did for earlier work Dr. Woodyatt had done for Dr. Newburg's work. In regard to Dr. Allen's work with under-nutrition, before that was inaugurated, many children lived one year and died. That was before 1914. The next series treated by the method since 1914 had lived over two or three years, whereas in adults before 1914 the average duration of life was three years; since that period cases had lasted for five years. This represented all the cases. One could now give a seven-year prognosis for 100 diabetics coming for treatment. Therefore, as the result of the 1914 methods, an extension of life of cases had actually taken place. Now perhaps they could look forward to another improvement by utilizing some of the ideas brought out by Dr. Newburg, and elaborated and expanded by Dr. Woodyatt. What should be the attitude of the doctor of today to this new idea? Should one go over to the new method of treatment and increase the quantity of fat in the diet? Dr. Newburg's cases became sugar and acetone-free in the treatment. Dr. Joslin had tried this treatment in the worst possible cases of diabetes, who were not doing well under care. As a result, in these four cases, none became sugar-free, none became free from acidosis. In one, acidosis became so severe that coma threatened. The alveolar air had dropped to 14 mm. mercury. That did not mean that Dr. Newburg's treatment should not be utilized. One could use it in selected cases. These four patients felt that they deserved to know the results in Dr. Newburg's 69 cases. There was some trouble in tracing the cases. The statistics were these: Twenty-two were traced; eight were dead. The question now arose, what should he do with two boys, with diabetes beginning at the age of 12, but at the end of three or four years of treatment by the old method they had a carbohydrate tolerance of 100, protein 17. Should he put these boys on lower protein and push up their fat, or should he continue by these methods which had hitherto helped them for three or four years. He felt that one should hesitate to adopt new methods. Perhaps there was a maximum amount of fat that one could give, perhaps 75 per cent. One must be positive not to lose the advantage of the last six years and the patient's chance of duration of life.

Dr. F. M. ALLEN of New York said he must speak at random in regard to Dr. Palmer's paper, and the subject of fat and carbohydrate metabolism. One must effect a balance of three factors: carbohydrate, fat, and the organism. If one considered the organism, these conditions were fulfilled under fixed conditions. The total quantity of the diet was one factor, and the ratio affected this. Very thin, emaciated patients might never have an acidosis, no matter how much fat one gave, but in a well-nourished individual one ran the risk of a serious acidosis. It was a question whether the ratio would hold. Under-nourished people did handle protein as if it were carbohydrate and would remain ketone free. That did not hold with over-nourished people. Perhaps it was not possible to over-nourish without ketonuria, or keep the patient ketone-free on a luxus diet. Reactions of the organism differed, and different types responded differently. Even in normal individuals there were variations in fat tolerance. The experiments of Higgs, Reading, and Fitz were made with feeding and respiration tests. The individuals had identical intakes and reacted differently in the amount of ketones produced. Age was another factor; an adult dog could pass to death without

acetone, while a young puppy might show fatal acidosis. In experiments on human subjects at the Rockefeller Institute he tried to trace the cause; he obtained definite evidence of internal secretion influence. This was a serious matter, because fat added to the diet might make the diet excessive. Carbohydrate might be tolerated with little fat, but not with high fat. This had been proved by experimental clinical evidence. Two patients were alive to-day with unimpaired tolerance, and one had lowered tolerance because she stole the butter. One can give enough sugars in the form of food, liberal in proportion, but one must measure the total caloric intake. If one made that too high, the patient would die. If one kept the patient sufficiently under-nourished one would abolish downward progress. They had young patients undergoing this treatment who continued without decline of tolerance, and progressed better than on high diet, which was impossible in this type of diabetes.

Dr. S. STRAUSS of Chicago said that in the last few years excellent results had been reported in diabetes, due as much to the care and skill of the physician as to the particular form of diet. There were two classes of diabetics who did not respond to under-nutrition: those who despite rigid adherence to low diet, did not retain the balance and the older, chronic diabetic, who when he had sugars did not feel well and was much more apt to develop symptoms. Patients did not follow diets strictly. That had to be met. There was a difference between malnutrition and a luxus diet. There was the moderate diet which contained more fat than they had been accustomed to using.

Dr. W. W. PALMER, in closing, said that as Dr. Allen said, patients varied. In cases which one considered satisfactory, as one approached 10 per cent. carbohydrate, when first making the shift there was a temporary increase of acetone bodies, then the body adjusted itself to the diet. If one made a further shift, then the increase in acetone became constant. In adding fat one was adding glucose in the glycerol fraction. Dr. Woodyatt had pointed out certain fundamental facts in the treatment of these cases.

Dr. R. T. WOODYATT, in closing, said Dr. Joslin's comments were entirely sound. Every individual should not be put on the optimum diet. That should be left to the judgment of the clinician. Where nutrition was the first question one might be able to get 1800 calories, and this method might help in doing so. All of this more accurate work had been developed as a result of the stimulus given by the work of Drs. Joslin and Allen, and the improvement in the average results had come from them. Dr. Allen's remarks were covered by the original three statements. One must consider the glucose, and stop dealing with three variables, which was impossible without confusion.

Familial Diabetes.—Dr. H. R. M. LANDIS of Philadelphia presented this study. He said that there was a certain hereditary tendency in diabetes, but familial diabetes was not common. In the family studied there were ten children in the family, nine living. There were four blonds, free from symptoms and five brunettes, who all had glycosuria. The patient seen was an intelligent woman, who had applied for life insurance, and was rejected on account of sugar in the urine. The next sister had had failing health for some months, and was found to have much sugar. This tendency seemed to have skipped one generation, and to have appeared in grandchildren. There seemed to have been a distinct hereditary and familial tendency in this case.

Dr. S. SOLIS-COHEN of Philadelphia said that this confirmed in some measure speculations on the subject of tuberculosis, carcinoma, and diabetes and endocrine disturbance, which he had put in the Osler volume. He reported three clans, consisting of a number of families, in some to the fourth or fifth generation, in which were found distinct antagonism between tuberculosis and carcinoma, on the one hand, and diabetes on the other. Those who escaped tuberculosis and carcinoma usually showing marked endocrine disturbance with symptoms of diabetes. Among sixty-five diabetics one showed tuberculosis. Analysis of large statistics would bear out the same proportion with tuberculosis and diabetes, which were really manifestations of antagonistic tendencies.

Dr. J. M. ANDERS of Philadelphia said he had been interested in the subject of familial diabetes. It was supposed to occur in obese subjects. His rather extended experience in the treatment of obesity confirmed this view. He had the definite impression that in those cases of familial diabetes occurring in obese subjects gout figured as the cause of the obesity. The manifestations occurred in late life and were not severe, but if in early life they were severe. Von Norden had shown close connection between obesity and diabetes. Gout was in the same group. Obesity and gout were hereditary and in both there was marked tendency to glycosuria. This partly explained familial diabetes.

Dr. F. M. ALLEN of New York said that this was an interesting attempt to determine how and why tendencies were inherited and whether disease characters followed Mendelian laws. One should make glucose-tolerance tests of the non-diabetic members of these families to determine whether or not there was a diabetic tendency.

Further Observations on the Blood Sugar Tolerance Test as an Aid in the Diagnosis of Gastrointestinal Carcinoma.—Drs. JULIUS FRIEDENWALD and G. H. GROVE of Baltimore presented this communication. Previous studies had established that the curve of sugar tolerance was different from that of carcinoma of other parts of the body. It was rather distinctive, so that it might render differential diagnosis between carcinoma and other disease of the gastrointestinal tract. Examination of curves showed: (1) Normal curve, two hours after 100 grams glucose, fell to normal; (2) atypical normal curve (achylia gastrica) fell slowly after two hours; (3) intermediate curve, blood sugar high, associated with carcinoma of other parts of the body; (4) gastric carcinoma curve high blood sugar. Forty-six cases had been studied since the original communication. The results showed that cancer curves could be distinguished from cancer of other parts of the body. Tabes, nephritis, tuberculosis, thyroid conditions should be excluded, as hyperglycemia was often present in these conditions. The test had proved positive in 72 out of 75 cases studied, and was therefore a valuable diagnostic measure. It was positive in five non-malignant cases but it was sufficiently specific to be taken into consideration with other points of diagnosis.

The Relation of Acromegaly to Thyroid Disease, with a Statistical Study.—Dr. JAMES M. ANDERS of Philadelphia presented this study. He said that it was generally accepted that hypoactivity of the anterior hypophysis occurred after union had taken place. He believed that perversion of secretion, rather than excess, was the rule. Usually there was dilatation of the sella, with persistent thymus. Neoplasms were of various kinds, adenoma sarcoma, cystic degeneration, etc. Sometimes the hypophysis was normal in every respect, so that disturbance might occur without any microscopic or macroscopic lesions. These were ductless gland neuroses and were rather rare. There might also be hypertrophic enlargement or even destructive lesions, without acromegaly. Removal of the thyroid was followed by hypophyseal enlargement, also in hyperthyroidism there was enlargement of the hypophysis, so that it appeared that the glands could function by compensation up to a certain point. There was also a certain clinical connection between myxedema and hypophyseal disease. The anterior hypophysis was supplied by sympathetic nerve fibers, while the posterior was not, and this sympathetic innervation would explain the influence of the thyroid gland. They found five of sixteen cases with associated thyroid disturbance: one hyper and four hypo cases. They should apply the sugar tolerance tests and estimate the metabolic rate, which had not always been done. In 215 acromegalic cases, 91 had thyroid lesions; the average was 32, and females were slightly in excess; glycosuria was present in 35 per cent. The pituitary disturbance appeared to precede the thyroid disturbance by several years.

The Blood in Tetrachlorethane Poisoning.—Drs. GEORGE R. MINOT and Dr. L. W. SMITH of Boston presented this topic. Minot said this chemical could produce serious or fatal hepatitis. Industrially it was used for airplane burnishing, for films, and in artificial silk. The poison acted particularly on the blood

and on the liver. The symptoms were very ill defined. The person was fatigued, had slight gastrointestinal symptoms, constipation, perhaps jaundice. The liver was palpable and tender. The onset was insidious. Of 68 persons exposed 21 had poisoning. There was a definite blood picture. There was progressive increase of the large mononuclears, reaching as high as 40 per cent. There was a slight secondary anemia. The blood picture could be discovered before symptoms appeared. Respiratory affections seemed to lower the resistance of the workers. When there were blood changes and symptoms, this indicated removal from work. Recovery was gradual. Persons who had once been affected were more sensitive to the poison in future.

A Method for the Study of Early Arterial Changes.—Dr. HARLOW BROOKS of New York presented this topic. He said that the diagnosis should be made early, and this was impossible except on two grounds: suspicion of trouble, and examination of the retinal vessels. The latter was difficult for those inexperienced in ophthalmoscopic methods. Examination of the conjunctival vessels was much easier, as these vessels represented the intracerebral circulation. They appeared bluish white on the background. The eye must be near the lens, and the examination only took a few minutes. If one had the corneal microscope, technical skill was required, but the work was very fascinating. One could see the anatomical and physiological changes. The changes appeared very early in hypertension, even when transitory. The vessels looked like cords. There were often zones of obliteration and formation of small saccular aneurysms. These were very striking.

Dr. S. B. WOLBACH of Boston asked what the caliber of these vessels was. Dr. Brooks said that some were very narrow, some very broad. The size varied as much as did that of the radial artery, but one would not have any difficulty in distinguishing pathological vessels.

Further Study of the Estimation of Quantitative Variations in the Vibration Sensation.—Dr. E. J. WOOD of Wilmington, N. C., presented this communication. This work was begun at Guy's Hospital, as a continuation of Sims' work. The vibration sensation was first studied in the Gradinego triad. An attempt was made to make clinical application of vibration in routine neurology. The instrument used was introduced by the aurists in England. The prongs of the instrument were separated when a sharp blow was struck. Normal range was studied in 100 people without neurological conditions. Tabes was then studied and a diminution in the vibratory response over the sacrum was found. Tests were made over the internal malleolus, external malleolus, tibia sacrum, and sternum. This sacral diminution in tabes appeared before Argyll-Robertson pupils were evident. Dr. Henry Head suggested that there would be definite relationship found between this test and serological findings, and that this would be of earlier diagnostic import, and would do away with the necessity of frequent lumbar punctures. This was more than they were prepared to say at present.

Pituitary Extract and Water Balance.—Drs. L. G ROWNTREE, E. E. LARSEN, and J. F. WEIS of Minneapolis presented this paper. Water balance and water intoxication were studied in fifteen cases of diabetes insipidus. There was increase of thirst, polyuria, and polydipsia. Studies were made to determine whether thirst was the primary symptom. In some cases thirst preceded polyuria. Pilocarpine did not relieve the thirst, neither did cocainization of the mucous membrane. Pituitary extract had no effect on water excretion, neither had a spinal puncture. The blood showed increase in plasma, volume, and molecular constituents. It was thought there was hydremic plethora with increased renal threshold. In dogs with water intoxication very violent symptoms were shown, convulsions, and frothing, but the animal recovered in a few days. Simply forcing water led to water intoxication. There was no evidence of edema of the brain.

Dr. D. I. MACHT of Baltimore asked if in the clinical cases any spasm of the urinary bladder was noted. It was stated that the urinary bladder was more sensitive than the uterus to the action of pituitary extract. It would be interesting to note this.

Dr. HARLOW BROOKS of New York asked if there were any changes in temperature.

Dr. ROWNTREE said there were no changes in temperature, either in the animals or the clinical cases. As to spasm of the bladder, one wondered whether it was smooth muscle contraction. They got the effect when there was a catheter in place, so there was no real effect on the smooth muscle. He did not know whether there was contraction of the bladder.

Therapeutic Hints.

Cade Oil Baths.—The following formula for an emulsion of oil of cade for baths is used in the Hôpital Saint-Louis, Paris:

Oil of cade.	
Soft soap.....of each,	50
Soap bark (concentrated decoction),	10
Water, ...to	250

Cade ointment, as used at Hôpital Broca, Paris, is made by the following formula:

Oil of cade.....	30
White wax.....	10

The white wax is slowly dissolved in the cade oil, the mixture being stirred until cold.

—*Journal des Praticiens.*

Galvanic Current in Idiopathic Priapism.—A man of twenty-eight, apparently in perfect health, entered a neurological clinic seeking relief from persistent priapism. Various sedative agents, including chloroform anesthesia, proved ineffective. After twenty-eight days the galvanic current was applied, the condition slowly yielding, and subsiding completely after eight days.—*Brazil Medico.*

Abortive Treatment of Gonorrhea.—Boyer recommends the following solutions, to be used first, to bring about a profuse exudation, which carries with it the gonococci, to exert a powerful antiseptic action, the treatment to be begun not later than the third day of the discharge.

1. Collargol	1.50
Glycerin	30.0
Distilled water	250.0
2. Permanganate of potash.....	10
Distilled water	300

The patient, after micturating on rising in the morning, injects into the urethra 10 c.c. of the first solution, using a small glass syringe, and keeping the meatus closed by means of the left thumb and forefinger. After holding the fluid in the urethra for four or five minutes, the excess is allowed to run out and a small plug of cotton wool applied. At noon, after urinating, the patient washes out the urethra with a dozen syringefuls of the second solution, retaining the last syringeful for from four to five minutes. Another injection of the first solution is given at two o'clock, and at 7 o'clock the urethra is washed out with the second solution. The discharge is generally found to be free from gonococci after the third day, and from the sixth to the eighth day the discharge ceases.—*Journal des Praticiens.*

Fermentative Dyspepsia.—Brose Horne gives the following as affording the surest relief he has obtained:

Phenol iodine	1/8 gr.
Sodium salicylate	1 gr.
Guaiacol	1/4 gr.
Oil of cloves.....	1/2 min.

M. to make one tablet. Sig.—1 to 3 such tablets after meals.—*Medical Summary.*

Miscellany.

NEW BOOKS AND OLD.

X. DR. STREETER'S EXHIBITION AT BOSTON.

By JOHN RUHRÄH, M.D.

BALTIMORE, MD.

DURING the meeting of the American Medical Association Dr. Edward C. Streeter had on view, in the exhibition room of the Boston Public Library, a selection of early medical texts illustrating the history of the specific infections and epidemic diseases from Hippocrates to Sydenham. The exhibit was arranged chronologically for the most part, although this was not followed strictly, as a considerable amount of material was introduced illustrating the history of plague, syphilis, and venesection. In addition to the books Dr. Streeter also showed a series of photographs and illustrations dealing with the history of infections and also a series of photographs of paintings showing the chemical laboratories, or perhaps one should say the laboratories of the alchemists of other days.

Of particular interest were the illustrations of the Saints of healing, Cosmo, Damien, Roche, and others, and the occurrence of plague and syphilis in art. The costumes of plague doctors and their aides and the broadsides used in quarantine and in plague times formed another important part of the exhibition.

The exhibit of early medical texts naturally began with the Omnia Opera Hippocratis in a beautiful first edition of the Greek text printed in 1526. Then followed a seriës of well known names and some less familiar, including Galen, Aetius of Amida, Paulus Aegineta, Rhazes, Avicenna, and others including a first edition of Gilbertus Anglicus and also a first edition of a poem by Gilles de Corbeil, and nine different editions of the Regimen Sanitatis Salernitanum, which poem was first printed in Paris in 1497. The first edition contains the commentary of Arnaldus de Villanova. There was also a copy of Roland of Parma's work on the cure of plague buboes. Roland was one of the surgeons mentioned at the School of Salernum who with Roger of Salerno is said by Allbutt "to stand like twin brethern in the dawn of modern medicine, bearing the very names of romance."

It would certainly be a dull physician who would pass by the first edition of John of Gaddesden's *Rosa anglica*, first printed in 1492, or the beautiful English medical manuscript of the great *Chirurgie* of Guy de Chauliac. According to the note in the catalog Quaritch regards this as the finest English medical manuscript in existence. It is a beautiful piece of work in Middle English script, beginning "Here bigyneth the Inventorie or the Collectorye in cirurgicale parte of medicene." The work is on vellum, 13 by 9 inches, double columns, with 48 lines to a page, ruled in red, with red rubrics and headlines, with twelve pages of full or half floriated borders and twenty-four drawings of surgical instruments. Streeter had it opened at Book II., Chapter 5, "Of ye grete pestilence," which dealt with the plagues of 1348 and 1360.

Among the other plague items was a copy of the first medical book printed in England in a facsimile copy of that in the John Rylands library. This is an English version of a "*Tractatus contra pestilentiam*" ascribed to Johannis Jacobi, of Montpellier, whose date is given as 1373. The book itself was printed at London by William de Machlinia in 1485 and is entitled "A litil Boke the whiche traytied and reherced many gode thinges necessaries for the infirmite and grete sekenesse called Pestilence."

Perhaps the rarest book in the collection was the "Traicte des Urines," printed in French about 1530 and sold in Paris at the Rue neufe Nostre dame a lenseigne Sainct Nicolas. This is apparently a unique item, Dr. Streeter owning the only known copy. In his catalog of the books he reproduces the first page of this and also the first page of a rare Spanish imprint unknown to bibliographers, by Louis Lobera de Avila, who was physician to Charles V. It is entitled *Libro de Pestilencia*. There is also a German translation of the same work dated 1531.

There was a reprint of John Caius' book on the sweating sickness and also a copy of Medicina by Joannes Fernelius, who also described the outbreak of sweating sickness in England.

In the books on syphilis there were quite a number of rare works, among which I noted the rare first edition of Nicolaus Leonicenus; also the first edition of the famous poem of Fracastorius entitled *Syphilis sive Morbus Gallicus*, printed at Verona in 1520.

There were quite a number of interesting plague items, including the work of Ballonius, the influential Dean of the Paris Faculty in 1580, when the plague was devastating France. I was particularly interested in a volume containing a number of works on the plague, two of which were by Thomas Thayre. These are of especial note inasmuch as the name is so much like that of Thomas Phaer or Phayer, whose book on the Pestilence is in most editions bound up with his translation of the Regimen Sanitatis Salernum. Phaer also translated Virgil's Aeneid into English. Thayre was a seventeenth century physician in London, held in no high esteem. After the manner of many writers of medical books he appropriated much of the material collected by others. He used the work of Phaer without giving that author any credit. Anyone interested in Phaer will find a complete account of him in a recent number of the Annals of Medical History. He is of particular interest to those working in pediatrics, inasmuch as he wrote the first English book on the diseases of children.

The collection ended with a copy of John Pringle's "A rational inquiry into the nature of the Plague," printed in London in 1722.

Dr. Streeter cannot be given too much praise for affording the medical profession and also the medical librarians whose association met in Boston an opportunity of seeing such a wonderful collection so well arranged and so satisfactorily catalogued.

It may not be out of place to call attention to the fact that Boston has started a society for the study of medical history, with a rather large membership, under the presidency of Dr. Harvey Cushing, with Dr. Streeter as secretary. All workers in medical history will join me in wishing this new organization a long and useful career.

Italian Physicians in Old France.—Di Pace calls attention to this subject in *Il Policlinico* for April 25, 1921, xxviii, 17. The earliest record of the settlement of Italian practitioners in French territory was in connection with graduates of the famous School of Salerno. Some of these appear to have practised astrology and may be passed over for later arrivals. After the School of Salerno had lost some of its renown and the School of Sienna had become well known some of the alumni of the latter attained eminence as practitioners in France. One of these—Aldibrandino—was summoned to the latter country on a medical errand. He was the first of his nationality to write a medical work in the French language. This was a book on hygiene, composed at the request of his patroness, Beatrice of Savoy, who had brought him on. Later he was summoned to Paris to treat King Louis IX. The latter, known to history as St. Louis, liked Italian practitioners so well that he summoned to him later William of Cremona and Nicholas di Calvopetro. It was about thirty years later that Lanfranc of Milan, the celebrated surgeon of the Middle Ages, while wandering from place to place in the search for recognition stumbled upon Paris, where he realized on his reputation a hundred-fold more than he deserved—to use his own expression. It sounded like a modest man, but Lanfranc was anything but modest. His misfortunes had been due originally to having taken part in politics, on what chanced to be the losing side; which defeat led to his exile. When things started to come his way in Paris he took occasion to stigmatize the combined surgeons of the metropolis as ignoramuses. In order to make good he set to work and wrote his celebrated treatise on surgery, which went through many editions and translations.

The success of Lanfranc was so remarkable that many Italians followed him to Paris. Thaddeus of Bologna, Lodovico, of Reggio, Ugo of Lucca, Nicholas of Florence, Augustus of Verona, Ruggero of Salerno, Silvester of Pistoia, Valescus of Tarentum, Lodovico of Pisa, Bruno of Calabria, and Armando of Cremona, all hied to Paris, representing in that city nearly every region of Italy. Naturally there was much jealously among the new arrivals, to say nothing of the feelings of the old Parisians. Pitard, then physician to St. Louis, solved the problem in part by founding the society of surgeons known as the "Confraternity of St. Cosmo." Later there arrived a practitioner from Constantinople, who had studied Greek and Arabic medicine in its original home. He was Pietro di Albano, and he acquired reclame by announcing that medicine, astrology, and magic must be studied jointly to turn out a first-class practitioner. The Parisians "fell hard" for this sort of boosting, and Pietro got his 50 scudi per consultation. The Pope sent for him professionally, his honorarium being 400 ducats a day. But his swath was so wide and he made so many enemies that his fame was turned to his discredit by crediting the devil with his cures; so that in the year 1312 he was up before the Inquisition. He died soon after—possibly was done to death—and was burned in effigy. Ruggiero di Parma later obtained some fame in Paris for improvements in the care of the insane. In the next century Queen Joan of Bourgogne had as her personal physician Guido of Vigevago, who distinguished himself by writing a treatise on military hygiene. Torregiano of Florence published his commentary on Galen, which was a good medieval way to obtain publicity, and managed to convey the impression that he was rather more than a mere commentator. Space does not serve to give mention of all the Italians enumerated by di Pace. Valescus of Tarentum was famous as author, practitioner, and court physician and his treatise on medicine, written after thirty-six years of practice, is one of the best of its kind. Finally in 1654 there arrived Botallus of Asti, who was also court physician and author of a treatise of medicine. Even as early as the time of Louis XIV more than 200 Italian physicians had been prominent in the medical affairs of Paris.

The Influenza Epidemic in Austria in 1920.—Schiffner and Spengler have studied this epidemic with the aim of comparing it with all previous visitations (*Weiner klinische Wochenschrift*). Thus far the Pfeiffer bacillus has been consistently absent and the organisms chiefly found were staphylococci and pneumococci. The disease still spreads from person to person as the chief method. The elderly still have a natural or active immunity. In all of these respects the recent epidemics differ from those of 1890 and following years. Of recent years many have been twice attacked by influenza, thus showing absence of acquired immunity. Clinically the disease begins, as heretofore, as a catarrhal fever. The menses sometimes come on prematurely. In the hospital wards uncomplicated grippe was rare, for save in about 13 per cent. pneumonic complications were present on admission. The peculiar double fever curve with an intermission seen so commonly in 1918 was almost entirely absent. Grippe pneumonia is essentially lobular now, with frankly hemorrhagic sputum, and the croupous pneumonia of the pandemic is less common. There is no massive area of consolidation but whispering bronchophony is almost always present. Albuminuria is still almost constant. This epidemic is perhaps most conspicuous for its neurotropic tendency, regardless of the doubtful connection between grippe and encephalitis lethargica.

In regard to treatment, convalescent serum and antipneumostreptococcus serum appear to give encouraging results. A chemotherapeutic remedy devised by Morgenroth is said to have some power in preventing complications. The formula is not given. The unknown substance is given chiefly with one of the antisera. In addition to those already mentioned diphtheria serum and normal horse serum are enumerated. Among drugs strychnine and caffeine are injected subcutaneously or intravenously and digitalis is given *per os*. The authors treated a series of 60 cases of which 52 were lobular pneumonias; of these 42 are cured and 7 others under treatment or convalescent, while 11 are dead, all but 2 of pneumonia. The percentage of pneumonia deaths is therefore 17 which would have been remarkably low during the pandemic. The authors, however, by grouping the figures in such a manner as to eliminate accident make the percentage of fatalities 10 for grippe and 11.5 for pneumonia.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 5.
Whole No. 2647.

NEW YORK, JULY 30, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

THE THYROID.*

BY CHARLES H. MAYO, M.D.

ROCHESTER, MINN.

THE great progress made in medicine during the past few decades has come about largely through studies in biology and physiologic chemistry. The changes demonstrated by physiologic chemistry are due to the activity of cells; the chemists have proved that these changes are caused by definite electron reactions. We were once content to learn of new remedies and to know that certain diseases are affected by certain drugs, as for instance the action of digitalis on the heart muscle; but later the question came up of why digitalis should have a selective action on the heart muscle. The answer was, "Because of its chemistry." It has been found that bacteria have a selective action, and the question of why this is so arose. Why does the microbe of anterior poliomyelitis locate in the anterior horns of spinal ganglia? Again the question was a chemical one involving the chemical constituents of the ganglion cells.

Another interesting study is that of the chemistry of irritation and inflammation, whether it is the result of the action of plant cells as drugs, or is produced by microbes, and whether the effects are local or are carried by chemical products to various parts of the body. For example, in the use of Dakin's solution a combination occurs between the cells of certain tissues and the substances in the solution. The reactions involved in the use of Dakin's solution were investigated by Mann in order to determine the toxic limits of the solution. He found that more than 12 c.c. for each kilogram of body weight administered intravenously is a lethal dose. It is interesting that from 5 to 10 c.c. for each kilogram of body weight does not cause sickness, nothing beyond changes in the wall of the gallbladder being found in the necropsied animals. By such intravenous injections the gallbladder circulation was temporarily blocked, and the lymphatic system showed involvement. Lipoid changes were found in the mucous membrane. There were inflammatory changes, and at times slow changes resulting in a varying degree of destruction of the gallbladder wall by repeated doses, but the action was shown to be chemical.

Kendall, after six or seven years' work, has been able to produce thyroxin synthetically. In his work he used three and one-half tons of the thyroid glands of pigs; he was finally able to express in chemical terms the material of the secretion of the thyroid. The clinical work of Plummer and the metabolic work of Boothby, based on Kendall's studies, permitted the completion of these investigations. They were enabled to determine the amount of thyroid secretion in an average gland and in an average body, and the length of time that the amount in the body would functionate after the removal of the gland. Similar procedures might be carried out on other glands and in other diseases. These observers had an almost unparalleled opportunity for study because of the vast amount of material in the clinic. Kocher, at the time of his death, had performed in his clinic about five thousand operations on the thyroid. At Rochester there were five times as many, twenty-five thousand thyroids having been operated on or treated medically when operative procedure was inadvisable.

There is a tremendous amount of goiter in this country. Comparatively few of the cases occur in New England or in the Southern States. There were about three cases of goiter to each 1000 of draft recruits in the district of New York, seven cases to 1000 in the Great Lakes region, eight or nine cases to 1000 in Montana, and fourteen cases to 1000 in Oregon, Washington, and Idaho. The incidence of exophthalmic goiter, three to 1000, as noted by some Western Draft Boards of the Army, is too high for men in the third decade, since most exophthalmic goiters occur in women.

In Europe a condition resembling exophthalmic goiter was recognized and designated pseudo-Graves' disease, Basedowized goiter, or *formes frustes;* in this country this type of goiter was not clinically distinguished until recognized by Plummer in 1909. He showed that there is a group of patients with long-standing goiter, perhaps of fourteen to twenty years' duration, not accompanied by exophthalmos, but with hyperthyroidism. The iodine content in the thyroids of such patients is variable.

The thyroid gland is one of the most important glands in the body, being protected by a circulation greater than that of any other gland. Nature has provided every safeguard that no loss of circulation should possibly occur. On the other hand, the lymphatic supply of the thyroid is not good. Structurally the thyroid consists of a mass of encapsulated alveoli held together by a stroma of connective tissue; the vesicles are lined by a single layer of cells which normally hold some colloid and may collect more. So far as is known

*Abstract of paper read at a meeting of the New York Academy of Medicine, April 7, 1921.

the secretion in the interior of the vesicle can escape only by passing back through the cells which produce it. In exophthalmic goiter there is an hypertrophy of the epithelium causing crowding of the vesicles and no retention of secretion. In simple goiter and in the goiter of adolescence an excessive amount of the colloid is retained. A possible theory is that a portion of the gland is not working and that the remainder is carrying on the function which the entire gland would ordinarily perform.

All cystic goiters are the result of degeneration following failure of the blood supply of encapsulated adenoma. The cystic goiter is encapsulated and thus the thyroid is converted into an extra capsule. Destruction of the gland due to disease produces hypothyroidism; a few such cases are the result of too radical operation. Undoubtedly a large number of patients with exophthalmic goiter improves without treatment. Removal of the sympathetic cervical ganglia, both superior and middle, was attempted with a view to overcoming the excessive stimulation, but enough relief was not obtained to warrant the operation. It occasionally reduces apparent exophthalmos by dropping the upper lid. In ligations the nerve, the vein, and the artery are included. Patients with adenoma should be operated on. Some soft goiters in young persons respond to treatment. As soon as treatment is commenced, the gland ceases to function just to the extent that the medication supplants its work, and it diminishes in size so rapidly that its decrease can be measured.

The soft goiters of adolescence respond to treatment with sodium iodide and thyroid extract, although the treatment required may sometimes be prolonged. In this connection the experimental work of Marine may be mentioned. In Akron, Ohio, Marine administered small doses of sodium iodide to three thousand school girls in a certain area. He found that fewer among this group developed changes in the thyroid than among a similar group to whom no treatment was given. Simple goiters are not uncommon in young persons. Later in life nodular encapsulated adenoma may develop on fetal tissue with colloid, or there may be various degrees of calcareous and fibroid changes; a cystic degeneration is rarely toxic.

In cases of toxic adenoma producing hyperthyroidism, the average age at which the hyperthyroidism makes its appearance is forty-three years, while the average age at which these patients are operated on is forty-eight years. In patients with exophthalmic goiter the average age at which the hyperthyroidism manifests itself is from thirty-one to thirty-six years; exophthalmos appeared in about 50 per cent. of these patients within a few months after the onset of symptoms. I have seen children under ten with typical symptoms of exophthalmic goiter, such as tremor, tachycardia, nervousness, and exophthalmos. A number of cases of thyroiditis and tuberculosis of the thyroid have been observed in the clinic. Goiter probably never wholly destroys the functions of the gland, producing myxedema, but they might be destroyed by thyroiditis. A small, hard, symmetric gland, not exophthalmic goiter, may be tuberculous. Thyroiditis and carcinoma in the early stages are similar in appearance. Carcinoma of the thyroid rarely produces symptoms early in the course of the disease. If there are irregular, hard nodules in the gland it is probably malignant, especially if the adjacent lymphatics are enlarged, but exploration with examination of tissue is necessary for diagnosis.

The epinephrin test may produce dangerous reactions and in a large percentage of cases might lead to wrong conclusions. Many psychoneurotic patients would be placed with the group of patients having exophthalmic goiter on the basis of the epinephrin test. On the other hand, a failure in diagnosis is almost impossible if the basal metabolic rate is taken into consideration with other general symptoms. Patients with simple goiters occasionally have slightly low metabolic rates of —8 to —10, but as a rule the basal metabolic rate must be lower before definite symptoms of hyperthyroidism are manifest, as in myxedema. The edema of myxedema in primary hypothyroidism appears quite definitely as soon as the basal metabolic rate falls below — 16 or — 17. In the treatment of myxedema by thyroxin the appearance and disappearance of the edema can be noted from variations of three points in the basal metabolic rate around —17 and in a period as short as three days. The statement that the removal of thyroid tissue may be extensive and complete without producing myxedema and symptoms of thyroid insufficiency is not supported by the metabolic rate tests on patients after radical or nearly complete removal of the gland.

Substernal goiter is more common than was supposed. Sometimes its presence is indicated by the veins on the neck extending down over the chest, showing the obstruction to the venous flow. This type of goiter is frequently well encapsulated and can be easily enucleated, especially if the patient cooperates by a little cough. In order to have the advantage of the cooperation of the patient, operations on goiters of this type should be performed under local anesthesia.

Syphilitic goiter is not very common, and sarcoma is rarer than carcinoma. A group of over 200 patients with malignant tumors of the thyroid has been operated on at the Mayo Clinic, and in addition the condition of nearly a hundred patients examined was found to be hopeless and operation was not advised.

Treatment with the *x*-ray and radium has been used in our clinic to some extent. The *x*-ray produces so much connective tissue that the gland will require knife section if operation becomes necessary. The *x*-ray probably has a beneficial effect on the thyroid and might give relief for a period of time; however, a certain number recover, anyway, without treatment. Such severe scarring has followed *x*-ray treatment in a number of cases that the patients were willing to submit to a skin grafting or any other procedure that promised to remove the scar. The *x*-ray is also dangerous in that it might produce a complete destruction of the gland; one patient came to the clinic with cancer of the skin over the gland caused by long *x*-ray treatment.

About twenty years ago surgeons did not see patients with exophthalmic goiter in the early

stage; patients who could be cured medically did not consult a surgeon. Because of lack of knowledge, surgery was not advised for these patients until late in the course of the disease. Thus we had the vicious circle of late operation and high mortality conducing to late operation. As the surgeon came to be sought earlier the risks of operation decreased. Under the unfavorable conditions of late operation the mortality had been from 15 to 20 per cent. Recently as many as 146 operations have been performed at the clinic between deaths. Patients with exophthalmic goiter pass through exacerbations of symptoms which are largely influenced by psychic stimuli and are easily exhausted. At this period the patients should be treated medically, not surgically. If necessary, ligation, *x*-ray treatment, and hot water injections may be given in conjunction with absolute rest. Rarely the hot water, not hot enough, probably made the condition worse by diluting the secretion; the water should be boiling. The injection of quinine urea has not proved of sufficient benefit to be worth while.

A basal metabolic rate as high as + 85 to + 100 may fall to + 35 or + 40 if the patient is placed under rest and treatment; this may, however, be but a fictitious improvement. A patient with a metabolic rate of + 56, who has survived a recent exacerbation and is improving, is a safer risk than a patient with a rate of + 46 who is on the rising wave of an exacerbation. Ligation should be performed under local or nitrous oxide anesthesia. Most patients can be operated on under local anesthesia.

With modern technic and methods, the mortality in exophthalmic goiter has greatly decreased, probably due more to early operation than to the advances in surgery.

In operating on a patient with a large goiter a transverse incision should be made through the skin and platysma and in the line of the folds in the skin of the neck. The trachea is then exposed, but should not be dissected too freely or congestion and temporary loss of voice or hoarseness will follow on the second day, with recovery later. A primary division of the isthmus should be made with a turning out of the lobes from the trachea in large goiters, as recommended by Balfour. Preserving a portion of the posterior capsule and avoiding injury to the recurrent laryngeal nerve is a satisfactory method. In exophthalmic goiter double resection largely avoids repeated operation; otherwise a small percentage of cases might require a second operation, perhaps at the end of two years, and some might require a third operation. This might be accounted for by the statement referred to previously that nature has very carefully protected the function of the thyroid gland, that some cells are unborn at birth and are constantly becoming ready for hyperplasia.

Acute Cancer of the Breast in a Girl of Fifteen.—Chauvel and Renaud report this case. The disease had appeared five months before the operation and death took place from mediastinal metastasis one month after the latter. In structure the tumor resembled closely the vegetating cystic epithelioma of the ovary.—*La Presse Médicale*

LOCAL ANESTHESIA AND SURGICAL TECHNIC.*

BY ROBERT EMMETT FARR, M.D.

MINNEAPOLIS, MINN.

THE obligation of the surgeon to his patient demands a high standard of development along a variety of lines. Diagnosis, in all that this term implies, combined with judgment regarding when to employ surgical measures and what measures to employ, must always remain the cornerstones of surgical therapy, and their establishment presents the greatest difficulties with which the surgeon has to contend. Surgical mortality and, more especially, surgical morbidity are maintained at a high level on account of wrong diagnoses and consequent misdirected surgical treatment more than from any other cause. Yet, there are other factors well worth consideration although they are perhaps of secondary importance. I refer to two of the details connected with the application of surgical therapy—local anesthesia and surgical technic.

We are constantly hearing of "standardization." When this term is used to designate an ideal at which to aim—an improvement to be hoped for—it becomes an excellent agent for advancement. When the term is used, however, as an evidence of smug satisfaction with one's achievements and marks the point at which progress has ceased it necessarily implies deterioration. It will be admitted, I think, that perfection has not yet been reached as regards either anesthesia or surgical technic. Yet we hear the remarks, "We are entirely satisfied with our method of anesthesia"; "we have no trouble with our anesthesia," etc., while, on all sides, incontrovertible evidence is presented showing that all anesthetics produce deleterious effects upon the human organism and that it is highly desirable to minimize these with all possible despatch. The same is true in relation to surgical technic. Sepsis and physical and psychic trauma associated with surgical operations have not been reduced to the lowest possible point even in our best clinics, and in too large a proportion of these the reverse is the prevailing characteristic.

In this communication I have nothing new to present, but I desire to offer a few suggestions in relation to certain refinements in surgical technic—refinements which I think the surgery of to-morrow will demand—and to offer some suggestions regarding the practical application of local anesthesia—an adjunct which the surgery of to-day is demanding and which I believe the surgery of to-morrow will insist upon.

The successful use of local anesthesia is so dependent upon the refinements of surgical technic that a joint discussion of these subjects would seem apropos, for, while a refined technic is desirable in all surgical work, it is a *sine qua non* when using local anesthesia, and a more extended use of local anesthesia will serve to influence the development of surgical technic, as it has in the past, in its approach toward the ideal.

Coincident with an improvement in surgical technic, however, there must be an even greater

*Read by invitation at the annual meeting of the Brooklyn Surgical Society, March 3, 1921.

improvement in the methods of using local anesthesia. Complicated methods should be avoided whenever possible. I cannot subscribe to the recommendation made in the monograph of Sherwood-Dunn entitled "Regional Anesthesia (Victor Pauchet's Technique)" and published in 1920, that "pelvic surgery demands the injection of twelve pairs (of nerves) on each side of the spine—six lower intercostals, three lumbar and three sacral." It is not surprising that this surgeon prefers general anesthesia "for hysteropexy, removal of ovarian cysts," etc., and that he states: "We seldom practice abdominopelvic operations under local anesthesia," or that his method of choice "for major intraabdominal operations on the liver, stomach,

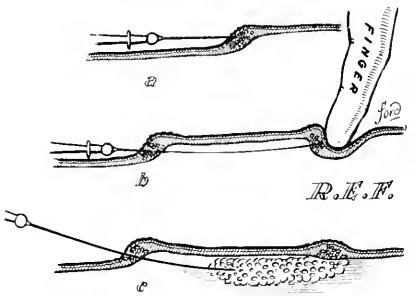


FIG. 1.—Local anesthesia. Sectional views of infiltration of the skin; *a*, first dermal wheal; *b*, painless method of making secondary dermal wheals; *c*, subdermal infiltration. (From the *Journal of the American Medical Association*, 1917.)

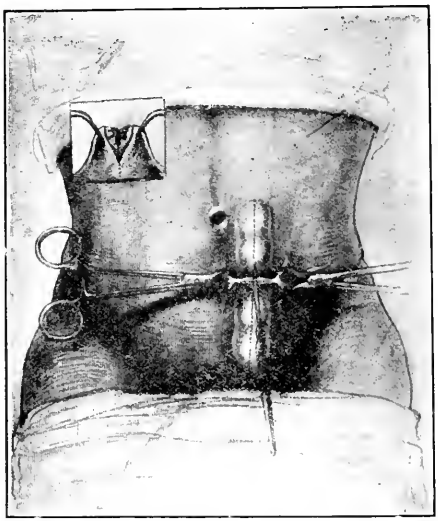


FIG. 2.—Method of elevating the abdominal wall while the incision is being made.

intestines, and pelvic organs [practically the whole domain of abdominal surgery!] is best accomplished under intraspinal or general anesthesia."

Provided these statements in any manner reflect the attitude of this great master in relation to local anesthesia for abdominal surgery we must assume that his experience in this field has not been especially gratifying. Likewise, a recent visit to the clinics in New Orleans, where observation was made of the work of Matas, Allen and Maes, showed only a prostatectomy and operation for hemorrhoids under local anesthesia in a series of thirty or forty major operations. Such evidence would seem to indicate that local anesthesia is far from a routine procedure even in the hands of those who are best prepared to apply it. It would seem essential, therefore, that more simple and efficient means be devised for using the method, and that local technic must be so simplified that the novice in its use may more easily acquire the method, and that during its administration distress to the patient must be minimized. There is, for instance, little advantage in the establishment of perfect anesthesia for a major operation provided the patient has been caused such an amount of pain during the injection that he refuses to go on with the "show" or submits to the operation under protest. And yet this is not an uncommon occurrence, and, provided we are

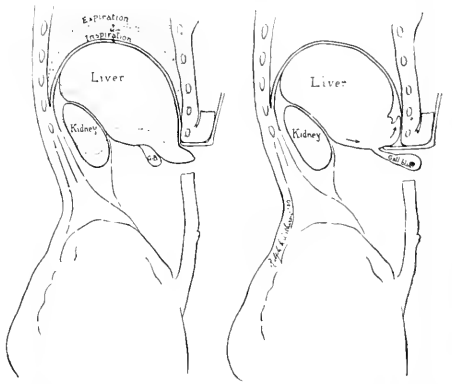


FIG. 3.—Rotation of the liver within the abdomen for exposure of the gall-bladder and ducts. (From *Minnesota Medicine*, April, 1921.)

to follow text-book teaching, this is what is to be expected in a considerable percentage of major cases.

It is my observation that repeated painful sensations of exactly the same degree cause complaints which increase in a geometric ratio—that is, the fourth needle-prick of the human skin causes four times the suffering caused by the first one. Why, then, should we follow the plan of producing numerous wheals at various points upon the skin before it is anesthetized? In 1915 I presented a method I had used for many years which renders this technic unnecessary. (Fig. 1.) Secondary wheals may be painlessly made from beneath and the subdermal injection of the line between wheals can be made in an instant, thus eliminating the time and labor-consuming infiltration of the skin. Failure to recognize these facts has retarded the success of local anesthesia, as it is usually at the beginning of the administration that psychic incompatability is at its height and the surgeon under the greatest handicap.

By the use of long needles and by making all

wheals, except the initial one, from beneath we may quickly, painlessly and effectively anesthetize a field of any proportion. Why, then, should a patient who is to be operated upon for an inguinal hernia, for instance, be compelled to suffer four needle-pricks through the sensitive skin when the desired result may be more easily and quickly accomplished by making only one? The use of such methods will continue to bring forth protests from our patients and retard to a marked degree the adoption of local anesthesia, and yet we read in the 1920 "Year Book of Surgery" an editorial note by Ochsner that *only intradermal* and *no subdermal* injections should be made!

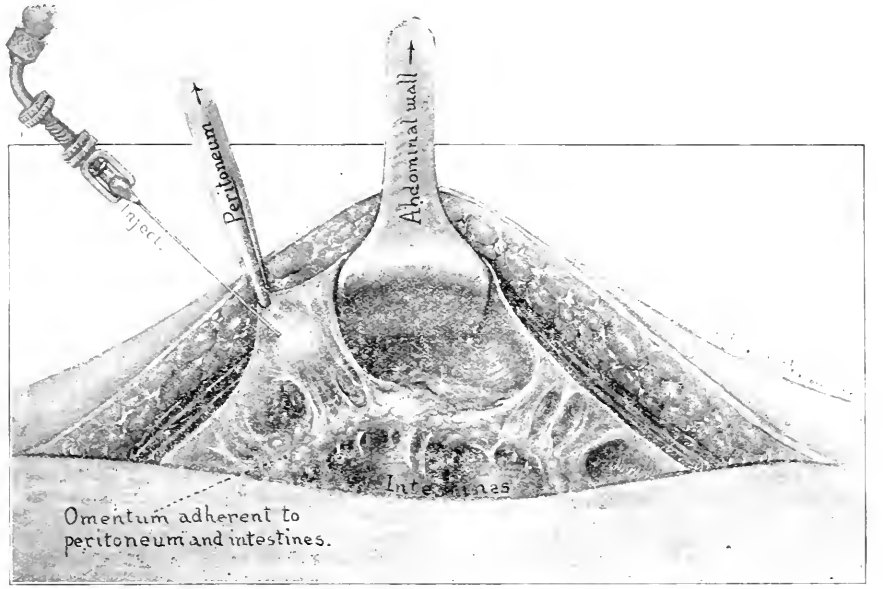


FIG. 4.—Vertical retraction showing method of handling visceroparietal adhesions under local anesthesia. (*Minnesota Medicine*, April, 1921.)

FIG. 5.—Wire retractors. (*Hospital Progress*, April, 1921.)

When surgeons realize that the administration of local anesthesia can be painlessly performed in any case in from one to five minutes so that a properly executed operation may be begun *at once* and completed without pain, and can demonstrate and teach these facts to the surgeons in embryo, our ideals will be more nearly approached.

Technic.—Equipment is one of the first essentials. Defective equipment at once interferes with the stealthy introduction of the solution. Needles should be long, fine, flexible and sharp. If syringes are used they must work perfectly and be so constructed that injections can be made at any angle desired. The difficulty experienced in using syringes led the writer to develop the Pneumatic Injector for use in this work, with the result that syringes have been entirely discarded. Speed, uninterrupted administration, with a perfect view of the field, adaptability of the cut-off, the elimination of muscle tire and consequent tremor and loss of tactile sense have converted what is usually an irksome procedure into a ridiculously simple and easy one.

The infiltration method is the one of choice except in dissections about the neck, inguinal hernia, and surgery of the skull, thorax, kidney, and the limbs—where an "infiltration-block" is added. Conduction anesthesia is confined almost exclusively to the trigeminus and the brachial plexus. Intradermal wheals are made only at the points through which the needle traverses the skin and all layers

are anesthetized routinely before any incision is made. In all cases the reflexes are abolished with a view to giving complete relaxation to the muscles, a condition so desirable in cases of fracture, dislocation and abdominal operations.

The Abdomen.—The abdomen is opened after elevating its wall by means of towel pins which grasp the skin. (Fig. 2.) Vertical retraction is continued and when the peritoneum is opened we should have a duplication of the condition which prevails in the fresh cadaver. The viscera are found collapsed, anemic, and flaccid, and are moved about the abdominal cavity as desired by tilting the operating table. Packs are used only to prevent soiling, with certain exceptions—notably, gall bladder cases where they may be necessary in order to give adequate exposure. Rotation of the liver within the abdominal cavity, instead of dislocating this organ, is practiced. (Fig. 3.) Visceroparietal adhesions are exposed by vertical retraction of the abdominal wall and then cut upon the "white line." (Fig. 4.) Splanchnic anesthesia is used in upper abdominal work after the abdomen is opened. Caudal anesthesia of four ounces of 0.7 per cent. procaine precedes the infiltration of the abdominal wall when pelvic pathology of a complicated nature is anticipated.

Retraction is made with wire spring retractors. (Fig. 5.) All tissues are grasped by and handled with instruments whenever possible, and, so far as possible, an instrument technic should be followed. The nearer the "bacteriologic" or "no-hand touch" technic is adhered to the less will be the danger of sepsis and of trauma as well, provided proper instruments are used. Knots may be tied more quickly, more cleanly, and more economically with forceps than with the hand. Long, slender, rubber-tipped instruments are much more satisfactory for reaching into the abdomen and picking up movable viscera than are the fingers. (Fig. 6.)

An effort is made to perform the required operation *where* the pathology lies rather than to try to bring the pathological tissues to the surface before releasing them. Pus tubes, for instance, may often be released from the pelvic attachments by gently exposing the retaining bands and cutting them with knife or scissors. Properly placed incisions, perfect light and daylight dissection, using the eye and knife or scissors, are recommended rather than making the dissection in the dark with the hand, no matter how well educated it may be.

Not only must we modify the technical details in relation to the method of performing operations but surgical methods as well. Universal abdominal explorations must become less common; likewise the performance at one sitting of multiple major operations. Both are incompatible with surgical ideals. Will not the more frequent use of the fractional method of administering surgical therapy, thus avoiding the profound depletion of the vital forces by the performance of a two- or even a three-stage operation, mark an advance? Would not a more frequent use of this method not only reduce the present mortality but the morbidity of surgical procedures as well? Have we not a corresponding analogy in the case of the prize fighter who may indulge in frequent boxing contests without suffering more than temporary depression, but who may be permanently incapacitated by too strenuous a beating? May not a patient be so severely traumatized through a series of surgical procedures synchronously performed that recovery will be greatly delayed or perhaps a normal condition never be regained?

I believe that the future will find surgeons more carefully analyzing the structures of the abdominal wall in relation to their relative importance and that conservation of the nerves of this region will eventually be considered more important than the maintenance of the continuity of the fibers of the rectus muscle, with a corresponding reduction in the trauma attending some laparotomies.

With more painstaking diagnoses demanded by local anesthesia incisions will be more accurately placed in relation to the underlying pathology. Within the abdomen trauma, which will not be tolerated under local anesthesia, will be eliminated to a large extent under this régime even when general anesthesia is used. Instrument dissection, the avoidance of traction, and, to some extent at least, a reduction in the amount of clamping and crushing of the viscera (which *must* be avoided when using local anesthesia) would seem desirable. Possibly anastemoses will be made more frequently without the use of clamps, which, after having played their part in the development of abdominal surgery, may follow the Murphy button. Would it not be well to eliminate, so far as possible, the forcing of the abdominal viscera into certain territories by means of gauze packs and to substitute for this method the action of the force of gravity, using the gauze only for the purpose of isolating the viscera from the operative field? Local anesthesia demands this technic, and, when perfect, allows it in many cases.

In the future the importance of comfort to the patient before, during, and after operation will be more keenly realized. He will be treated as a patient rather than as a case. Paralyses and back strain will be avoided. The safety and comfort afforded by sufficient heat and abundance of fluid will be better appreciated. Post-operative pain will be reduced by the prophylactic use of some drug like quinine to produce prolonged anesthesia and by a more gentle and refined technic, and morphin will not be withheld when its use is indicated. The abdominal organs will be more often examined visually while lying in their natural position, and the blind exploration with the gloved hand will be less commonly used, as a better interpretation of symptoms is made. In the future, surgeons will realize more acutely that pathology which can be "picked off" in some far distant corner of the abdomen by an exploration with the gloved hand can, as a rule, be anticipated by a careful history, physical examination and properly co-ordinated laboratory data. Both local anesthesia and surgical ideals make the same demands in this regard.

Time will not permit the offering of further illustrations although such examples are practically unlimited in number. However, I believe a sufficient number have been offered to emphasize the fact that improvements along the lines suggested are highly desirable.

Surgery owes a debt to those who, like Crile, have bent their energies to the development of means

by which the vital forces of the patient may be conserved. It is to be regretted that these men are occasionally characterized "dreamers" and "faddists" by some of those who are "floating on the tide," but may we not, in truth, look forward in happy anticipation to the fulfillment of these "dreams" as the surgical profession more clearly realizes the importance of the improvements advocated?

PHYSICIANS AND SURGEONS BUILDING.

ORIGIN AND SIGNIFICANCE OF MINOR VERTEBRAL DEFORMITIES.

WITH SPECIAL REFERENCE TO THE CAUSATION AND TREATMENT OF SCOLIOSIS.

BY J. MADISON TAYLOR, A.B., M.D.,

PHILADELPHIA, PA.

PROFESSOR OF PHYSICAL THERAPEUTICS AND DIETETICS, MEDICAL DEPARTMENT, TEMPLE UNIVERSITY.

WHAT significance should be attached to minor alterations in structures adjacent to the spinal eminences, especially those occurring in children and young adults? A trained eye and touch will note, on examining the back areas of most individuals, young or old, certain anomalies of structure. Among alterations of structure are deviations in alignment of the vertebral eminences, often sudden, abrupt, some to one or other side, some projecting posteriorly and others depressed, also variations in contours of muscle masses, usually due to over- or under-tension or to spasm. Among sensory reactions are such as local resistances, or tenderness to touch. These are rarely noticed because the spine is seldom examined; but they deserve critical attention and differentiation.

The object of this inquiry is to submit evidence and offer such inferences as seem to me should be made therefrom and certain postulates for discussion.

This subject has long attracted me and I approach the solution with an open mind. My reactions to these phenomena have led me to adopt the habit of exploring the backs of most of those who come under my observation, including those variously ill or not wholly well, and those in whom no ill health is then suspected. By this means I have been led to make certain clinical inferences, here submitted. Others would be repaid by doing the same. The hints here supplied may aid in similar explorations, in choice of remedial procedures, and in applying one's knowledge of neurophysiology and pathology.

Through an accumulation of such findings much of value should come to be learned and they would supply side lights on widely diversified clinical problems. If others note the same consistency in the findings, both of gross morphology and of functional association, there should emerge uniformity of facts, also of inferences, later a consistency and a final verity of conclusions.

In due time, it is safe to aver, a body of acceptable facts would accumulate, and from them would emerge principles of procedure affording guidance to diagnosis, prognosis, and remediation.

One fact is sure: far too few physicians do explore backs, and yet fewer seem qualified to interpret findings; also the older the observer is, the less does he seem capable either of making useful observations or of differentiating his percepts. It is likewise a fact that individuals differ widely in capabilities of touch, of tactile apperception. My experience, however, with some students and with a few assistants is encouraging.

Orthopedic surgeons are known to be prompt and keen to explore the backs, but their objective seems chiefly to be the determination of gross morphogenic alterations or anomalies, and these, when found, are regarded as mainly significant of gross structural disabilities.

The nature of the enterprise it is my purpose to urge is the appraisement of the peculiar correlationships these structural anomalies bear to functional derangements, especially such as are exhibited in the sympathetic domain. May not there be both action and reaction here, leading to disorders of interaction, in which the mechanisms involved include aberrances in the reflexes, the spinal and the vasomotor mechanisms, and yet other illumination not yet clearly determinable?

The testimony available in forming interpretations of these structural and functional interactions has seemed to me extraordinarily meager. Oftentimes useful points, direct and collateral, are found as mere fragments and usually only incidental. As to methods for procedure these were presented in a paper by me, entitled: "Backache and Tenderness," International Clinics, Vol. I, series 29, 1919.

My immediate purpose is to sketch out such interrelationships as might prove to be factors in early scoliosis, in many if not most instances, along with such evidences of reflex irritation as emanate from disordered viscera, or from other areas. They are shown in altered structures lying adjacent to the vertebral discs. In the interdiscal spaces lie the cell bodies in the line of spinal relationships, which pass to the sympathetics, via the posterior primary divisions of the cord.

Summary of Argument.—We have in the field embracing disturbances of the spinal structures: the cord, the correlated sympathetic pathways, and the susceptible areas, certain groups of cells, forming a promising method of approach to the understanding of many grave clinical problems of both body and mind.

The topic is not merely that of beginning deformations of the spinal column with all their evil byeffects. There is likewise the deeply significant group of assorted origins based upon reflexopathies. These resulting disorders have not as yet been viewed with the just suspicion they deserve. They therefore should be brought within the field of scientific scrutiny. At least one group of causative factors is thus established. What may prove to be their extent or degree of incrimination remains to be tested by mass experiences. They deserve to be pursued to their finalities.

At least one group of safe, reasonable, and efficient remedial agencies are likewise demonstrated, the manual stimulation of gross reflexes. The potency of this, while still under judgment, will grow in acceptability with any one who will explore the field.

The potential or hereditary origins, the status of the chromosomes, may remain beyond present control. The biokinetic, the environmental origins, the points of departure of disordered energies, of morbid processes, are obvious enough and capable of beneficent modification. So also are the contribu-

tary, the instrumental origins, the accessory perturbations of growth and repair forces, thus brought within calculation and means of remediation.

The causative factors of any deformation are necessarily complex, long in forming, retroactionary, and almost without exception curable when dealt with early enough.

The potencies of morbid agencies vary not only in different individuals but in the same individual under fluctuating environmental exigencies. They also alter readily and confusingly under stress of emotion, of repression, apprehension, and of maladjustment. In short, the coefficient of susceptibility forms a nice problem capable of simplification by means of this mechanistic concept of the scope of reflex functioning and malfunctioning.

Among the causal factors to be reckoned with are certain obscure, elusive functions, also their retroactionabilities upon metabolism and the consequent energy leaks. The infective processes are coming to be familiar matters, but as to their natural history, tortuosities, aberrances, much remains to be learned.

For instance, Dr. Winsor has observed with surprise—and this quest is open to other observers—that the spinal columns of animals of various sorts and in remote past ages, as seen in museums, also exhibit analogous alterations in morphology. Likewise that a large proportion of these deformations resemble what is called rheumatoid arthritis. Should this hypothesis come to be accepted we may push our search for infective origins yet further.

Winsor's hypothesis that we may again come to view age degenerations as the effects of disease deserves reconsideration. Metchnikoff's postulate of intestinal infections, or hypersusceptibilities of the enteric mucosa and circulation comes in here as collaterally suggestive. Likewise we may repeat the trite aphorism that from the time we are born we begin to die. Can man ever hope to reach such a state of perfectness that the means of disease shall be destroyed? If so, then the cellular degenerations, cytopathies may merely be a slowing down, and the stream of life be conserved beyond present expectation. At the least we may hope to realize ultimately a race of men and women endowed with normal backs, and it is reasonable to infer they will also be endowed with the minimum of disorders in the autonomic and vegetative nervous domains.

A definite, constant relationship exists between certain morphogenic changes in the paravertebral tissues and many ailments. This was first pointed out in a book published in 1834 by two practitioners, brothers, named Griffin, one of whom was a surgeon in Edinburgh and one a physician in London. They reported 148 cases in which they had observed these clinical facts and shrewdly surmised the reasons.

Already a large and interesting mass of observations has been accumulated by careful clinicians and recorded in medical literature, which throws light upon the subject of reflex relationships between acute and protracted disease and the observed morphogenic and sensorigenic alterations in the tissues of the back. The attention of practitioners is not yet directed to the subject to such degree as its importance warrants.

Now for my personal opinions: Observations and study of the clinical facts alluded to above will reward those who shall take the time and trouble. They are capable of playing a most important part in both diagnosis and treatment. It is possible to produce remarkable and gratifying effects by judicious manipulations. By *injudicious* pressures, however, ill effects are not wrought, merely temporary disturbance of reflex equilibrium. This is especially noticeable in the effects produced upon blood pressure, sending it up or down, occasionally to such an extent as to seem menacing. Among certain persons, notably chronic neurasthenics, however, but small results follow. The centers in such are not only (1) relatively exhausted, but (2) the responses to stimuli are feebler, and (3) the reflex responsiveness in weak persons is feeble and soon becomes exhausted. I am able to get better results with my hands than by most mechanical devices such as "vibrators."

Furthermore, in manual diagnosis it is essential to *feel* with the hands, to apperceive by tactile sense what one is up against. In remediation, to prolong the pressures unduly, or to exert too great power, at best nullifies the desired effect, exhausts the reactionary resources of the centers.

Let me quote from a paper of my own published in the *British Journal of Children's Diseases*, January, 1905:

> Effects upon the blood supply of all parts of the body can be produced by influencing the centers in the spinal cord more directly and simply, and through them become exerted upon the sympathetic centers and ganglia, than from measures directed to the organs disturbed. *Per contra*, disturbances in the various organs, systems, and tissues, being due to circulatory changes induced reflexly from the central nervous system (the major portion of the nervous mechanism being located in the spinal cord), disturbances of the circulation in the cord are expressed by alterations in the structures and sensory functions of those parts supplied (vasomotorially) by the posterior primary divisions of the spinal nerves, as well as of the parts affected. . . .
>
> It is then to be inferred that local changes will also be manifested in the associated tissues of the back, adjacent to the vertebral column. During the continuance of diseased states, or lesser disturbances, pronounced alterations are to be observed in those tissues immediately innervated by fibers arising in the spinal segments whose integrity is disturbed by derangements in functions of organs and areas dependent (for their innervation) upon those segments. In brief, there is both a nutritive and a sensory reaction exhibited upon the erector spinæ muscles and allied structures, caused by the disturbed circulatory equilibrium in areas depending for vasomotor regulation upon certain groups of segments of the cord. There is, as has been said, a compensatory reflex relationship existing between, first, the surface muscles of the skin supplied by the posterior primary divisions of the spinal nerves; and, second, the blood vessels of the cord and deep structures, organs and remoter parts innervated by fibers whose cell bodies arise in a corresponding region of the cord. The spinal cord, viewed from the embryologic standpoint, is a cylindrical tube of nervous tissue made of the fusion of bilateral ganglia in some of the lower worms. This view of the spinal cord is essential to the proper concept of the nervous mechanisms in man and the higher animals.

Irregular practitioners of one type or another have, from time to time, attached much significance to the status of the ligaments and attitudes of the vertebræ. "Subluxation of the bones of the back," accredited as a common cause of the functional derangement, may not be accepted.

Also I have a personal letter from Prof. J. George Adami, of Montreal, to the effect that he found my explanations to him acceptable. Later see quotation from a summary of Dr. Henry Winsor's researches.

To quote further from my earlier paper:

Relaxations of the lateral, and posterior spinal, ligaments are due chiefly to nutritive faults. There is produced often the appearance of dislocation, but most of these morphogenic phenomena disappear upon restoration of tonus in the shrunken tissues, chiefly through mechanical stimulation. Attempts to "replace" these so-called "dislocated bones" and to relieve pressure on nerves—the creed of the osteopath—sometimes results in benefit, not so much by accomplishing the object aimed at, as through the effects wrought upon the centers of vasotonus and the lymph activities by mechanical or other reflex stimulation. Where, as sometimes happens, undue force is used to "pull or push" these tissues in place, harm is often wrought of which little is said, or to which other causes are assigned. It is an interesting but significant fact that any agent which causes vasoconstriction in the tissues of the back, contiguous to the spinal column, will produce, conversely, dilatation of the vessels in the cord and of the organs and parts beyond the line of innervation.

Any agent which produces dilatation of the vessels supplying the tissues of the back, will, by compensatory action, induce constriction in the blood vessels of the cord and parts beyond. The clinical significance of this is at once made plain, and its value, not only as a factor in diagnosis, in treatment, but in expediting nutritive changes, is readily demonstrated.

On inspecting the back of one who is, and has always been, perfectly sound, there will be seen (if certain attitudes are assumed to bring them into prominence) the spines of the vertebræ in normal alignment, distance apart, and degree of posterior projection. If there has been a history of long continued or recurrent disturbances of the internal organs, these disease effects are frequently revealed by alterations in the tonus of the blood vessels, and of those muscles, and other tissues innervated by, or lying adjacent to, the governing segments of the cord from which the organs at fault are reflexly controlled through their vasomotor connections. The change of form exhibited is an atrophy of some, infiltration and thickening of others, and if long continued, asymmetries of the vertebræ, the spines apparently pointing in different directions. If the lesions have become chronic, the spines are often found separated owing to relaxation of the posterior ligaments, until between two or more there appear marked depressions, or several show depression below the normal line of projection. This disarrangement of the vertebræ in young children and when recently formed in adults, is more apparent than real, the asymmetries here being mainly due to loss of tone and relaxation in the supporting ligaments, and this often disappears under appropriate treatment.

A recent series of careful dissections was made of over fifty bodies by Dr. Henry Winsor, prosector to the Anatomical Rooms in the University of Pennsylvania, with the object of learning what anatomic evidences exist of alterations in structures of the spinal column, and associated effects of disease in areas innervated from the same cord levels or sympathetic segments. These findings will be published in full. I quote from a personal letter:

The point I have constantly aimed to determine is that curvatures of the spine and other vertebral distortions, nearly always are found on the line of the same sympathetic segment as the viscera which are diseased. While the vertebral distortions appear to occur first, and the visceral pathology appears to be secondary, the reverse may also be true. The visceral reflexopathies appear to make the vertebral distortion greater, while the vertebral malformations exaggerate the visceral disturbances, the rami communicantes containing both gray and white fibers. I have been doing many more post-mortems since giving special attention to the veretbræ involved in curves. Most of the vertebræ in a curve exhibit deformities, in discs, in centra, in pedicles, in lamina, in articular processes and in spinous processes. The variations found by Wallace were necessary to the Darwinian theory. The bilateral asymmetry of the vertebræ explains the persistence of curves of the skeletons I examined in museums. The discs and centra are deformed by pressure and counter-pressure, above, below or laterally. The pedicles, laminæ, and processes are the result of muscle pull normally. When asymmetrical, the muscle pull has been unequal bilaterally, the result of unilateral muscle spasm from irritated nerve reflexes. Spinal curvatures cause distortion of the vertebræ, and distorted vertebræ cause spinal curvatures. One exaggerates the other; as you say, the element of statics enters into the problem. If subluxations exist they would cause and result from distorted vertebræ. The distortions are irreducible. Manipulation, when it is effective, improves the patient's condition by restoring motion and relieving the neighborhood of the joint from adhesions, thus releasing the blood and lymph supply and nerves of the joint from the effects of a peculiar callous which tends to collect around all distorted joints. The steps or stages of a continuous process appear to be as follows: nature attempts to fix, to immobilize, an irritated or distorted joint. The muscles then become tendons, tendons become ligaments, ligaments become cartilaginous, cartilage becomes bone, and then fixation results. Only by boiling the bones can they be separated, and then often with difficulty, into the two bones which were apparently ossified together. As the muscles pulled the bones out normally into processes, so do the muscles and ligaments pull the processes still more abnormally when the muscle pull is wrongly directed or is stronger on one side or on the other. The end stage of this condition is rheumatoid arthritis. I have demonstrated all the intermediate stages from distorted vertebræ in curvatures of the spine, to advanced rheumatoid arthritis with ankylosis. Rheumatoid arthritis affects the neighborhood of the intervertebral discs. The pull of the anterior common ligament causes exostoses to develop. Rheumatoid arthritis confines itself, usually, to vertebræ that are deformed, and are parts of an abnormal curve. The anterior common ligament is pulled by the psoas and diaphragm, the ligaments around the heads of ribs, the stellate ligaments receive fibrous expansions of the anterior common ligament. Hyperextension stretches this ligament, flexion of the spine relaxes it. Old age is so commonly associated with rheumatoid arthritis, at necropsy, that we might say that old age is a result of rheumatoid athritis, not a cause of it. Clinically, patients may appear to die of old age, the necropsy will show they practically all die of disease. Old age is probably a disease and might be called rheumatoid arthritis. Boiling is needed to dissolve the callus around these deformed joints. Pleurisy with adhesions compresses and pulls on the sympathetics; pleurisy causes pneumonia rather than that it results from pneumonia, by irritation of the sympathetic nerves going to the bronchial arteries from the upper thoracic nerves by way of the posterior pulmonary plexuses. Cardiac disease can occur in the same way from pleural adhesions affecting the intercostal nerves and setting up sympathetic reflexes, or by affecting the cardiac nerves and the cardiac filaments to the cardiac plexuses. Emphysema—the breathlessness, or dyspnea of emphysema—is probably not due to overdistention of the air-vesicles as we have been taught. No matter how overdistended they might be, great pressure could collapse them. The loss of expansion is not due to the fact that the lung is so expanded that it cannot be expanded more, nor is it the result of fibrous pneumonitis, although these are minor factors. The real cause seems to be that the ribs are rigid, the chest cannot then expand or contract because the joints of the ribs are immobilized, not only by reflex-irritation (tonic protective spasm) but also by rheumatoid arthritis developed as a result of vertebral and of rib distortions. I have frequently seen rheumatoid arthritis of both ends of many ribs in several subjects at the sternal as well as the vertebral articulations. The fixation of the ribs causes the entire work of respiration to fall on the diaphragm. The accessory muscles of respiration pull violently, but are unable to move the ribs, and then the chest cannot expand or contract. Springing the ribs, by

compressions, mobilizes them, improves their vigor.

One must observe vertebræ carefully. Nature has a way of compensating and obscuring her imperfections. The first impression that one obtains on looking at some of these vertebræ, is that one's eyesight is wrong, one feels as though one had astigmatism uncorrected. By reversing the vertebræ, by turning them around, the defect is seen to be not in the eye, but in the object. All the various parts, or rather *any* of the parts of the vertebræ, may be affected by distortion in many different directions. The nucleus pulposus of the intervertebral discs is in all probability only relatively displaced, the disc having changed its shape, being thicker on one side than the other, or thicker in front or behind. This change in shape may be normal in some parts of the spine, but makes the nucleus pulposus appear to be displaced. The vertebræ appear to be displaced by the changes in the shapes of the vertebræ, the ones above, or below, or all three may be out of line antero-posteriorly or laterally because of these distortions.

Sympathetic irritation may be a cause of high blood pressure and arteriosclerosis. The fibrous and callous formations adjacent to these distortions, are probably the direct cause of pressure on the nerves as they leave the foramina, or a toxic or bacterial invasion of the sheaths of the nerves may occur. The blood vessels going to the cord may be involved, thus influencing the vein and arteries of the cord or nerves. This change in the blood supply acts as a possible cause of disease in the cord or nerves. Both the sympathetic and the somatic blood or lymph supply of the neighborhood could be affected. It is only fair to assume that the sympathetic, which has so long been considered a prime factor in healthy physiology, should come to be an equally important factor in diseased physiology and this fact might be utilized to restore health.

We may recall in this connection the fact that orthopedic surgeons tell us that in cases of minor scoliosis the alterations in morphogenesis of the spine can be made frequently to disappear or to become negligible. The reason for this subsidence of deformations or lesions is generally accredited to systematized and suitable, or even spontaneous, exercises whereby the opposing muscles regain tone, nutritive balance is restored, and reflexopathies disappear. Since the course of treatment usually includes a general, and often special, course of hygienic, dietetic, and therapeutic measures, it is reasonable to infer that a good deal more has been achieved than by mere muscular, tendinous or ligamentous reestablishment.

My impression is that a much deeper import can be claimed for the steps of progress. I wrote a paper entitled: "Hypothesis as to the Causation of Scoliosis" (*Monthly Cyclopædia and Medical Bulletin*, September, 1904), copies of which were sent to a number of orthopedic surgeons, with a letter of request for cooperation in observance."*

Assuming that my explanation shall at least in part come to be established, it will be seen that in it we have both "bane and antidote," a revelation of origins and promises for better remediation than by mere exercises alone.

My experience is now sufficiently ample to justify the conviction that there is opened up a promising resource in manipulative measures designated to quiet down the local irritation in the erector spinæ muscles, to release the tonic protective spasms, to release excessive intraarticular pressures, to expedite nutrition through enhancing the vasomotor ebb and flow, to drain away vitiated blood and lymph, to reestablish poise in the spinal visceromotor as well as the sympathetic vasomotor reflexes and to encourage or abet the fuller efficiency of the motor reeducation (kinesitherapy).

The causative factors of scoliosis are proverbially obscure, complex, and elusive. So far as can be learned there still prevails much disagreement and some loose conjecture. We are still in grave need of light on the subject of growth forces and their variants. We recognize certain periodicities of stress, of advance, of retardation, of lowering of the defence reactions, and perturbation of the balancings of energies. These lowerings of the factors of safety induce yieldings to pressure exerted from stress of environmental disadvantages and also from within, inducing imbalances in the energies of the ductless glands.

How and where does the trouble begin? Up to date we know too little of conditions which induce energy leaks or impairment, but we do know that the governor to the human engine lies in that group of energy regulators, the endocrines and through their agency much can now be done with confidence.

Furthermore, we are coming to know with increasing certitude that much, perhaps most, can be achieved through orthokinetic readjustment, the repoising or reestablishment of the reflexes, the enhancement of general and local nutrition through directing vasomotion.

A crude empirical grouping of the continuous process of diagnosis and treatment will be found in the following typical case.

A girl was under my professional care from early childhood to marriage. At the age of fifteen I made a deliberate examination and found two spinal curvatures, one in the upper thoracic region and the other in the lower thoracic and upper lumbar; the deformation was less of compensatory curves than malalignments, with slight over-prominences of the fifth to the ninth, followed by an abrupt drop, depression, or anteriority below, also the same kind of irregularities in the tenth, eleventh, twelfth thoracic, and first and second lumbar.

These alterations were just such as would indicate to me long irritation of organs whose innervation arose in the corresponding interdiscal spaces. Now it so happened that I had attended this girl in all her childish ailments. One was a long protracted bronchopneumonia and the other was a severe disorder of her colon, and there was practically nothing else.

When she was about fifteen, I took the girl to an orthopedic surgeon, who pronounced the state a double curvature of irregular type, and he said she might possibly be cured in two or three years, but it was doubtful if entirely. In six months I submitted her to him again, after treating her by manipulations, and he could find nothing amiss.

*The responses varied widely, though in the main interest was alert. A few seemed impressed with the significance of the observations, notably John Dane, R. W. Lovett, E. H. Bradford, J. Chalmers DaCosta, Roswell Park, and A. R. Shands. Those most encouring were Nicholas Senn who said: "Your viewpoint represents the scientific side of the question and meets my approval"; and Roswell Park: ". . . I believe your hypothesis and suggestions are of great value . . . feel greatly obliged to you for calling my attention to it." Unfortunately I did not call upon these various gentlemen to search their material and make further observations.

In a large number of records in dispensaries, examined with a view of determining significant clinical incidents, I found very few were mentioned. The questions are asked casually and with no particularity in order to illustrate the difficulties in obtaining reliable facts as to antecedent ailments capable of acting as causes for the spinal irritation, let me cite a case which came to me while writing.

Hannah Siegel, aged fifteen, suffering from chorea, also a marked general scoliosis. Stout, ruddy, five feet four inches, weight 170 pounds, breast fed, always healthy, good nutrition and sleep. The mother declared positively "she had had *no illnesses*."

Upon close cross questioning and scrutiny, a history was elicited of: (1) headaches, left side, since earliest memory. (2) "Spots in the eyes," "moving over toward the left," long under the care of a prominent ophthalmologist, Dr. Burton Chance. His opinion is that the condition is an interesting one of congenital degeneration of the retina, without the pigmentation which usually accompanies degeneration. (3) Scoliosis, moderate, noted several years ago, involving the whole spine. (4) Had a bad tooth, "jaw swelled up," three or four years ago, removed. (5) Is always short of breath after running, and often has a pain in the side. Heart sounds fair but dubious. (6) Has had fluctuating pains since earliest memory, in different parts of the body, sometimes severe and laming in the leg, or foot, or knees, or back. (7) I find diseased tonsils which now demand removal and seem a source of sepsis. (8) Also she now comes to me for a chorea, so severe as to affect the voice.

APPENDIX

In commenting on this manuscript, Dr. John Dane of Boston writes as follows:

"I have read and reread your paper carefully, and am delighted with it and agree with a surprising amount. It seems to me most timely. Get it into print very soon. Its lessons are bitterly needed. Why, only a few weeks ago a young medico, trained at one of our most progressive hospitals, said that in all the examinations that he had seen made, not once had the patient been turned over onto his face to examine the back and spine. You have got to begin at the very bottom to teach what you and I *know* to be true, and so very, very important. In fact I could wish that the quotation that you make from your own work published in 1905 could be printed boldly at the beginning of every treatise on medicine. It is the key to much that we know, and still more that we do not yet know.

"I attach the greatest significance to the status of the ligaments and the attitudes (or rather positions) of the vertebræ. There is not only an 'appearance' of subluxation as you say (of course there is no question of 'dislocation') there is always a change of position, and in nearly every case one that can be demonstrated easily by palpation. Lastly, when by some form of manipulation this displaced vertebra, (or vertebræ) is made to retract the path by which it has become displaced, the symptoms vanish and you find that the position of the vertebra has become normal. Why hesitate to say the vertebra has been replaced and that that is the cause of the beneficial result? I am not saying that there is, or has been, any 'pressure of bones upon nerves' or any of the stock explantions of osteopaths. My working theory has been always that reflex-sympathetic action is the only explanation of the phenomena. My idea is that some such chain of sequence of cause and effects arises as this: By some sudden movement, or one made when the opposing muscles are off their guard, one or more joints are carried a little beyond their normal limit of motion, and become jammed there. This stretches or perhaps ruptures some fibers of the protecting ligaments, and a mild grade of synovitis of the joint is set up. This at once starts the reflex mechanism through the sympathetic; the muscles about the region are thrown into spasm, which prevents further motion from unlocking the joint in most cases. The patient frequently has a sensation that something has slipped, and not infrequently hears a snap when the joint is displaced. Once the sympathetic reflex gets to work I think we are agreed upon the general way in which it acts, and causes trouble wherever the anterior branch of that particular nerve is distributed. I also believe that the reflex sometimes works in the opposite direction, *i. e.*, if the terminals of the anterior branch are irritated, it is reflected to the posterior branch which causes contraction of the muscles of that sympathetic segment. Given this contraction any motion of the back as it travels along will come upon the resistant section, where instead of being taken up by elastic structures it pulls upon relatively non-yielding muscles that are in spasm, and this soon subluxates more vertebræ, and starts off a secondary set of mischief-making reflexes.

"In your quotation from Winsor, while I heartily agree with much he says, if he uses 'adhesions' in the sense that I do, you will see that in such cases as I am considering it is too early to speak of any having formed. His series of stages in the production of arthritis deformans is admirable if you will let me make one important addition. I do not believe that it occurs unless there is some irritating substance circulating in the blood; as this is most often a result of faulty intestinal metabolism, the lesion in the back if it is so located as to interfere with the innervation of the splanchnics will supply abundant cause.* I think that wherever the terminals of a nerve are situated, whose origin is in an irritated section of the cord, there you find an area of lowered vitality which not only causes pain and interferes decidedly with the performance of function, but there bacteria easily overcome the resistance of the tissues and start to grow."

1504 PINE STREET.

ENCEPHALITIS COMPLETA.

DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS.

BY J. VICTOR HABERMAN, A.B., M.D., M.S.D. (Berlin).

NEW YORK.

(*Concluded from page* 140.)

PONDERING some of the titles of recent publications (*i.e.* Influenza Encephalitis, Postinfluenzal Encephalitis, etc.), the question arises, is the influenzal encephalitis referred to a grippe encephalitis, or is it the epidemic-encephalitis of recent ill fame, and for which grippe has very widely been held responsible, or are these indeed one and the same distemper? The matter has scarcely come up for differentiation in individual cases in our own literature and but a few times abroad (*cf.* 22). This will be gone into more carefully in our study of primary encephalitis; here, however, a brief series of similarities and differentiæ may advantageously be given:†

The etiological virus or organism of both (as also that of Heine-Medin disease) remains unknown.

This virus in influenza (also in H.-M. disease) has been "grown," carried over to animals and the strain continued by passing. It has been four times reported as accomplished in the case of ep.-encephalitis,‡ and many times reported as not being accomplished—hence, still needing verification.

All three diseases occur sporadically, in groups, epidemically and pandemically. All three also occur in mild form as "abortive" cases.

All three cause a diffuse and widespread infection in the human body.

*This topic is elaborated in D. Winsor's completed paper.

†One may also instructively bring Heine-Medin disease (poliomyelitis) into the differential discussion.

‡Strauss and Lowe, Levidetti, Thalhimer, McIntosh.

All three cause a "hemorrhagic" condition, the microscopic pathological changes being not very dissimilar, and, often enough, almost the same.*

In influenza and epidemic-encephalitis the hemorrhagic tendency is decidedly "punctate." There is also a tendency toward hemorrhage into various organs of the body in both, far more pronounced in the first.

All three diseases are strongly neurotrope.

Heine-Medin disease affects children especially (preponderantly): sporadic cases possibly only occur in children. The other two infections affect both children and adults, but adults especially.

Sporadically all three diseases may occur at any time; but epidemically, grippe and epidemic-encephalitis are usually (not always) winter or early winter diseases, while Heine-Medin disease is usually (not quite always) a summer disease.

Disposition to influenza is very great, almost universal; disposition to epidemic-encephalitis is very slight in proportion, minute. The disposition to poliomyelitis is greater than to epidemic-encephalitis, yet much smaller than to influenza. From the point of view of direct contagiousness, this also is almost universal in influenza, apparently very slight in both epidemic encephalitis and poliomyelitis. As to immunity, second attacks are common in grippe, do not seem to occur in Heine-Medin disease or epidemic encephalitis.

In influenzal encephalitis there is *always* a history of preceding Grippe infection, or it supervenes on a catarrhal (mostly pulmonic) process. It is distinctly secondary to a systemic infection.†

In epidemic-encephalitis there is very frequently a history of grippe having recently occurred in the patient, or having prevailed in his neighborhood. *But* there are many cases which show no such influenza association whatsoever.‡ Decided catarrhal symptoms are, on the whole, most unusually noticed (l.c. Strümpell). It is distinctly primary.

Influenza shows up one year as especially symptomatically gastric, again, pulmonic, again, neuropathic. It has never been choreic, myoclonic, "Parkinsonian" (*i.e.* "extrapyramidal"). (Nor do we remember ever finding influenza the cause of sporadic chorea, or myoclonus.)

Epidemic-encephalitis has not shown similar symptomatic forms, it has never been a distinctly gastric or pulmonic disease; it has shown up at times in large groups, or in special localities (almost epidemically), in variations from the "lethargic" type, being here outspokenly choreic, or "Parkinsonian," etc.

Finally, and here are the really important facts:

These three, in many respects, similar diseases, all producing much the same pathological lesion, have each *a different locus-electivity* for the cerebrospinal nervous system.

Influenzal encephalitis is almost wholly convexity (cortico)-elective. Where many such cases were reported, as in the 1890 epidemic, the encephalitis was cortical, motor, chiefly one-sided, *with cortico-pyramidal symptoms* (real spasticities, paralyses, abnormal reflexes, etc.).

Epidemic-encephalitis is not at all cortical in this way,* but is basal (ganglia)—midbrain—and medulla-ponto-elective, *with frequent extra-pyramidal tract symptoms*, and rarely ever outspoken corto-pyramidal signs.†

In influenza, involvement of the cranial nerves but very seldom occurs (*cf.* No. 20; No. 2, p. 902; No. 31, p. 248), the facial when affected being unilateral and part of the hemiplegia obtaining. Nor does a diplopia, etc., ever initiate the attack. In epidemic-encephalitis, involvement of the cranial nerves is of commonest occurrence, affection of the occulomotor being almost pathognomonic (*cf.* No. 7). This last often initiating the disease. Involvement of the optic nerve is rare in both.

Several other symptoms are come upon very frequently indeed in epidemic-encephalitis, which occur only most rarely (or not at all) in influenza and H.-M. disease, namely, involvement of the sphincter iridia leading to sluggish or absent light reflex (this is very important [Nonne]), hiccough, which at times may be the only symptom of the disease, and twitching of the abdominal wall.

Both influenzal encephalitis and epidemic-encephalitis are non-spinoelective (similar to the majority of the toxic-infectious diseases‡ and so in great contrast to Heine-Medin disease.

Heine-Medin disease is only minutely § cortico-elective; it is (to my knowledge) never basal-ganglia-elective; it is considerably ponto-elective (the facial case being probably far more prevalent than our literature intimates) and is preponderantly spino-elective.

When paralyses rapidly appear, are maximal from the start and soon regress, Heine-Medin disease must be thought of. Residuals of paralyses also speak for Heine-Medin disease.

Symmetrical cranial nerve paralyses speak *against* Heine-Medin disease, in which they *very* rarely ever occur.

That this differentiation can be carried out in the majority of adult cases is very probable. Whether it can be done in the case of young children I cannot say, the reports of such cases (careful reports) being as yet meager. No doubt, however, the same applies.

That there are similarities, or relationships, of some kind between the etiological organisms of these three diseases is highly probable. Can one

*Influenza may also give a serous and a purulent meningitis. Neither of these conditions has been reported in epidemic encephalitis. In Heine-Medin disease there is never purulent meningitis, though there is very frequently meningeal irritation, giving a lymphocytosis and a general picture of the meningitis serosa type. Meningitis serosa may occur *per se* as an expression of H.-M. disease l. c. 29).

†There is a small group of *primary* cases which are to be excepted. They, however, belong chiefly to the *encephalitis inferior* cases and need differentiation from Heine-Medin disease, rarely, if ever, from epidemic encephalitis.

‡Nonne, in a very able study of the subject,[25] comments upon this fact. Economo in a recent report also states that in the majority of epidemic-encephalitis cases there is no history of grippe (*Wien. kl. Woch.* xxxiii, 16-17, 1920). Strümpell points out that the high-water mark of the encephalitis-spread in Vienna was reached in 1920 at a time when influenza was practically extinguished. Reich cites a case of a patient having had epidemic encephalitis, who later came down with sever influenze on being exposed to this disease (*Schw. med. Woch.*).

*That there is a cortical involvement is evident through the psychotic symptoms so often present. But it is not a motor-area involvement giving cortico-pyramidal symptoms (cf. above.)

†Here probably pressure symptoms.

‡Only a handful of cases are on record in which pictures similar to poliomyelitis were produced by the infectious diseases, and these were usually of the Landry's type. A recent communication of Stertz (*Zeit. f. d. ges. Neurol. w. Psychiatrie*, xxi, 5-6, p. 363) mentions an epidemic-encephalitis case in which there was an involvement and damage of the anterior ganglion cells of the spine. But nowhere did this damage lead to a total disappearance of cells as would have been the case in poliomyelitis. Another autopsied case has recently been reported. (*cf.* subsequent paper.)

§Much more minutely than is brought out by textbooks, all of which speak (following Wickman) of the "encephalitic form" of Heine-Medin disease, and comment no further (see, for instance, the Report of the Health Department of the City of N. Y.). Wickman himself, however, saw not a single case in the great Swedish epidemic, and but once heard of such a case. And in the whole literature he could scarcely get a dozen cases together (if they number that many), which, from clinical findings, must have been "cerebral" in type.

or other change its *trope*, or become *aberrantly*- or *multi-trope?* In the case of influenza and epidemic-encephalitis, a recent report of Schlesinger's[28] is highly suggestive in this connection. A young man with grippal pneumonia is put into a ward. The day after, his four bed-neighbors contract high temperature. Three are comatose. One goes to pieces with lethargic encephalitis (also has a typical grippe pneumonia), two recover, the fourth also goes through grippe pneumonia and four weeks after shows the picture of "choreiform encephalitis." Interesting here are also the serological studies and findings of Bieling and Weichbrodt,[27] who conclude that influenza-agglutinin occurs in the blood of grippe cases (and increases in the course of the disease); likewise in the blood of epidemic-encephalitis cases agglutinin against influenza bacilli is formed, and complement-binding substance, even if in but minute quantities, are produced. Hence, one must deduce that in the latter disease the influenza bacillus play some important rôle, and that both diseases are *serologically* related. (Symbiosis and also previous sensitization of the body by grippe must likewise be considered.)

Whatever the relationship, ultimately determined, between these two forms of encephalitis, the data just presented are sufficient to differentiate two types (whether of the same or various etiological factors) which may interpretatively be captioned the encephalitis *of Leichtenstern* and that *of Economo*.

In regard to influenza and Heine-Medin disease, the possibility of such a connection came up in a case of Oppenheim's I had occasion to study and later publish (among a group of cases from Oppenheim's clinic[28]). We decided against the inference in that particular case. Still earlier Wickman[29] in his studies brought up the point and also came to negative conclusions. Others since then, however, have mentioned the similarity of the pathological picture and again have surmised the possibility of some relationship. Brorström[30] of Sweden, on the other hand (and Öhlin, of Sweden, adds an affirming report), comes out with the strong conviction that poliomyelitis *is* influenza. Brorström's book is scarcely convincing, and in many parts displays loose writing and not very sharp observational acumen. Nevertheless, there are cases cited here which give us something to think about and show up evidence in the light of his thesis not entirely negligible.

Pertussis Encephalitis.—A special word must be said of *pertussis* or *post-pertussis encephalitis*. In pertussis "apoplexies," as well as grave cerebral comatose states, are seen with high temperature, convulsions, pareses and paralyses of cranial nerves, unequal pupils, spasm or pareses in the extremities, et cetera. The picture at once connotes hemorrhage or meningitis. The liklihood of hemorrhage occurring under the intense strain induced by paroxysms of coughing, especially when one considers the possibility of the blood vessels themselves being invalidated through the toxin or infectious agent of the disease (Neurath), is very great. Yet, on the other hand, one remembers that cerebral hemorrhages rarely occur in epilepsy, in spite of the great violence of attacks. Again, Wilbrand and Saenger[31] report that, though it is common for conjunctival hemorrhage to be seen in both pertussis and epilepsy, but very rarely indeed, if the vessels are not diseased, is there bleeding into the retina (*l.c.* p. 189).* Thus one comes to the conclusion that, though cerebral hemorrhage does, even if but rarely or infrequently, occur (Heubner, Holt), most of these serious pictures are rather due to hemorrhagic *encephalitis* (Henoch, Fürbringer, Finkelstein, Neurath, etc.)—and clear up.

Holt suggests that many of these cases are caused by meningeal hemorrhages producing mono- or hemiplegia, aphasia, facial palsies, disturbance of sight or sensation, all of which may disappear at the end of a week—some cases, however, proving fatal. Elsewhere Holt (*l.c.* p. 960) mentions that transient disturbance of sight occurs, even blindness of a few days to weeks, which later clears up, the milder depending probably upon circulatory changes during paroxysms, the severer upon meningeal hemorrhage. Pertinent to this matter, however, Finkelstein (*l.c.*, Vol. i, p 192) cites an interesting case with necropsy (and further literature), in which quite a different condition obtained. He mentions the comatose-meningitic picture of certain pertussis patients with severe convulsions, in which after a brief hyperpyrexic course, death supervenes and one expects to find a hemorrhage or encephalitis—and finds nothing but a serous saturation, fluid in the ventricles and flattening of the giri, the microscopic examination evidencing only the inflammatory infiltration of a *meningitis serosa*.

E. F., one year old. Following a severe paroxysm on 26.1, severe convulsions. High temperature, coughing, vomiting, bronchitis, 8.2, irritability, somnolence, transient strabismus, jerking in the extremities, together with increased bronchitis. On the tenth the temperature rises to 40.5°-41° as convulsions set in, repeated many times, also in following days. Between these attacks sopor of changing intensity. Right-sided abducens paresis, strabismus, unequal pupils, stiffness of the neck, automatic movements, spasms and paresis of extremities, considerably severer on the left side. 5.3, severe convulsion with exitus. Necropsy: mild ependymitis of the lateral and fourth ventricles and slight hydrocephalus internus. Bronchitis. Brain itself negative.

Acute Hemorrhagic Encephalitis Superior.—We must finally touch upon a form of hemorrhagic encephalitis, involving the nuclear region of the 3rd nerve instead of the cortex as in the majority of the cases thus far noted, a form first described by Wernicke and since then accepted as a definite clinical entity. It is an acute inflammatory nuclear disease—to follow Wernicke's own description closely (No. 8, p. 240)—in the region of the nuclei of the nerves of the eye muscles, ending fatally within 10 to 14 days. An associated eye-muscles paralysis comes on suddenly and rapidly *progressing to an almost total (external) ophthalmoplegia*, the sphincter iridis and levator palpebrum remaining intact. General brain symptoms also occur, namely, somnolence, either from the start, or first becoming ap-

Cf, the "X" or Mysterious Disease (Encephalomyelitis) in New South Wales several years ago. l. c. Cleland and Campbell, *Lancet*, May 24, 1919, also *M. J. of A.*, March 16, 1918.)

*Nevertheless Wilbrand and Saenger do note a case (of Landesberg) of hemorrhage during pertussis in a boy of seven. (In a later volume the authors mention this case as due to emboli of the central retinal arteries [vol. xxxii, p. 867]). See also Reference No. 34, p. 211.

parent after a period of agitation, with disorientation, confusion, or delirium, very similar to delirium tremens, furthermore headache, vertigo, vomiting and exhaustion (or great fatigue). *The temperature is for the most part normal,* the pulse and breathing rapid. *Optic neuritis or hemorrhagic papillitis were always present.*

Later studies, especially those of Boedeker (Charité Annalen, xviii) practically substantiated the above, with the exception that we now find that "associated paralyses" need not occur and that the sphincter iridis and levator may be involved (*l.c.* No. 31, p. 264). Occasionally (rarely) the facial in its lower branch has been found involved. Speech is hesitating, tremulous, unclear. Some contraction of the neck has been noticed. The lower extermities are usually affected, showing unsteadiness, stiffness and ataxia (reminding of the gait in alcoholics).

The disease occurs almost wholly on the basis of *severe* alcoholism. One of Wernicke's cases, however, was due to sulphuric acid poisoning. A case of Oppenheim's seemed to point to lysol poisoning. Other toxins (influenza, possibly?) may in all probability give the disease. Most cases are rapidly fatal, some have recovered (Oppenheim).

It is interesting to know that the agitation, delirium and disorientation also occurred in the non-alcoholic cases, so that these symptoms must be attributed to the encephalitis superior and not to the chronic alcoholism. The diagnosis is easy if alcoholism is known or suspected, and visceral lesions point to chronic indulgence. Still the disease might be confused with delirium tremens. One must think of it also where other poisons have been taken and one finds eye-muscle paralyses, changes in the optic discs, a possible facial involvement, and spastic-atactic-like disturbance in the lower extremities.

With the exception that here *the levator and sphincter iridis are more often uninvolved,* there is an unmistakable resemblance to epidemic encephalitis. It may also be interesting in this connection to cite a recently reported case of veronal poisoning[2] (and several somewhat similar cases have been noted in the literature) which shows that poisoning with this drug may likewise produce a diagnostically embarrassing situation.

Patient, thirty-three years old, brought to hospital somnolent. It was learned from friends that patient when despondent would take large doses of veronal. A large dose had rendered her lethargic for ten days in January, 1919. Again in April. In November she took a dozen 5 grain tablets, became somnolent, and was in hospital four days. In December took six 5 gr. tablets.

Examination showed profound sleep from which patient could be aroused with difficulty. When awakened, gave intelligent and coherent answers—and fell asleep again. There was no involvement (paralyses) of extremities. The right eye exhibited slight ptosis and weakness of external rectus. There was diplopia (also present in previous attacks). P. 84, t. 98. On next day, t. 100, p. 88, r. 20. During following days, however, t.p.r. normal. Lethargy slowly subsided. In March the patient again was brought in after taking ten 5 gr. tablets and turning on the gas. This time, however, there were no eye symptoms.

Another form of acute hemorrhagic encephalitis *superior,* and which must be differentiated from the above (Wernicke type) is that of Heine-Medin disease (poliomyelitis). This will be described under Heine-Medin disease in a later chapter, likewise the *inferior* form which is primary.

Pathology.—Though individual cases have brought up variances that have led to controversy, the larger number of infectious-toxic cases show a pathological picture that may be summarized as follows: If autopsied directly after the illness, the abnormal changes consist of hemorrhagic patches, sometimes very minute, sometimes as large as walnuts, occasionally single and circumscribed, more often multiple, and grouped or diffusely scattered over large areas of the brain. At times adjoining areas of the hemispheres are symmetrically involved. At times, too, it is impossible to tell whether inflammation or hemorrhage has taken place, or indeed both. Gray and white matter are affected, with *tendency,* as already mentioned, to compromise but one hemisphere and the motor elements of such (hence, subsequent spastic hemiplegia).* Where the cortex is affected, the soft meninges above are also involved, the pia adhering. The central gray, and the walls of the 3rd and 4th ventricles and of the acqueduct of Sylvius, are often involved.

Microscopically one notes an overflowing of the arterioles, with extravasation of blood white cells and fibrinous exudate, with here and there breaking of vessels.† Round cells gather in the walls of the vessels and beyond, especially lymphocytes and plasma cells; polynuclears are unusual. The neuroglea cells may multiply. The nerve elements may evidence secondary irritation and destruction. In occasional cases this, however, seems to be primary —a kind of necrobiosis, as Oppenheim assumes, in which the nerve elements go to pieces while the round cells over-proliferate. (For *pathology* see No. 1, p. 25 *et seq.,* Ziehen in No. 15, and the recent study of C. A. Homén, Arb. Path. Institute, Helsingfors, 2 H. 1 and 2.)

The spinal fluid shows nothing that is characteristically abnormal, hence lumbar puncture avails little save in aiding the diagnosis "by exclusion." This chapter will be given in full under Differential Diagnosis.

The active process once come to an end, absorption of the inflammatory products and extravasated blood takes place. Thus great improvement may rapidly set in, at times even severe cases entirely clear up. Often, however, scar-tissue forms here and there (patches of sclerosis). When the condition has been rather diffuse, a process may develop which subsequently leads to the picture of *diffuse sclerosis* (the exact facts of which are still, however, unclear). Where the inflammation has been in the cortex, the areas, after absorption of the exudate, or especially if there has been destruction or softening of tissue, is found depressed, or "scooped out," or hardened through connective tissue and glia infiltration. The destroyed area again may have been so large that a hole is left or hole-like defects—*i.e.* porencephaly. Or, finally, fluid may gather between the depressed area and overlying meninges and so form cysts. *Thus the end results as they are come upon years later* are sclerotic depressed or hardened areas, porpencephaly and

*Of secondary encephalitis as the cause of most cases of "cerebral spastic paralyses" of childhood, see below. Heine-Medin diseases is also an occasional cause.

†It is probable that in some cases the entire pathological process consists in "edema" which goes no further—and finally clears up. Brain edema, however, brings up a very complicated subject. It will be discussed in a later chapter of this study.

cysts. The skull over such affected area may show depression, and is usually smaller on the side of the lesion (opposite the paralyzed side), and sometimes is smaller all around (microcephaly).

Prognosis and Course.—The prognosis in encephalitis is serious, yet by no means as serious as in meningitis—and recovery is frequent. Where recovery sets in, the progress is rapid; occasionally, however, it is slow over a period of weeks or months. The aphasia most often clears up, the paralysis or paresis shrinking in area. Occasionally the hemiplegia disappears, leaving a hemiparesis in its wake. Once in a while a case—even if of severe type—completely recovers. More often, however, a permanent spastic hemiplegia results. The convulsions occurring early in the disease may persist, or, after ceasing over an interim of weeks, months, even years, may again appear as an epilepsy not distinguishable from the "genuine" type. Rarely it is of Jacksonian form. Convulsions may obtain even where no paralyses exist. Rarely, too, blindness or hemianopsia remains as a residual. Hearing seems scarcely ever affected. Starr[33] mentions however that word-blindness or word-deafness may prove a residual and be the origin of deaf-mutism in some cases. The more extensive the involvement, and especially the earlier the disease, the greater is the likelihood of mental enfeeblement due to focal destruction of brain tissue and resulting diaschisis, and particularly inhibition of general brain growth.

REFERENCES.

1. H. Oppenheim und R. Cassirer: Die Encephalitis, 2d edit., Vienna, 1907.
2. W. R. Gowers: Diseases of the Nervous System, 1903.
3. Herrick and Dannenberg: "Observations on the Cerebrospinal Fluid of Acute Disease," *J. of A. M. A.*, Vol. 73, No. 18, p. 1321.
4. Th. Ziehen: Die Geisteskrankheiten des Kindesalters, Berlin, 1917, p. 258.
5. J. Zadek: Lähmungen nach Typhus, *Deut. med. Woch.*, Aug. 26, 1915, p. 1034.
6. O. Heubner: Kinderheilkunde, 2d edit., 1906, p. 107.
7. R. Fleischmann: Über einen Fall von Landryscher Paralyse bedingt durch Salvarsan Intoxikation, *Z. f. N. & Psych.*, Bd. xiv, H. 1., p. 125.
8. C. Wernicke: Lehrbuch der Gehirnkrankheiten, 1881, vol. 2, p. 229, etc.
9. C. L. Dana: Textbook of Nervous Diseases, 6th edit.
9a. Pierce McKenzie and Le Count: Heat stroke with a second study of cerebral edema. *J. of A. M. A.*, July 27, 1918.
10. Paul Moreau: Der Irrsinn im Kindesalter, p. 112 (Galatti's translation, Stuttgart, 1889). This volume contains many interesting cases. We cite several under Differential Diagnosis.
11. J. v. Mering: Lehrbuch Der Inneren Medizin, Jena, 1919.
12. Pfaundler u. Schlossmann: Handbuch d. Kinderheilkunde, II, 2, p. 671.
13. H. Finkelstein: Säuglingskrankheiten, 1912, Vol. I, part 2, p. 203.
14. E. Holt: Infancy and Childhood.
15. L. Bruns, A. Cramer, Th. Ziehen: Handbuch der Nervenkrankheiten im Kindesalter, Berlin, 1912.
16. J. Ramsay Hunt: Acute Infectious Myoclonus Multiplex and Epidemic Myoclonus Multiplex. *J. of A. M. A.*, Sept. 11, 1920, p. 713.
17. A. Strümpell: Über Encephalitis Epidemica. *Deut. med. Woch.*, June 24, 1920, p. 705.
18. Tinel and A. Cain, Neurolog.-Centralblatt, June, 1911.
19. J. Hoffmann: Über eine Epidemie von Poliomyelitis, etc., D. Z. f. Nerven., Bd., 38, pp. 153-4.
19a. E. Remark: Nothnagels spez. Path. u. Ther., 1900, Vol. xi, part 3.
19b. Robert Bing: Beihefte z. med. Klinik, 1911, H. 6, p. 158.
20. O. Leichtenstern: Influenza u. Dengue, Nothnagel's Spez. Path. und Therapie, Bd. iv, p. 118. See also *Deut. med. Woch.*, No. 2, 1892, p. 39; also *ibid.* 1890, p. 510.
21. K. A. Menninger: Psychoses associated with Influenza. *Arch. of Neurol. and Psychiatry*, Sept. 1, 1919. See also, ibid, Influenza and Hypophrenia, *J. of A. M. A.*, Oct. 16, 1920.
22. Franz Högler: Grippe-Encephalitis and Encephalitis Lethargica. *Wiener kl. Woch.*, No. 7, 1920, p. 144.
23. H. Heiman: Postinfluenzal Encephalitis. *Am. J. of Dis. of Children*, August, 1919, pp. 83-87.
24. L. Langstein: Hemiplegie im frühesten Kindesalter, verein f. innere Medizin u. Kinderheilk, Berlin, Protokoll (Report *Deut. med. Woch.*, Vol. II, XI, 1912).
24a. J. Victor Haberman: Probing the Mind. Normal and Abnormal. Feeling, Association, and the Psychoreflex, MEDICAL RECORD, Dec. 1, 1917.
25. M. Nonne: Zum Kapitel der Epidemisch Auftretenden Bulbärmyelitis und Enzephalitis des Hirnstammes, *Deut. Zeit. f. Neur.*, Bd. lxiv, H. 5-6, p. 185.
26. Herman Schlesinger: Die Jetzt in Wien Herrschende Nervengrippe (Enzephalitis, Polyneuritis und andere Formen) *Wien. kl. Woch.*, No. 17, 1920.
27. R. Bieling u. R. Weichbrodt, Serologische Untersuchungen bei Grippe und Encephalitis epidemica. *Deut. med. Woch.*, October 21, 1920, p. 1183.
28. J. Victor Haberman: Zur Differentialdiagnose der Poliomyelitis anterior acuta. Karger, Berlin, 1908.
29. I. Wickman: Beiträge zur Kenntnis d. Heine-Medinschen Krankheit. Karger, Berlin, 1907.
30. Th. Brorström: Akute Kinderlähmung und Influenza, G. Thieme, Leipzig, 1910.
31. Wilbrand-Saenger: Neurologie des Auges, I and III, Wiesbaden, 1900.
32. G. B. Hassin and M. S. Wien: Case of Acute Veronal Poisoning Simulating Epidemic Encephalitis. *J. A. M. A.*, 1920, p. 671.
33. M. Allen Starr: Organic Nervous Diseases, p. 533.
34. S. Freud: Die Infantile Cerebrallähmung, Wien, 1897.

60 WEST EIGHTY-FIFTH STREET.

THE INTENSIVE TREATMENT OF HAY-FEVER.

BY WILLIAM SCHEPPEGRELL, A.M., M.D.,

NEW ORLEANS.

PRESIDENT AMERICAN HAYFEVER PREVENTION ASSOCIATION; EX-PRESIDENT AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

As the season for the immunizing treatment of fall hayfever is at hand, it is well to consider the principles upon the proper observance of which successful results may be expected.

True hayfever is caused by the anaphylactic reaction from inhaled atmospheric pollens. These pollens vary in different localities, at various seasons, and in their degree of reaction upon susceptible subjects. The result of these variations is that hayfever presents complex conditions, differing from other diseases due to some specific cause.

Some manufacturers of pollen extracts, apparently not taking cognizance of these factors, have attempted to simplify the immunizing methods by preparing mixtures containing the most common pollens. Many of these contain not only pollens responsible for hayfever, but even some that, for various reasons, the patient never has an opportunity to inhale.

The result of this "shot-gun" method is that the

patient usually receives an injection containing a mass of inert protein that leaves the possibility of benefit very doubtful. On the other hand, the patient may have an unusual degree of anaphylaxis to a number of the contained pollens, the result of which is that the injections produce a profound reaction detrimental to the patient. In some of the circulars with these mixed pollen extracts, it is even stated that no diagnostic tests are required, all that is needed is to inject the specified doses!

Any physician with experience in hayfever cases, has observed the great difference in the intensity of the symptoms, and in the reactions to the diagnostic tests. In some cases, the injection into the skin of 5 units will produce a positive but mild and transient reaction, while in others the same number of units will produce a wheal three centimeters in diameter, and surrounded by a wide area of injection, and lasting for many hours.

In the former, with a low degree of anaphylaxis, the doses may be increased with comparative rapidity and safety, and must reach a high number of units in order to be effective.* In the latter, however, the increase must be made cautiously, and the maximum dose carefully determined. In a number of our cases of high intradermal reaction, an injection of 200 units will invariably develop an attack of hayfever, or skin eruption, while in others a dose of 500 units reached by gradual stages, will produce no apparent reaction.

Another point of importance in the successful treatment of hayfever is to remember that all fall hayfever patients east of Kansas are not necessary victims of the Ambrosiaceæ (Ragweed) Group, or even if this is the case, that this is the only cause. In a large area of the North Eastern States, for instance, the Russian thistle, *Salsola pestifer*, is a potential cause of hayfever infestation, that should be carefully considered in the successful treatment of these cases. This is especially important, as these cases do not respond to the diagnostic tests of the Ambrosiaceæ group and are not benefitted by the injections of these pollen extracts.

The successful results obtained by physicians following scientific methods in the diagnosis and treatment of hayfever, has resulted in a great stimulus in the immunizing treatment of this disease. If the "extensive" methods are followed, however, in which no diagnostic tests are made and no cognizance taken of the varying degree of sensitivity and the different kinds of pollen involved, the results will be disappointing to the patient and an apparent reflection on the immunizing method.

The intensive method, however, in which all the factors bearing on each individual case are carefully considered, will not only give satisfactory results to the patient and physician, but will place this method on the scientific basis to which it is entitled.

844 Audubon Building.

* "Hayfever and Asthma, Cause, Prevention and Treatment," Wm. Scheppegrell, Lea & Febiger, Philadelphia, 1921.

Arsenic Retention.—Lannelongue and Colombies relate two cases of men accidentally poisoned with arsenic. Two and a half months later the metal could still be demonstrated in the urine.—*La Presse Médicale.*

METHOD OF PROCEDURE IN TREATMENT OF CASES OF DOUBTFUL INITIAL LESION.

By ARTHUR SAYER, B.S., M.D.,

NEW YORK.

CHIEF OF CLINIC IN DERMATOLOGY AND SYPHILIS, MT. SINAI DISPENSARY.

In the large majority of cases, the physician with experience in syphilis is able to recognize without difficulty cases of chancre which present themselves to his attention. In cases of well-developed initial lesion, he can make a diagnosis on clinical grounds without the aid of the laboratory (dark field examination or Wassermann test). The indurated character of the lesion, the characteristic enlargement of the regional lymph nodes, perhaps the presence of a cutaneous eruption with general adenopathy—all these are criteria upon which the diagnosis of initial lesion may be made with certainty. In such cases the indications for treatment are evident, and the institution of vigorous antiluetic tretatment even before a positive dark field or Wassermann report is obtained, is certainly indicated. We are sure of the specific nature of the disease on our clinical grounds, and the laboratory can give us only confirmatory proof. The Wassermann test is made not so much for diagnosis as for prognosis, and as a matter of record in such frank cases.

Occasionally, however, a person may present himself with a penile lesion which is not at all characteristic. Perhaps it is a chancre of only one or two days' duration which has not yet assumed its characteristic induration, and adenopathy is not yet present. Or, as often occurs, the lesion is not luetic and is merely under suspicion on account of its location or on account of a history of exposure to infection. Lesions of herpes progenitalis, chancroid, and even scabies will occasionally cause anxiety on the part of the patient and doubt in the mind of the physician as to the true nature of the lesion. We must, of course, regard all penile lesions with extreme suspicion of being luetic until it is definitely proven otherwise, since we frequently see doubtful lesions which are subsequently proven to be chancres.

Of course in all doubtful cases we have positive criteria for diagnosis at our command—the dark field examination of the lesion and the Wassermann test of the blood. We recognize the limitation of the Wassermann test, however, as an aid to early diagnosis, since it is still negative in the majority of cases of early chancre. Nevertheless, the test should repeatedly be performed in all doubtful cases, as it may in some cases be positive while other tests are still negative. The dark field examination is the only aid we possess for the *earliest* detection of the chancre, since the finding of the spirochete is absolute proof of the nature of the infection. The dark field examination should be made repeatedly on all cases which are in the least doubtful clinically. A negative dark field is not conclusive proof of the nonluetic character of the lesion; it means that more examinations should be made until the findings are either positive or the nonluetic character of the lesion otherwise proven. Often the patient will present him-

self with a penile lesion which has been treated locally with antiseptic (calomel or bichloride); such lesions will usually give negative dark field findings on account of the spiricidal influence of the local treatment. We should, therefore, strongly advise against the use of local treatment other than saline solution in all cases which are to be examined by the dark field. If the lesion is luetic the dark field will prove it in the vast majority of cases, although several examinations may be necessary before the spirochetes are finally found.

In such doubtful cases where the dark field examination is negative on one or two occasions, the physician is often placed in a peculiar mental attitude as to his responsibility to the patient. He knows that the lesion may be luetic in spite of the negative findings to date. He knows that the sooner vigorous antispecific treatment is instituted in a chancre the better are the pattient's chances for being cured of his syphilis. He also realizes that by waiting until the dark field or the Wassermann is positive he is losing time, and that meanwhile the spirochetes are multiplying in the lesion and continually invading the lymphatics and blood stream. He may also argue that little harm will be done to the patient by giving him several injections of salvarsan and mercury, to subject the lesion to the therapeutic test, and if it responds favorably to the treatment, then to assume that the lesion was luetic and treat the case accordingly. Also the physician may say that should the lesion not respond to the treatment and later prove nonleutic, then the patient is none the worse for his experience.

The writer believes that such a procedure is not proper, for he has seen several cases of doubtful type of penile lesion in the past few years which have been subsequently proven to be nonluetic. It has been strongly impressed on my mind that the conservative course is the proper one to follow—to withhoold all treatment until a positive diagnosis has been made. It is unfair to stigmatize a person with the taint of syphilis until we have acquired absolute proof as to the undoubted nature of the infection. It is far better for the patient's future welfare and happiness to determine definitely the nature of the penile lesion by repeated examinations than hastily to institute antiluetic treatment in a desire to arrest the course of a doubtful syphilitic infection. Should the lesion heal while under the antispecific treatment, that is not absolute proof of the luetic nature of the lesion, since non-specific lesions will often heal spontaneously and irrespective of the treatment instituted.

It has been proven that the lymphatics are invaded in the earliest stages of the chancre and the disease is already systemic by the time the initial lesion has developed. It is therefore manifestly impossible to abort the course of the disease by instituting vigorous treatment when a primary lesion is already noticed. The physician can well set aside his fears and make sure of his diagnosis before instituting any sort of treatment. It will make no difference as to the course of the disease nor alter the prognosis in any way to wait a few days longer, during which time the diagnosis can be determined.

We are not absolutely sure that we can cure syphilis with salvarsan and mercury, although we are certain of the extreme potency of these drugs in this disease. Our criterion for the cure of syphilis is a persistently negative Wassermann (both blood and spinal fluid). Yet a repeatedly negative Wassermann is not absolute proof that the disease has become eradicated from the system and that the last surviving spirochete in the tissues has been killed. We must keep our patient under observation for the rest of his life, taking periodic Wassermanns to make sure that he remains serologically negative. Occasionally a person who has been treated in an approved manner will be serologically negative for several years, and suddenly give a positive serological report, which indicates that the disease is still present in the system and requires further treatment.

Did he have a syphilitic infection which was arrested while still in its early stage, and which is remaining dormant in the body? In other words, is he cured of his syphilis? Shall he continue taking periodic antiluetic treatment in order to keep the syphilitic infection under control? These are the questions which the intelligent patient will continually ask, and which the physician will be unable to answer definitely. We will, therefore, condemn needlessly a patient to a state of anxiety and doubt, merely because of an unwarranted haste in instituting treatment for which we had no positive indications.

It is, therefore, for the best interest of the patient, in all cases of doubtful initial lesion, to be sure of the diagnosis before commencing treatment. The doctor need have no hesitancy in delaying antispecific treatment, for the prognosis will be the same if the case is treated properly subsequently. By delaying treatment in doubtful cases until the dark field is positive or the Wassermann is positive, some errors will be avoided and a lesion will often be proven to be other than a chancre. The dark field examination will be positive in all cases of chancre which are not treated locally with antiseptics, and three to five examinations will no doubt find the spirochete even in the most troublesome of cases. An effort should be made to find the bacillus of Ducrey, either by direct smear or culture in these cases, for the chancroid may in some cases simulate the chancre very closely. In herpes progenitalis there are usually one or more vesicles which disappear in a few days; the bases of the vesicles are not indurated and there is no glandular involvement present. Strange as it may seem, occasionally a case of scabies may fool an experienced observer. The penile lesion may be the only one noticed, and the patient give a history of exposure to venereal infection. Further observation of the case, however, will reveal the presence of other scabetic lesions (in the webs of the fingers, axillæ, around the umbilicus) and the person later complains of itching.

The following history illustrates this point.

Case 4469.—H. K., 23 years of age, presented himself on February 6, 1921, at the Mt. Sinai Dispensary, with a penile lesion near the meatus. The lesion was about ½ cm. in diameter, and was not indurated in any degree. The patient gave a history of having had intercourse with a prostitute six weeks ago while on a visit to France. In view of the history of the exposure,

a tentative diagnosis of either chancre or herpes was made. Dark field examination was not done, as unfortunately we have no dark field apparatus at our disposal in the clinic. The Wassermann was reported negative. The patient returned two days later for observation and no difference was seen in the lesion. Another Wassermann was made and was still negative. On Feb. 11 the Wassermann was repeated, wtih the same result as before. At that time the right lip of the urethral meatus appeared to be indurated and the lesion began to look somewhat like a chancre. However, the inguinal adenopathy was not characteristic. On February 14 the patient presented himself again. On careful examination two burrows were seen in the webs of his fingers. No other lesions of scabies were present. The patient admitted that he had a slight itch at night. A salve containing 10 per cent. sulphur and 10 per cent. balsam of Peru cleared up the penile lesion in two days, and the rest of the scabies also disappeared under the treatment. Since then two Wassermanns have been negative (the last one on March 4, 1921).

957 SIMPSON STREET.

ON COLLABORATIVE DIAGNOSIS.

BY JACOB GUTMAN, M.D., Phar.D., F.A.C.P.,

BROOKLYN, N. Y.

DIRECTOR, BROOKLYN DIAGNOSTIC INSTITUTE.

LIKE the metamorphosis of the butterfly, which consists in a periodic casting off of certain parts in order that the succeeding ones may obtain their highest state of evolution, the art of healing, as at present practised, is the perfected outcome of the wisdom of the ages developed by special talent. Each succeeding discovery has revolutionized some hitherto accepted principle in medicine. The elaboration of synthetic chemistry and analytical laboratory methods, the perfection of *x*-ray diagnosis and of serologic, bacteriologic and other delicate tests, have made it necessary to discard many principles heretofore regarded as basic, or to modify them to such a degree that their identity is completely lost.

As the scope of the medical art increased it became necessary to divide it into specialties. Specialization is a step forward along the road to perfection, for it stimulates research and encourages advancement in every branch of medical science. The next step leading toward even greater individual perfection was the limitation of activity to only one section of the special field. Today it is by no means inevitable that a tissue morphologist should likewise be an expert bacteriologist, nor a biochemist be capable of exactly interpreting any problem in pathology or bacteriology. Formerly the pathologist attempted to perform all these functions of diagnosis, but today specialization is a recognized factor and is everywhere demanded. The specialist has rendered invaluable service, deserving even greater recognition than he has already received. The hospital, the clinic, the family practitioner, come to him for aid, even the layman and the corporation are seeking his services.

Correct diagnosis, even under the best conditions, is difficult to attain; though all the facilities may be at hand, there are times when even the most experienced may go astray. This is admitted by the most renowned clinicians. Every physician should be capable of handling the average pathological problem; but when simple manifestations assume a chronic form, refusing to be easily eliminated, it is time to realize that the situation has ceased to be an ordinary one, and that more obscure causative factors are responsible for the patient's condition. But until these underlying causes are revealed and removed, no progress can be made toward relieving the symptoms and facilitating recovery. It is then that special talent and expert diagnostic ability are needed.

The secret of successful therapy lies in early diagnosis. There is a time when cancer may be operated upon, but there is also a time when it is too late for operation. The successful treatment of incipient tuberculosis, of obscure infections or visceral disturbances depends entirely upon the *early* recognition of the existing condition. The surgeon has an advantage over the internist, for he can make an incision, inspect and palpate the organs thus exposed, and by this means establish a diagnosis; yet exploratory operation is only justified in the most baffling and obscure cases, when every other means of research has proved of no avail.

The determination of a patient's true condition can best be established when studied jointly by several capable specialists. But usually this method of diagnosis is practical only in a well-equipped hospital or special diagnostic institution. Medical science is today a vast subject, too great for any one man to master. It is impossible for any one person to make use of all the apparatus of its manifold specialties, even in the most superficial fashion. In former times, when the field of medicine was very narrow, anyone of sound intelligence could practise it efficiently, but today, with the advent of epoch making discoveries and the stupendous progress which science has made in recent years, the practice of medicine has become a very difficult task. To claim a knowledge of every branch of the healing art, is to put in jeopardy the welfare of all who trust in the skill and wisdom of him who makes the profession; the fallacy of such a pretension will soon be made evident, and the man who makes it quickly exposed and discarded.

Judging by the progress it has made in its short period of existence, and the good it has already accomplished, the future of group diagnosis appears to be very bright. The fact that the foremost medical centers have hastened to avail themselves of this practise speaks eloquently for it. The highest function of medical science is to restore health to the suffering. The most efficient means enabling one to do this quickly and completely is a precise knowledge of what is going on in the deranged organism, that is, correct diagnosis. This is the ultimate goal for the physician, inasmuch as therapy wholly depends upon it and cannot be successfully applied without it. The attainment of this goal is the function of the diagnostic institution.

The subject of group practice has recently been much discussed. Extensive consideration has been given to its advantages and drawbacks, its prospects and methods of organization, its ultimate effect upon the present system of medical practice. Thus is displayed the present very great interest in this exceedingly material question. In an article entitled "Group Diagnosis," published in the MEDICAL RECORD May 15, 1920, the author has already fully expressed his theoretical views on this subject, and he has given practical support to his contentions by

the organization of a diagnostic institution. Progressive physicians, alive to the possibilities of group diagnosis, have already expressed the approbation by availing themselves of its services. The medical man, on the alert to render to those dependent upon his skill and judgment the very highest quality of service, utilizes this aid to diagnosis whenever it comes within his reach, or gladly lends a helping hand in its organization wherever no diagnostic institution is in existence. Such organizations were inevitable. The inefficiency of the present system of individual diagnosis constantly becomes more conspicuous when compared with the quality of the work done in clinics where group diagnosis is practiced. That there is a great movement on hand in the direction of organization of institutions of this character may be concluded from the many inquiries received by the author. May good fortune attend every effort in the promotion or advancement of correct diagnosis!

867 St Mark's Avenue.

TWO CASES OF ADVANCED SUPPURATIVE DISEASE OF LATERAL SINUS AND JUGULAR VEIN.*

By CHARLES E. PERKINS, M.D.,

NEW YORK.

SURGEON NEW YORK EYE AND EAR INFIRMARY, ETC.

Case I.—This case came under my care in Base Hospital No. 116 in France early in January, 1919. The patient, a man of about twenty-six, had had suppurative otitis media on the right side for about two weeks. The canal was filled with creamy pus, the mastoid tender, the temperature over 102°, and he looked sick. I asked for medical consultation. The examiner pronounced it pneumonia and removed the patient from my service to the medical side. At the request of the medical attendant, I saw the patient at two or three day intervals during the next ten days. The temperature fluctuated between 99° and 103° to 104°, and to relieve my anxiety at this symptom I was assured that this temperature curve was characteristic of the pneumonia prevalent in the army at that time. Cultures of the blood were negative. The patient developed a tender swelling in the neck on the right side, which increased in size and became red. The aural condition improved, and the mastoid tenderness became less and finally absent; but his general condition grew progressively worse. In fact, to my suggestion that an *x*-ray be taken, it was declared that he was too weak to be moved to the *x*-ray room. However, when his temperature made a sudden rise to 107° I was given a free hand to go ahead.

The jugular vein was resected. It was very much thickened and the upper end was broken open, communicating with an abscess in the neck. At the lower end it was cut between two ligatures just above the clavicle. At this point the vein contained a clot. The mastoid was but slightly diseased except for a perisinus abscess. The lateral sinus was incised and bleeding obtained from the torcular end, but not from below.

The patient made a stormy convalescence. Pain, swelling, and stiffness developed in both shoulders, and he remained very sick for three weeks, but finally recovered. The operation wounds healed in about one month. Two months after operation, while he was strong and well, the movement in both shoulder joints was very much impaired.

Case II.—The second case was that of a girl six and a half years old, who came under my care January 30, 1921. Six weeks previously she had acute otitis media on the left side. This lasted for two weeks without apparent complications, when the discharge ceased. She then developed characteristic attacks—chill, followed by rise of temperature to 104°-105°. These continued daily, or twice a day, for four weeks. On one occasion only was there a free interval of one day. A vigorous search was made for the cause of the infection—kidneys examined, chest *x*-rayed, malaria sought for, etc. Blood culture finally showed the presence of *Streptococcus hemolyticus*. There was a division of opinion among the attendants in regard to the treatment, the majority, I think, favoring jugular resection.

At my first examination the ear was dry, with lustre returning to the tympanic membrane. The hearing was good. There was no mastoid tenderness or thickening in the neck. The blood culture was negative, spinal fluid, negative. The *x*-ray plates of the two sides taken by Dr. Dixon showed changes on the left side which were interpreted as produced by diseased mastoid, so operation was determined upon.

The mastoid was broken down in the sinus region and the cavity was filled with granulation tissue; no free pus. The removal of the granulations brought the sinus into view. It appeared red and thickened. It was freely exposed, blocked off, and incised. It contained no clot or pus but was collapsed. Bleeding was obtained from the torcular end. A grooved director passed into the jugular bulb brought a free flow of pus. No attempt was made to open the mastoid antrum or tympanic vault, as resolution had occurred in this region. The lower part of the jugular from the omohyoid upward for about half an inch contained blood coming from an anterior branch; above this it was thickened and contained pus. Upon passing the grooved director upward through the vein to the bulb a large quantity, comparatively speaking, of pus escaped. This contained an abundance of long-chained streptococci.

The patient had two rises of temperature to above 104° after operation, and then a more or less irregular temperature. From the fourth week on it was normal. In the beginning of the third week the right shoulder joint became tender and somewhat swollen. This lasted for about a week and then cleared up, leaving the function apparently normal. The neck wound healed in three weeks, the mastoid wound in six weeks. The ear remained dry throughout the convalescence.

These cases are exceptional in that a late operation was done. In the first, a swelling in the neck with breaking down of the jugular had occurred in less than fourteen days; while in the second, after four weeks the pus resulting from the breaking down of the clot was still contained in the vein.

When the first case was related to Colonel McKernon he stated that the late Doctor Gruening had claimed that he had never seen a patient recover when in resecting the jugular vein it was found impossible to tie below the clot. In my patient the vein at the clavicle was as large as one's little finger, with thick walls and a distinct clot was left extending toward the heart.

Another point is that in the second case no attempt was made to open into the middle ear. In the right type of case I have adopted this variation and have had no cause to regret it. In some patients the infection passes through the middle ear, which then becomes walled off, the breaking down of bone occurring in the mastoid, while resolution takes place in the middle ear spaces. In such instances, after removing the disease in the mastoid, it is worse than useless to open up the middle ear and thereby aid in its reinfection. By desisting from this, certainly hearing should be conserved and convalescence shortened.

616 Madison Avenue.

*Read before the New York Otological Society, March 22, 1921.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, July 30, 1921.

THE PATHOLOGY OF MALIGNANT TUMORS OF THE HEART.

OF primary malignant tumors of the heart myxomata have a predilection for the left heart, especially the left auricle, where the growth is implanted usually at the posterior portion, at times near the left wall, at other times above the line of insertion of the anterior lip of the mitral valve. Sometimes the growth becomes engaged in the mitral orifice, producing dilatation of the auricle. Myxomatous neoplasms will be either somewhat round products or else are pedunculated. The pedicle is rather long, single or multiple. The growth may be single or composed of cotyledons which give it the look of a bunch of grapes. In size these neoplasms vary from that of a cherry-stone to a pigeon's egg, pale red in color, while occasionally ecchymotic points may be seen. Their consistency is like jelly, the surface smooth and shiny, but often covered with an adherent thrombus. Histologically, these primary neoplasms are composed of round or fusiform cells comprised in a semi-liquid transparent mass. Numerous elastic fibers may sometimes be met with. Sarcomatous growths may involve the entire heart or develop in a ventricle or auricle or in both at the same time. They are subpericardial, intramyocardial, or endomyocardial. There are several histological types, namely, lymphosarcoma, roundcell or fasciculated sarcoma, and also fibrosarcoma.

Secondary malignant cardiac growths are seated in either the ventricle or the auricle. They may involve both auricles or both ventricles at the same time, or the right or left heart may be the seat of the neoplasm, but it has a predilection for the right side. The neoplasm may infiltrate the entire myocardium in some cases. These growths are present in the form of nuclei projecting under the pericardium or endocardium or they may be interstitial. In other cases the cancerous mass surrounds the heart, pericardium, and vessels at the base of the organ, or the growth may form a tree tumor, rarely ulcerated, projecting into the cavities of the heart. Usually the valves are intact.

Secondary malignant cardiac growths may be divided into two types, namely, epithelial and sarcomatous, and since these secondary neoplasms may be derived from any part of the body if therefore results that all anatomical forms may be met with. The epitheliomata are composed of cylindrical or pavement cells with a connective tissue stroma, forming meshes filled with epithelial elements. A large number of leucocytes will be found at the periphery of the tumor and if suppuration occurs they will be present among the epithelial cells. The sarcomata are round-cell, fusiform cell, or polymorphous. Their substance contains numerous vessels, many being partially thrombosed. Lymphosarcoma, melanic sarcoma, and sarcoma with myeloplaxes are also met with. Lymphadenic growths, without hemorrhagic foci, sometimes develop in the heart, and are thus differentiated from all types of carcinomata. The portions of the heart involved appear to be infiltrated with an enormous quantity of round cells with a large nucleus almost filling them. These cells form cords around the normal vessels of the region.

A cancerous heart is larger than normal, especially in the parts involved, but when the interstitial cancer nodules are very small inspection shows nothing abnormal about the organ. The heart may, however, present well developed vascular arborizations. The muscular fibers are whitish-yellow and on sections the wall involved by the growth is seen studded with whitish-yellow islands. At some spots granulations may be seen on the pericardium, which are nothing but the cancerous prolongations reaching the surface of the organ. In most cases the pericardium contains a transparent or hemorrhagic fluid collection.

When the pathological tissue dips down into the myocardium and reaches the internal surface of the heart underneath the endocardium, it looks like small white specks. The process spreads out in the thickness of the walls over quite an extensive area. If the growth projects into one of the valvular orifices, dilatation of the auricle ensues and usually of the ventricle as well. Microscopically the muscle cells are piled together and pushed aside but are not destroyed by the neoplasm. Occasionally the cardiac muscle cells are necrosed and undergo disintegration, forming small oval masses with distinct outlines. These masses, composed of a granular or amorphous substance staining with eosin, may also form long tracts which interlace among themselves, outlining a network of narrow meshes filled with sarcomatous cells.

FUNCTIONS OF THE PINEAL GLAND.

ZANDRÉN contributes a short but monographic study of this subject to the *Acta Medica Scandinavica*, liv, 4, with a bibliography of thirty classical references. The subject goes back to Galen who criticised adversely the views of the day and substituted his own, which persisted up to the time of Descartes who regarded the gland as the seat of consciousness and personality. No rival opinion to this was hazarded until the time of Faivre who

made the first thorough histological study and thereby inaugurated a series of similar studies, so that the anatomy of the organ was mastered. The first physiological study which led to the belief that the organ regulated the pressure of the cerebrospinal fluid was supplanted by that of Marburg and von Frankl-Hochwart which is that it is a gland of internal secretion. Animal experiment has not contributed to our knowledge. The results of pineal feeding are negative in part, although persistent injection of gland substance in the immature animal has seemed to hasten the development of puberty. Extirpation of the gland is technically difficult and no trustworthy results have been obtained from this resource. In some cases results have actually been the same as those of gland feeding. This constitutes a *reductio ad absurdum* and we have to resort to the study of pineal tumors of which about 70 are now on record. In sexually mature men the results are limited to intracranial pressure symptoms, but in young boys there is at times induced in addition the condition known as macrogenitosomia precox. Sexual development, both primary and secondary, is hastened; the external genitals are large, and there is an abundant growth of pubic and axillary hair, with deepening of the voice, etc. Precocity, mental and somatic, is sometimes present. Data for the female sex are lacking, for apparently there has never been any autopsy confirmation of the diagnosis. The significance of these tumor cases has been slightly weakened by the possibility of lesions of other endocrine glands.

The syndrome of pineal tumor does not cover that of precocious puberty in which the gland may be normal. Opinion is divided as to whether the pineal cells stimulate or inhibit puberty. If the neoplastic process destroys the cells the withdrawal of their influence would cause some other structure to stimulate puberty unchecked. If as a result of the neoplastic process there is an increase in the pineal cells, or if the latter are unduly stimulated, then the pineal body must be visualized as the normal stimulus to puberty. The weight of opinion is decidedly in favor of the inhibitory theory. The author reports what he believes to be a unique case of pineal infantilism in which there was total defect of the gland. The boy was normal up to the prepuberal years, when he not only ceased to grow but became an invalid. At the age of nearly 17 he presented the picture of a boy of 12. His chief symptom was marked anemia, which was doubtless responsible for the other symptoms. Death was thought to have been due to perforation of a gastric ulcer, but nothing of this sort was found at autopsy. Of great importance was the find of a normal thyroid. The tests corresponded histologically to those a year-old baby. The author's case seems to antagonize the inhibition theory. In the absence of a pineal body the testes should have developed early. The statement that the pineal gland regresses at puberty is denied by Krabbe.

All recent writers on this subject ignore the presence of the brain sand in the pineal body; yet there must be some significance in the fact that its presence and abundance seem to bear some relation to the mentality of the individual, there being but little or none in infants and idiots. It might be worth while for those who are collecting data as to the weight, the number of convolutions, etc., of the brains of men of intellect to weigh the acervulus in order to determine the relationship, if any, between its amount and the degree of intellectuality. We may some day be able to manufacture geniuses by feeding the young with triturations of pineal sand.

CAPILLAROSCOPY.

By this term one understands the study of the capillary circulation. It may thus be said to go back originally to Malpighi, who studied the capillary circulation in the web of the frog's foot at a remote period. Lombard of the United States studied the skin capillaries after first making that structure more translucent with oil or glycerin. This physiologist even devised an ingenious apparatus to measure the blood pressure in the capillaries. Some years later (1916) Müller and his pupils in Tübingen devoted much time to erecting a system of capillaroscopy in its application to normal and pathological physiology. Policard in France took up this study which he termed microangioscopy and articles appeared in Great Britain and Italy as well.

In a review of the subject in *La Presse Médicale*, xxix., 11, Weiss, after a summary of the pioneer work of Lombard, discusses at some length the effect of this study upon our knowledge of physiology. Apparently the respiratory movements play a considerable role in advancing the blood through the capillaries. The view is of course by no means new but capillaroscopy goes far to uphold it. The evidence cannot be brought out in normal conditions, but in asystolia the part played by respiration is plainly manifest. The part played by compressing the arm is dealt with at length but conditions here are artificial. It is, however, at the foundation of many induced phenomena which can be studied in the capillaries.

In regard to pathological states those first studied were dermatological and data have been isolated concerning the peculiarities of the capillary circulation in scabies, scleroderma, the exanthemata, etc. There have been some striking finds, such as the ability to recognize the participation of the kidney in scarlatina from the appearance of the skin capillaries. The close correspondence between the minute vessels of the two organs for the first time suggests that scarlatina is to be regarded as an affection of the blood-vascular system.

Next come the data isolated for diseases of the heart and large vessels and especially affections of the extremities such as Raynaud's disease; chronic alcoholism; saccharine diabetes; acute nephritis, other than scarlatinous; chronic interstitial nephritis, etc. The enthusiasm on the part of students of the new art is very great and doubtless

much will be over-emphasized. It does not appear that any diagnoses have been made by this resource unaided, despite the fact that the capillary behavior of many affections may be individualized. Neumann, the latest and most enthusiastic worker to publish his finds, lays stress on the value of the new resource because it enables us to study the pathology of the capillaries themselves.

Post Influenzal Psychoses.

An attack of grippe probably gives rise to more psychoses than any other disease. After influenza the mind is frequently affected to a greater or less extent and psychopathic manifestations of various kinds and degrees of severity are very common. Dr. E. Gay of the University of Toulouse in a thesis referred to by the Paris correspondent of the *Medical Press and Circular*, June 15, 1921, has described the psychoses which had been observed after an attack of grippe: (1) Asthenia has been the most frequent and characteristic symptom during the convalescence of influenza. It was accompanied by very marked moral, intellectual, and physical depression. (2) Delirium was also very frequent in the form of acute delirium with excitation and hallucinatory syndromes. (3) Mental confusion. (4) Melancholia with tendency to suicide. (5) Delusion of persecution, the patient taking the neighboring patients in the wards for spies or complaining that the physician has not been treating him properly. After recovery the patient remembers nothing of these delusions. (6) Obsessions and impulsions. (7) Hysteria. It will be thus perceived that Dr. Gay has observed all varieties of psychoses, the most frequent, however, seeming to be hallucinatory delirium with excitation in general. The prognosis is good and depends much more on the mental constitution of the patient than on the intensity of the influenzal infection, for if there can be no doubt that the influenzal virus may determine the appearance of a psychosis, in the great majority of cases the latter is favored by a neuropathic or psychopathic predisposition. It appears a reasonable supposition that psychoses follow influenza only when the patient has a tendency in this direction. The individual absolutely mentally well-balanced is not likely to develop a psychosis after an attack of influenza and the frequency of this development may, perhaps, be rightly regarded as evidence of the large number of persons who are not perfectly balanced mentally. Of course, the further the mental balance deviates from the normal, the more seriously will the patient in this condition suffer from psychosis. Influenza possesses the sinister faculty of finding out the weak points in a person's armor of health be they mental or physical.

An Editorial Experiment.

The initial number of *The International Journal of Gastro-Enterology* appeared the first of this month under the editorial management of Dr. A. L. Soresi of this city. It contains thirteen articles, classified under the heads of Original Communications, Experimental Medicine, Reports of Interesting Cases, Preliminary Notes, and Monthly Review. One of the articles is in Italian, one in French, and the others in English. They are all valuable contributions of variable degrees of interest, some practical, some purely scientific. The editor has certain definite ideas as to the management of his journal which he may succeed in putting into execution. One of these is the publishing of commentaries or criticisms on the original articles, these being written by men to whom the editor has sent the article in manuscript or proof with the author's name withheld. The author, if he objects to any of the commentaries, will have the privilege of replying in subsequent issues. Another innovation is the division of papers into original communications and preliminary notes. Under the first head will appear papers containing "fully developed ideas original with the authors." When the editor is of the opinion that "the communications do not develop fully the ideas expressed by the authors," the papers will be relegated to the department of preliminary notes. Already the editor has had trouble with his contributors through his insistence on these two points, but he is undaunted thereby and expresses his determination to edit his journal along these lines. It will be interesting to see what success he has. But in the meantime he has published one very commendable issue, and if the subsequent numbers carry out the promise of the first his journal will deserve the success which it will no doubt then attain.

News of the Week.

Cholera Rages in Moscow.—The Moscow *Izvestia* reports the registration up to July 13 of 27,779 cases of cholera, as compared with 13,476 registered up to July 6. Among passengers on railway trains 5,412 cases have been discovered. Small numbers of cases have been found all the way from Petrograd to Astrakhan, from Vitebsk to Petropavlovsk, near the Omsk, and along the principal lines of railway and water communication. The health officials of Letvia, Esthonia, Lithuania, and Poland have been invited by the Letvian Premier to a conference at Riga to discuss the advisability of a frontier quarantine.

Maternity Bill Passes Senate.—The Sheppard-Towner bill, providing for cooperation between the Federal Government and the States in "the protection of maternity and infancy," was passed by the Senate by a vote of 63 to 7 and sent to the House on July 22. An effort to have the administration of the service provided for by the bill transferred to the Public Health Service failed. The bill carries initial appropriations of $1,480,000, which, if the bill becomes law, the States will be required to match if they wish to suffer from it.

A Survey of Mental Disease.—A survey of mental disease in the United States shows that on January 1, 1920, there were 232,680 persons with mental disease in institutions in the United States. Of these 40,515 were mental defectives, 14,937 epileptics, 1,163 alcoholics, and 808 drug addicts. In the hospitals of New York State there are 38,903 patients, of whom 5,762 are mental defectives, 1,683 epileptics, 67 alcoholics, and 156 drug addicts. These figures are interpreted as meaning

that out of each 100,000 population in New York State 374.6 are afflicted with mental disease and 55.5 are mental defectives. The most recent survey of Sing Sing prison shows that more than 50 per cent. of the inmates are not normal mentally, and that of 166 women brought into the courts 61 were mentally only children. The report also shows that, while the population of the United States had increased 14.9 per cent. during the decade from 1910 to 1920, the number of patients in institutions for the mentally ill has increased 23.9 per cent. To discuss this report, which was made by Dr. Augusta Scott, a meeting of judges, physicians, and welfare workers met recently at the residence of Mrs. E. H. Harriman. After going over the problem it was the consensus of opinion that court methods should be changed. Dr. Walter B. James contended that mental examinations were indispensable in the proper handling of criminal cases, and Chief Justice Kernochan advocated a central bureau supported by the city with experts in charge for the examination before trial of all persons charged with crime.

Intensive Study of Rickets Planned.—The *Weekly Bulletin* of the New York Department of Health announces that for the purpose of formulating a program for a study of rickets to be conducted by the Bureau of Child Hygiene of the Department of Health and the Association for Improving the Condition of the Poor, a special committee met in the office of the Director of the Bureau of Child Hygiene to discuss the details of the plan. The proposed observations will be carried out in the Mulberry Health Center, located in the Italian district, Broadway, the Bowery, Canal, and Houston streets. The aims and purposes of the study are, first, to ascertain the prevalence of rickets among children born of Italian parentage, in those nursed exclusively and in those fed artificially; second, to prevent rickets by various measures, such as the use of cod liver oil, sunlight and fresh air, diet, hygiene, etc.; third, by the use of cod liver oil to cure the condition after it has appeared. The committee is composed of the following: Prof. H. C. Sherman, Prof. Mary S. Rose, Prof. Graham Lusk, Dr. Alfred F. Hess, Dr. Charles Hendee Smith, Dr. Louis Schroeder, Dr. J. M. Blumenthal, Mr. Bailey B. Burritt, Mr. John Gebhart, and Dr. Jacob Sobel.

Malnutrition in School Children Shows Decrease.—In a recent review of the results attained through school medical inspection, the New York City Department of Health shows that the striking increase in malnutrition among children of school age, which began to manifest itself in 1914 and reached its apex in 1917, has since then shown a slight but regular decline. During the year 1919, with the cooperation of the Department of Education, the Bureau of Child Hygiene made 51 special surveys of public schools where it was felt that conditions were below the average standard. It was found that the number of malnourished children in these schools ranged from 13 per cent. to 61.4 per cent. In 1920 the Bureau made surveys on 63 schools, where the number of cases of undernourishment was found to range from 8.9 to 36.3 per cent. The schools covered in the two years were practically the same, showing that the work which had followed the surveys had proved effective in markedly lowering the rate of malnutrition in these schools. The Bureau of Child Hygiene feels that the solution of this problem of the undernourished child cannot be brought about by the provision of any facilities, however adequate, for dealing with children who are already undernourished. The program must be based upon preventive lines similar to those that have been effective in baby-saving work.

Hartley Foundation Incorporated.—The Hartley Foundation, consisting of several million dollars given by Mrs. Helen Hartley Jenkins, in memory of her father, has recently been granted a special charter by the Connecticut Legislature. The foundation will give special attention to public health, mental hygiene, and probation work. At a meeting held in Hartford, Conn., July 20, the following officers were chosen: *President*, Mrs. Helen Hartley Jenkins; *Secretary and Treasurer*, Robbins B. Stoeckel; *Executive Committee*, Governor Everett L. Lake, Miss Helen Hartley Jenkins, daughter of Mrs. Jenkins; Dr. Samuel A. Brown, New York, and Marcellus Hartley Dodge of Bridgeport. Among the incorporators are Dr. Thomas W. Salmon, Dr. Herman M. Biggs, Charles M. Schwab, and James Earl Russell of New York.

The New York Association for Medical Education announces through its secretary, Dr. Otto V. Huffman, that the Carnegie Foundation has offered to make a donation of $12,000 to the association on condition that the medical profession shall raise $3,000. When this fund is in hand the association will be in a position to resume its activities which have been somewhat curtailed because of lack of funds. While the association thoroughly appreciates the gift, there is a feeling among certain members of the profession that inasmuch as they are contributing the work necessary to carry out the plans for widening the scope of medical educational facilities in New York from which the public will ultimately derive the benefit, funds should be forthcoming from sources other than the medical profession.

A Correction.—In the issue of July 9 the author of the article entitled "A Case of Epidemic Meningitis Treated by Combined Serum and Vaccine Therapy," page 67, is given as Dr. Charles E. Nammack. This is an error. The author of the article in question is Dr. Charles H. Nammack.

The Far Eastern Association of Tropical Medicine, which held its third session at Saigon, in 1913, planned at that time to hold its next meeting under the auspices of Dutch medical authorities at Batavia, in 1915. Circumstances brought about by the war necessitated the postponement of the meeting. The committee responsible for the next meeting believes that conditions are now sufficiently stabilized to warrant an attempt to revive the association, and plans have been made for holding the fourth congress in Batavia in August of this year.

Franco-Polish Medical Congress.—This congress will be held next September, jointly at Posen and Warsaw. A two-day session at the former city is to be followed by a five-day session at the metropolis.

Death of Waldeyer.—The decease of this famous

anatomist, which occurred last February, seems to have passed unnoted in most of the medical journals. He is best known to-day through his great work on the topographical anatomy of the pelvis, and through the expression "Waldeyer's ring," to denote the four tonsils and other lymphoid tissue of the throat. Originally of the Strasbourg faculty, he was called to Berlin, where he remained throughout the rest of his career.

Food Poisoning in the Government Hotels.—A number of women living in the Government Hotels on the Senate and Union Station plazas in Washington were made seriously ill recently, apparently by food poisoning. The two suspected articles, a crab-meat salad and icecream, are being analyzed by the District Health Department in the endeavor to discover the offending substance.

Yellow Fever in Peru.—According to statements published in Lima, Peru, attributed to Dr. Henry Hanson, who is in charge of the sanitation campaign directed against yellow fever by the Peruvian Government and the Rockefeller Foundation, nearly 1,000 deaths from yellow fever have occurred during the past nine months in the departments of Lambayeque and La Libertad. The Rockefeller Foundation contributed $20,000 to fight the epidemic, which is now reported to be decreasing as a result of the campaign. Owing to the work of Doctor Hanson's staff, composed of three supervising inspectors, five Peruvian physicians and 100 inspectors, it is believed that the infected districts will be entirely free from the fever by the end of the year.

Red Cross Work in China.—Advices from the National Headquarters of the Red Cross in Peking state that the work of the American Red Cross has reached such proportions that 611,000 people have been saved from starvation. The relief in many instances took the form of furnishing employment to the heads of needy families in the construction of new roads, payment being made in food. More than 74,000 men were thus employed. Conditions in China have rendered evident the necessity for the continuation of the instruction of Chinese children in simple health laws. To meet this need and to support a Chinese visiting nurse, the National Children's Fund of the Junior Red Cross has made a donation of $5,000.

Inspection Shows Ex-Soldiers Well Cared for by State.—In response to a demand for an investigation of the Manhattan State Hospital for the Insane, where it was alleged that many ex-soldiers were not receiving proper care, Governor Miller and other members of the State Board of Estimate and Control have inspected the institution. They report that they were much gratified to find that the ex-service men were extremely well cared for and that the criticisms are absolutely groundless. Governor Miller states that on the whole he has found good conditions in all the institutions which he has visited.

Dr. Lucius A. Salisbury, division surgeon for the Twenty-seventh Division, National Guard of New York, has been made colonel of the new 102d Medical Regiment. He will have control of all the medical activities of the entire State Guard.

People's Hospital Acquires Realty.—A short time ago the People's Hospital purchased the property at 222 and 224 East Fifteenth Street, New York, and recently it has acquired title to 230 East Fifteenth Street. It is understood that several other parcels will be acquired by the hospital as a site for a modern and completely equipped hospital building.

Obituary Notes.—Dr. GEORGE KNOWLES SWINBURNE of New York City died suddenly of heart disease in Rye, N. Y., on July 23, at the age of sixty-three years. He was graduated from the College of Physicians and Surgeons, New York, in 1885. He was a member of the American Medical Association, the American Association of Genitourinary Surgeons, the American Urological Society, and the New York Academy of Medicine. He was genitourinary surgeon to St. Mark's Hospital and the Good Samaritan Dispensary.

Dr. HERBERT LEE GRAY of New York, a graduate of Johns Hopkins University in 1906, died suddenly of heart disease on July 23, at the age of thirty-nine years. He was a member of the American Urological Society, genitourinary surgeon to the New York Hospital Dispensary, and chief of the genitourinary clinic of Demilt Dispensary.

Dr. LAWRENCE CONTESSA of New York, a graduate of the Long Island College Hospital in 1909, died at his home on June 21, at the age of thirty-eight years.

Dr. EDGAR M. ROSE, director of the Division of Child Hygiene of the New York State Department of Health, died of acute indigestion in Albany, on June 22, at the age of thirty-seven years.

Dr. JAMES J. MITCHELL, a retired physician of Gurdon, Ark., died on June 16, at the age of seventy-five years. He was graduated from the St. Louis College of Physicians and Surgeons in 1883.

Dr. EUGENE B. DUNBAR of Manchester, N. H., a graduate of Dartmouth Medical School in 1887, died after a long illness on June 19, at the age of sixty-two.

Dr. WALTER H. HITCHCOCK, a graduate of the College of Physicians and Surgeons, New York, in 1883, died at his home in Norwalk, Conn., June 21, at the age of sixty-four years.

Dr. EVERETT S. TOWNE of South Willard, Vt., was accidentally drowned while sailing a boat on June 18. He was graduated from the Medical Department of the University of Vermont in 1914. He was thirty-seven years of age.

Dr. LOUIS J. BECHTOLD of Belleville, Ill., a graduate of Washington University Medical School, St. Louis, in 1871, died suddenly on June 17, at the age of seventy-three years.

Dr. SAMUEL BUFFINGTON GORDON, JR., of Salinas, Cal., a graduate of New York University Medical School in 1889, died of uremia in a local hospital on June 11, at the age of fifty-three years.

Dr. WILLIAM S. GRIMES of Wapello, Ia., a graduate of Rush Medical College in 1874, and a Civil War veteran, died on June 7, at the age of eighty years.

Dr. JOHN HENRY MOON of Cooperstown, N. Y., a graduate of Albany Medical College in 1872, died of uremia in a local hospital June 28, at the age of seventy-two years.

Dr. ROSWELL R. HUBBARD of Los Angeles, a graduate of the Eclectic Medical College, Cincinnati, in 1879, died on June 10, at the age of sixty-nine years.

Correspondence.

BACTERICIDAL ACTION OF HEAT IN GONORRHEA.

To the Editor of the Medical Record:

Sir:—I have read with great interest in a recent issue of the Medical Record an extract from the *Wiener klinische Wochenschrift* of an article on the cure of gonorrhea in a woman by an intercurrent fever. In my practice within the past twenty-five years I have had occasion to observe a number of such patients passing through an attack of typhoid fever, malaria, and the like.

My first observation of the "heat-cure" of gonorrhea was in a young man who had contracted that disease and whom I had been treating for several days when he came down with typhoid fever. The only nurses he had were his mother and sister. One of them was in constant attendance and I had therefore no opportunity to treat the young man locally, so I simply had to leave the gonorrhea to take care of itself. When he recovered—in fact, long before I ceased attendance upon him for his typhoid attack—he was entirely relieved of his gonorrhea, and there were never any symptoms of it afterwards.

I subsequently had occasion to treat several patients under the like circumstances, and the results were always the same. Hence my treatment of gonorrhea, for a number of years past, has been by means of hot irrigations, and the success of the treatment has been marked. It beats all the medicinal treatment ever.

P. H. Anderson, M.D.

1404 Exchange Building,
Memphis, Tenn.

AS TO BEING OUT OF STEP.

To the Editor of the Medical Record:

Sir:—When I read the title of a letter recently contributed to your columns (July 23, 1921), by Dr. Ernest S. Bishop, my first impression was that "All out of step with Jim" referred literally to his friend, Dr. James F. Rooney, recently elected president of the Medical Society of the State of New York, as there can be no question but that Dr. Bishop knows him intimately enough to call him Jim, while Prentice's name is Alfred. The nature of the statement gave me no strong lead, as it was as applicable—and as inapplicable—to one as the other.

Dr. Bishop probably overlooked a rather important letter signed by Arthur D. Greenfield, Attorney-at-Law, in the *New York State Journal of Medicine*, July, 1921, refuting statements which appeared in "a mimeographed circular letter (which) was sent to the secretaries of all the County medical societies and the delegates to the State Society, signed by James F. Rooney, chairman, Committee on Legislation." Dr. Rooney had charged that the Fearon-Smith bill "was drawn by Mr. Greenfield, an attorney of New York City, in conference with Drs. A. Lambert, A. C. Prentice, E. Eliot Harris, and Mr. Towns, of the Towns Sanatorium for Drug Addicts, located in New York City, with certain others." Mr. Greenfield's statement says:

The impression was created by the letter as a whole, as well as by the statement quoted, that the bill was drawn in the interest of Mr. Towns and other owners of private institutions for the treatment of drug addicts. As an injustice has been done to me by the circulation of this false statement, I trust you will permit me the use of your columns to deny it. The fact is that in the planning and preparation of the bill I had no conference with any of the four gentlemen mentioned except Dr. Harris. I have never had any communication with Mr. Towns or anyone representing him, regarding this or any other bill. I have no idea what his attitude toward the bill may be. The persons with whom I consulted in the preparation of the bill were officials of the New York State and County Medical Societies, of the Federal Government, and of the New York City Health Department.

If these officials were "all out of step with Jim", it is obvious that Dr. Prentice is not "Jim" this time. There must be (and we know there is) another, real "Jim."

Dr. Bishop in his letter, gives the impression that Dr. Rooney's attitude in relation to drug addiction received endorsement by his election to the presidency of the State Society. As one who was a member of the House of Delegates and present at the meeting, I should say Dr. Rooney was elected in spite of the effect of this attitude. The convention was practically stampeded for Dr. Rooney when a certain eminent delegate gave Dr. Rooney all the credit for defeating the Chiropractic bill this year. And despite his election to the presidency, he was unable to get an endorsement of the "second Smith-Lord bill" either on the floor of the House or afterwards in the Council of the Society, to which it was committed.

In my opinion, Dr. Rooney is largely responsible for the chaotic conditions now existing in New York State, and New York City in particular, for the lack of a State law to enforce the Harrison act. The "first Smith-Lord bill", supported by practically unanimous approval, was the only drug addict bill endorsed by the House of Delegates this year and signed by Governor Miller. It abolished the New York State Bureau of Narcotic Drug Control.

Dr. Rooney has a strong personal following but it was not strong enough to get an endorsement of the "second Smith-Lord bill" which would have permitted continuance of the ambulatory (or office) treatment of addicts, and which as well as the Fearon-Smith bill was in the hands of the Governor. The latter bill prohibited ambulatory treatment and made legal provision for the care and disposition of addicts in this State. The division hinged on the question of ambulatory treatment. The Fearon-Smith bill, opposed by Rooney, approved by Prentice, was strongly advocated on the floor of the House by Dr. William P. Healey, Chairman of the Committee on Legislation of the Medical Society of the County of New York. It had been recently endorsed by a vote of the New York County society. Its main features (according to Dr. Rooney himself), were essentially the same as those of the Cotillo bill which the State Society had endorsed the previous year. Dr. Prentice has supported it consistently.

In answer, therefore to Dr. Bishop, I have called attention to some few individuals and groups who agree mainly with Dr. Prentice. Prentice has very strong convictions and has expressed them dogmatically. But *he* has not changed his step, and

is not *out* of step with everybody, and furthermore, his name is not "Jim."

J. MILTON MABBOTT, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, June 28, 1921.

Medical Secrets.—An interesting discussion took place recently between Mr. Justice Horridge and a medical man who was called upon to give evidence respecting venereal disease from which, it was alleged, his patient, a party to a divorce suit, had been suffering. The privilege of exemption was claimed by Dr. John Elliott of Chester, who entered the witness box. Justice Horridge said there was no privilege for a doctor in the divorce court. Witness explained that he and other medical men formed a particular clinic on the distinct understanding that professional secrecy of what happened would be observed and upheld by the Ministry of Health. The judge said that he was sorry, but the Ministry had no power affecting the jurisdiction of the divorce court. Doctors were subject to the orders of the court and had to disclose what they knew. Doctor Elliott did not wish to deny this ruling, but only desired to point out how painful it was for medical men in such cases. The judge then asked if any statute could be produced which would uphold the contention of the witnesses. Doctor Elliott referred to a regulation under the Public Health Act. The judge said, "Yes, Article 2, Sub-section 2; that may be a very good regulation between yourselves, but it has nothing to do with these courts." Witness said patients at the clinic were not referred to by name; they were only identified by a number, and the register was always kept under lock and key. The judge remarked that that did not affect the jurisdiction of the King's Courts. The doctor went on to point out that some medical men undertook the duties simply in the interests of the public. They thought it a public duty to try to abate this terrible disease, and they little anticipated that they would be placed in such a painful position as he now stood. He craved the indulgence of the court to protest at having to stand up publicly and violate one of the earliest and most sacred principles of the medical profession, one which the profession held most dear. The judge said he could not see anything painful about it. A medical man was bound to observe the regulations not to disclose voluntarily information he had obtained, but so far as regards giving information, which he was bound to give in assisting the administration of justice, it was his duty to give it. Doctor Elliott said that medical men did not undertake not to disclose voluntarily professional secrets; they undertook not to disclose them at all. It was one of the tenets of the medical profession that confidence must obtain between doctors and patients. He hoped the judge would recognize their position. The judge thought it was not an unfair obligation on doctors to assist in the administration of justice. Doctor Elliott said there was another point he would like the judge to listen to, that was the effect of not keeping these proceedings secret. The judge said he had nothing to do with that, and Doctor Elliott said he must bow to his ruling and give evidence.

It would seem that in this country the jurisdiction of the courts stands above regulations passed by departments of government, if, in the opinion of that court, such a course will assist justice. However, the last has not been heard of the matter, for while courts of law are notoriously jealous of their powers and privileges, the medical profession is no less jealous of its ethics, hallowed by tradition. Moreover, it is by no means obvious that the divulging of medical professional secrets, especially those relating to venereal diseases, will do good and this, after all, is the outstanding consideration and is of far greater consequence than upholding the powers and dignity of the courts. There are times when common sense rates higher than the law as administered by the courts, and the divulgence of medical secrets may be a case in point.

Annual Report of the Medical Officer of Health for Norwich.—The annual report of Dr. H. Cooper Pattin, the medical officer of health for Norwich has just been issued. The birth rate for 1920, 25.6 per thousand of the population, of all ages, was in advance for that of 1919, 16.35, but below the average birth rate for the 96 great towns of Great Britain—namely, 26.2 per 1,000. A satisfactory additional saving of infant life, too, as compared with 1919 took place, the infant mortality rate, 74 per 1,000 births, being 12 per 1,000 births below that for 1919; of the children born there was again a majority of males, 162; in 1919 this majority was 79; 165 of the infants born were known to be illegitimate. The mortality rate of these illegitimate infants was, as is usual, much higher than for those born in lawful wedlock. The infant mortality rate for the illegitimate being 133 per 1,000 births, the corresponding rate for the legitimate infants being 71 per 1,000 births. In other words, the chances of surviving for one year, for the illegitimate, were, roughly, about half as good as those of the legitimate. And these chances would have been lessened but for the efforts made by the health visitors and some voluntary workers.

The situation in Norwich as regards venereal diseases, according to the report, is not satisfactory. The attendance of new cases at the clinics has not increased; but so far as Doctor Pattin could perceive there has not been any decrease in disease—judging from the notifications of ophthalmia neonatorum there has been some increase. With regard to measures to abate the evil, the medical officer of health for Norwich has this to say: "To one whose training and professional bias is all in favor of prevention, the practical limitation of effort to pointing out the danger, to moral suasion, and the provision of treatment is not satisfactory. Yet to deal with this matter effectively one has to incur the possibility, and certainly the imputation, of contributing to promiscuity, and one cannot, and I certainly do not wonder that health committees, representing as they do various mental attitudes, are impelled very carefully to feel their way. I am satisfied that instruction as to danger and moral exhortations

will not materially bring about for the existing generation any satisfactory result, human nature being what it is, and the sexual remaining one of its most powerful impulses; but that instruction, plus training of the faculty of self-control from early life, will; and a man of from 20 to 30 will be able to control the sexual, because from childhood he has been trained and taught to control his selfish nonsexual impulses; in short, has learned to exercise and, by exercising, to strengthen self-control. It will be a long, uphill fight, and for the welfare of the race I am satisfied it will have to be fought. But here and now it may be said that it is the folk who have never been made to practise self-control in nonsexual impulses who naturally are incapable of controlling the sexual and are to be pitied, even while they are to be dreaded, and whose upbringers are yet more to be blamed."

New Medical School Opened at St. Thomas's Hospital.—June 21 was the anniversary of the modern St. Thomas's Hospital. It is fifty years ago that Queen Victoria opened the magnificent buildings, opposite the Houses of Parliament, which now constitute St. Thomas's Hospital, and on June 21 the Duke of Connaught, the only surviving son of the Queen, presented the medical school prizes and opened the new building of the school of physiology. This building has been found necessary in order to increase the accommodation of the school, and the structural alterations which have been carried out in the building formerly used as a students' club will give the medical staff two additional laboratories, one of which will be devoted to the teaching of chemical physiology and the other to histology and experimental work. The addition of a third floor to the wing affords accommodation for a lecture theater and the experimental and research rooms. The new school has been named after Prof. C. S. Shettington Wynflete, professor of physiology in the University of Oxford and president of the Royal Society of Medicine, a former student and teacher in St. Thomas's Hospital Medical School. The distribution of prizes preceded the opening ceremony, and Sir Arthur Stanley, treasurer of the hospital, referred with pride to the progress that had been made both in the hospital and in the medical school during the past fifty years. Alluding to the practice which obtained in some hospitals of making payments by patients compulsory, the speaker said they hoped never to have that at St. Thomas's. Their experience in the past had been that patients realized to the full the value of the treatment they received, and were always ready to give even more to the hospital than if they were applied to for a fixed sum; a fact which showed that one need not despair of the voluntary system. The Duke of Connaught, in opening the new buildings, said, in part, that there was an enormous number of hospitals and there was great competition among them, as all would wish to have, and that being so, it gave them great satisfaction to know that St. Thomas's maintained the high position which it had held for so many years. Referring to the large number of medical men who left the hospital to take their places in the forces, the Duke of Connaught said he should like to say as a soldier the great respect they had for those who worked so strenuously to promote the well-being and alleviate the suffering of those gallant men who served in the war.

Health Insurance Economy.—Sir Alfred Mond's bill (Sir Alfred is the new minister of health) to amend the financial provisions of the National Health Insurance Acts, the text of which has just been issued, is based on the recommendations of the recent Departmental Committee on Approved Societies' Administration Allowance. The bill does not make any change in the rates of contribution or normal rates of benefit under the acts, but in order to enable the administration allowance for approved societies to be increased from four shillings and five pence to four shillings and ten pence per member per annum, it proposes to make a small reduction in the amount retained out of each weekly contribution for the purposes of the Contingencies Fund, thus leaving a greater amount in the general funds of societies, out of which the administration allowance is provided. The proportion, two-ninths, of the cost of benefits and administration to be provided by the Exchequer remains unaltered. Provision is made for the contribution from the funds of approved societies toward the administration expenses of insurance committees being increased by two pence per member per annum, with a corresponding relief to the Exchequer. The net saving to the Exchequer under the bill will be about £300,000 as from January 1.

Early Portuguese Contribution to Tropical Medicine.—At a meeting of the Royal Society of Tropical Medicine, held at the rooms of the London Medical Society on June 3, a paper by Dr. Carlos Franca, Collares, Portugal, was submitted for publication in the Society's Transactions. The paper dealt with the first mention of some of the tropical diseases, ascribed to certain Portuguese physicians in the sixteenth and seventeenth centuries. The references included an account of cholera by Garcia da Orta (1583), of yellow fever by Ferreira da Rosa (1694); also descriptions by travelers who were not medical men; of scurvy by João de Barros (1522); of the cholera epidemic of 1543 by Gaspar Correia, and of *Dermatophilus penetrans*, in the production of what is now commonly known as "chiggers," by Gaspar Affonso (1596). Mention was also made of a work of the sixteenth century containing a clear account of the part played by insects in the transmission of *frambœsia tropica* (yaws), written by Gabriel de Sousa, a Portuguese colonist of Brazil, in 1587. The account given by this shrewd observer of the sixteenth century had waited for over three centuries for verification by the work of Castellani, who demonstrated experimentally in 1907 that the house fly (*Musca domestica*) could transmit the spirillum, *Treponema pertenue*, of yaws. It was, therefore, rightly claimed that the name of Gabriel de Sousa was one which should henceforth figure in the history of tropical medicine.

Obituary.—Dr. John Matthew Fortescue-Brickdale, physician to Clifton College and to the Royal Infirmary, Bristol, died in Clifton on June 2. Doctor Brickdale, in addition to the posts mentioned above, was lecturer on pharmacology at Oxford

University. He was a writer of considerable note, his writings being mainly devoted to the chemistry and therapeutic actions of drugs. Collaborating first with Professor Francis in a "Chemical Basis of Pharmacology," he brought out in 1910 a "Practical Guide to Newer Remedies" and later, with Mr. H. G. Armstrong, a book on "Infectious Diseases in Schools."

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, July 1, 1921.

Twenty-five Years of the Rontgen Rays.—A few weeks ago the Radiological Society of Switzerland held its annual meeting at Zurich. During the scientific part of the meeting several very interesting papers were read, in particular one by Professor Naegeli and another by Doctor Schinz, director of the Radiological Institute of the Cantonal Hospital of Zurich, entitled "Radiology of the Abdomen." During the dinner, which took place at Hotel Victoria, the president of the society, Dr. Hermann Suter, recalled in his speech that this year was the twenty-fifth anniversary of the discovery of the Röntgen rays and suggested that a memorial plate should be placed on the house where Röntgen lived while a student at Zurich.

Anniversary of Doctor D'Espine.—June 30, a festival was tendered to Dr. Adolph D'Espine, professor of clinical pediatry and theory and practice of medicine, to celebrate his forty-fifth anniversary as professor at the University of Geneva and as a sign of esteem upon the occasion of his withdrawal from the Faculty of Medicine, he having attained the age limit of seventy-five. The name of D'Espine is too well known to the medical profession throughout the world to require any particular account of the work he has achieved. Appointed to the professorship at the age of thirty, D'Espine was already known, especially by his "Traité des Maladies de l'Enfance," written with his friend, Dr. C. Picote of Geneva. This work has gone through some eight editions and is still a popular textbook in Europe. Throughout his well-filled life D'Espine's scientific activity has never slackened, and the number of important papers on diseases of children due to his pen or by his assistants and students would form a list too long to mention. Dean of the Faculty of Medicine from 1898 to 1900, vice-rector of the university from 1900 to 1902, rector from 1902 to 1904, it was D'Espine who organized the first *Dies Academicus*, in 1904. D'Espine is the vice-president of the International Committee of the Red Cross Society and is connected with many other philanthropic works. Among the long list of honorary presidents of the festival we would mention, as representing the English-speaking profession, Sir Archibald Garrod, Regius Professor at Oxford, who succeeded the regretted Osler, and Dr. John Lovett Morse, professor of pediatrics at Harvard University.

Cause of the Malarial Paroxysms.—Some very interesting work on the pathogenesis of malarial paroxysms has been carried out by Dr. Georges Senevet of the Pasteur Institute of Algiers, and as the results have not as yet appeared in the medical press, I will state them briefly, as they are not devoid of interest. Doctor Senevet shows that paludism has a primary phase in which the paroxysms, due to the præcox, assume the aspect of a continued-remittent fever, the result of the combined action of ordinary schizogony and binary division of the small annular forms of the parasite. Then, either from reaction of the organism or from the effects of treatment, the formation of gametes takes place, and from this time on the patient is doomed to a series of paroxysms separated by phases of apyrexia. Each paroxysm is due to segmentation of the rose bodies, which occurs early, from four to five hours before the occurrence of the paroxysm, provoking a hemoclastic crisis similar to that preceding certain attacks of asthma or urticaria. The malarial attack is similar to the reaction following an intravenous injection of heterogenous albumin. Then the reaction of the organism makes itself felt, the gametes form, the parasites which have not undergone their evolution rapidly die and this is the apyretic phase which lasts until the defensive attitude of the organism weakens. The gametes enter upon parthenogenesis; the asexual types reappear and with them arise the febrile phenomena of relapse. Periods of paroxysms and periods of apyrexia alternate with each other during the entire duration of the season of the year favorable to the parasite. When the end of the favorable season comes, the paroxysms cease and the patient appears to be completely cured, unless he harbors another malarial parasite for which this time of year is propitious, or some peculiar circumstance, such, for example, as being chilled, awakens the parasite and hence provokes some paroxysms outside of the favorable season. When the favorable season returns the following year, the patient will suffer a relapse unless he has gone to live in some country which, on account of its climate, renders the human organism unfit for the development of the parasite in question.

From these facts some therapeutic indications might be derived, but Senevet is disinclined to formulate any, as he has studied the spontaneous evolution of paludism rather than the effects of quinine treatment on the disease. He believes that any conclusion as to treatment is infinitely dangerous, and he refers to mistakes committed by some practitioners who, observing their cases at the end of the season, have taken for the effect of their treatment the more natural evolution of the diseases. Senevet's researches on the pathogenesis of malarial paroxysms show how many obscure aspects of the infection still remain to be elucidated.

LETTER FROM BELGIUM.

(From Our Own Correspondent.)

LIÈGE, July 10, 1921.

Chronic Scopolamine Poisoning.—Doctor Alexander of Brussels reported an interesting case at a recent meeting of the Société Clinique des Hôpitaux de Bruxelles. The patient was a woman, 38 years old, who had suffered for ten years past from severe menstrual pains, for the relief of which she had had recourse to hypodermic injections of large doses of scopolamine. The toxic

symptoms produced were, so far as the delirium and agitation were concerned, similar to those following the use of atropine, but the dryness of the throat characteristic of belladonna poisoning was not present.

The Belgian Neurological Society recently celebrated the seventy-fifth anniversary of its foundation. The meeting was held at the Anatomical Institute in Leopold Park, Brussels. The president, Doctor Decraene, and Doctor Crocq opened the proceeding with eulogies of the founders of the society, especially of the lamented Van Gehuchten. Drs. Alexander and R. Levy read papers on Senility, the first taking up the psychological aspect, the second discussing the subject in its anatomical relations. Dr. F. Mott of London was a guest of honor.

Ossification of Berton's Ligament.—At a recent meeting of the Belgian Surgical Society, Doctor de Caestecker of Gand reported a case of complete ossification of the iliofemoral ligament. The patient was a man who had a prevalent arthritis of the knee, following a wound by a shell fragment. After months of suppuration the inflammation subsided, leaving an ankylosed joint. It was then discovered that the hip joint was immobilized by a hard tumor, appearing under radiography to be an osteoma. It was excised by Doctor Willems and found to be an ossified iliofemoral ligament. The operation was entirely successful in restoring motion to the hip.

Paranephric Fibrosarcoma.—At the same meeting Doctor Paniel of Brussels reported the case of a patient operated upon by Doctor Huet for the removal of a paranephric fibrosarcoma. The patient had been under observation for several years, in the course of which he had had several periods of increase and diminution in the size of the tumor, accompanied by a febrile reaction. By means of cystoscopy a senile tumor was excluded. There was profound anemia. The tumor filled the left side of the abdomen, extending down into the iliac fossa and passing to the right beyond the median line. The growth was easily removed through an intraperitoneal incision, but the already greatly weakened patient died soon after the operation.

Personal.—The city of Brussels has appointed Dr. O. Gengou director general of hygiene and medicine. Doctor Gengou is professor at the University of Brussels and subdirector of the Pasteur Institute at Brabant, where he is associated with his brother-in-law, Dr. Jules Bordet. Drs. J. Bordet and Henrijean of Liège have been elected foreign associate members of the Academy of Medicine of Paris.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 14, 1921, 185, 2.

1. A Consideration of the Etiological Factors in Myositis Ossificans Traumatica. Charles F. Painter.
2. Complications Following Cholecystectomy. Irving J. Walker.
3. Report of a Case of Extensive Cavernous Angioma of the Head, Face and Neck, with Attacks of Fever and Somnolence. George Blumer.
4. Paresis: Treatment by Arsphenamin and Mercury. Clarence A. Bonner.
5. A Few Remarks on the *X*-Ray in the Diagnosis of Chronic Appendicitis and Chronic Cholecystitis. Frank H. Lahey.
6. Neurotomy (Stoffel Operation) in a Case of Spastic Paraplegia Following Spinal Fracture. R. N. Hatt.
7. Marked Sclerosis of the Abdominal Aorta. Clifton R. Scott.
8. The Use of Sodium Bromide Solution in Pyelography and Its Toxicity in Comparison with Other Media.

3. Report of a Case of Extensive Angioma of the Head, Face, and Neck, with Attacks of Fever and Somnolence.—George Blumer reports the case of a man, 49 years of age, who was born with a nevus of the forehead external to the outer angle of the right eye. At the age of five years an attempt was made to treat it with the electric needle, but nothing had been done since that time. He had had no symptoms referable to the condition until at the age of 30 years he began to have attacks of fever and somnolence progressing to unconsciousness as time went on. The angiomatous process involved both sides of the neck, the right temporal region, the ocular conjunctiva on the right side, the cheeks, the hard and soft palate, the right half of the tongue, and the pharyngeal walls as far down as could be seen. The physical examination was negative with the exception of slight enlargement of the heart and a slight systolic murmur. The eyes showed no pronounced abnormality. Lumbar puncture showed a clear fluid under pressure. The *x*-ray of the skull showed general thickening of the tables with the vascular depressions somewhat more marked than usual. There was absence of the frontal sinus, and numerous circular areas of increased density in the zone occupied by the angioma. The laboratory findings were negative except for a slightly increased blood nitrogen. A search of available literature reveals no case on record in which such extensive localized thrombosis seems to have occurred. It seems legitimate to suspect that the febrile paroxysms were dependent upon the formation of fresh thrombi in the angioma, even though blood cultures from the sinuses were negative during the febrile periods. But the extensive local thrombosis could not account for the succession of paroxysmal symptoms. The history of the case suggests socalled cirsoid aneurysm or angiomata of the pia, as the patient has at times shown definite staggering and slight nystagmus. Blumer concludes that in this case there must be an association of an external angioma of the cranium and face, with an independent internal angiomata involving the pia mater. In some very exceptional cases there is communication between the external and internal processes; there is no evidence of such connection in the case herewith reported.

4. Paresis: Treatment by Arsphenamin and Mercury.—Clarence A. Bonner has followed a series of 28 cases of general paresis treated at the Warren State Hospital, Pennsylvania, between July, 1918, and July, 1920, with a view of determining the possible benefit of combined treatment. Weekly injections of arsphenamin beginning with 0.3 grams and pushed to a maximum of 0.6 grams were given. Inunctions of mercury were given as consistently as possible, and each case received for one month potassium iodide in a dosage of 30 grains per day. The results indicate that the course of the bedridden stage is lessened by this treatment, and that dying patients do not linger so long in the usual wretched state. Serology bears no relation to remission. Duration of ward life seems to be lengthened. The results of treatment are found to be favorable, but do not warrant a change in the prognosis. Certain cases respond to the treatment while others do not. No explanation of this fact is evident, unless it be that the meningeal type, as has been reported, offers a better therapeutic opportunity.

Journal of the American Medical Association.

July 16, 1921, 77, 3.

1. Autogenous Bone Transplantation. Melvin S. Henderson.
2. Defective Diet as a Cause of Sterility: A Study Based on Feeding Experiments with Rats. Edward Reynolds and Donald Macomber.
3. A New Method of Treating Recent Fractures of the Os Calcis. David C. Straus.
4. Carcinoma Developing on Gastric Ulcer. Charles H. Mayo.
5. Prophylaxis and Serum Therapy of Yellow Fever. Hideyo Noguchi.
6. Subjective Signs in Diagnosis. Tom A. Williams.
7. The Serial Quantitative Method in the Study of Respiratory Disease. Arthur L. Bloomfield

8. Experimental Measles. Francis G. Blake and James D. Trask, Jr.
9. Prepancreatic and Peripancreatic Disease: With a Consideration of the Anatomic Basis of Infection from the Gallbladder to the Pancreas. John B. Deaver and J. E. Sweet.
10. Relation of the Liver and Pancreas to Infection of the Gallbladder. Edward Starr Judd

2. Defective Diet as a Cause of Sterility: A Study Based on Feeding Experiments with Rats.—Edward Reynolds and Donald Macomber describe their experiments with rats having the standard mating fertility of 65 per cent. when on the stock diet of the laboratory. In the experiments the deficiencies chosen were those most often present in persons belonging to the well-fed classes in the United States. A diet deficient in both calcium and protein was also employed. This diet gave an approximated representation of the most important deficiencies in the war and postwar diets from which portions of Europe have been and still are suffering. These diets reduced the mating fertilities of the rats from the normal 65 per cent. to 55, 31 and 14 per cent. for low fat soluble, low calcium and low protein, respectively. The fertility of rats fed on the double deficiency diets was reduced as low as 0.06 per cent. Sections from the ovaries and testicles of such animals showed decided changes. The experiments support the belief that many infertilities are functional rather than due to anatomical or pathological causes; that very moderate degree of fertility in both individuals may produce a completely infertile mating; and that as proved in these breeding experiments, two rats that are infertile for each other may both be fertile to other individuals, not because of obscure incompatibilities, but merely because of decreased percentage of fertility in each. Cases are cited in human beings in which infertility was dependent upon dietetic deficiency and upon extreme constipation and lowered general physical condition, and which suggests that a decision that a given infertility is dependent on anatomical cause and demands operation should not lead to neglect of accessory constitutional conditions.

4. Carcinoma Developing on Gastric Ulcer.—Dr. Charles H. Mayo states that in Hunter's investigation in behalf of the New York Life Insurance Company to determine a basis for insurance following the operation of gastroenterostomy for ulcer, the results of 2,431 gastroenterostomies were studied. Of these all but 108 patients were traced, 22 of whom had had ulcers of the stomach. Of this series 521 patients with ulcer of the stomach were under observation for a period of three and six-tenths years. The mortality was 17 per cent.; the first year it was four and one-third times the death rate in a like group in the general population; the rate diminished during the remainder of the period. One thousand six hundred and fifty-one patients with duodenal ulcer were under observation for an average of three and four-tenths years; the mortality was 5 per cent., which is practically that of the normal death rate of an equal number of people in the general population of the same average age. Ninety-one persons with gastric and duodenal ulcers were under observation for an average period of three and eight-tenths years; the mortality was 15 per cent. From such statistics it would appear that there is a tendency to belittle the dangers of ulcers of the stomach. The condition occurs less frequently than duodenal ulcer but is more serious. As a rule ulcers of the stomach or duodenum are not operated on early, but only after a complaint of some years' duration. Often patients appear for a general examination because of loss of appetite, loss of weight and strength, with increase in pallor, and are found to have extensive cancer of the stomach without distress or appreciable bleeding. In 1919 and 1920 at the Mayo Clinic a diagnosis of cancer of the stomach was made in 1,529 cases. In approximately 54 per cent. the condition was considered inoperable. In 162 cases an exploratory operation only was performed. In 74 gastroenterostomy was performed for the relief of obstruction as a palliative operation. Two hundred and twenty-three patients were subjected to radical resection of the stomach. More could have been done for many of the patients had the condition been recognized earlier. It will take years of observation to estimate fairly accurately the percentage of cancers which have developed on ulcers. The exact starting point of cancer of the stomach is unknown and probably will remain unknown, but early cancers in this organ have been seen in the mucosa in the borders of chronic ulcers. From what has recently been accomplished in the treatment of cancer by the development of serum therapy, endocrine therapy, roentgen ray treatment and radium emanations, Mayo predicts the possibility of surgery becoming an adjunct to these methods instead of the major method of treatment.

5. Prophylaxis and Serum Therapy of Yellow Fever.—Hideyo Noguchi refers to his previous work and that of other investigators who have succeeded in the transmission of yellow fever from man to guinea pigs and the isolation of *Leptospira icteroides* during different epidemics. He asserts that anti-icteroides serum reduces the mortality in yellow fever when used on or before the third day of the disease. Of 170 cases, 95 were treated on or before the third day, with 13 deaths, or a mortality rate of 13.6 per cent. while the average death rate of untreated patients during these epidemics has been 56.4 per cent. On the other hand, treatment with serum after the fourth day has no appreciable effect, since there were 39 deaths among 75 patients, a mortality of 52 per cent. Prophylactic inoculation by means of the injection of 2 c.c. of the killed culture of *Leptospira icteroides* (containing at least 2,000,000,000 organisms per cubic centimeter) is of definite protective value. Among 3,230 persons vaccinated twice, no case of yellow fever developed, while 278 cases developed among the nonvaccinated, notwithstanding the fact that both groups were equally exposed to infection. The protection resulting from vaccination does not become effective until about ten days after the last injection, as shown by the frequent case incidence occurring among the vaccinated population within from one to ten days after they were vaccinated. There were 23 such cases among 7,537 persons who were vaccinated with standard vaccine.

Experimental Measles.—Francis G. Blake. (See MEDICAL RECORD, July 2, 1921, 100, 1, p. 33.)

British Medical Journal.

June 25, 1921, 3156.

1. Intrinsic Cancer of the Larynx: Usual Site of Origin, as Demonstrated at 50 Laryngo-Fissures, and Its Influence on Diagnosis, Prognosis, and Treatment. St. Clair Thomson.
2. Hematuria as Seen by the Surgeon. Andrew Fullerton.
3. The Schick Reaction: A Clinical Test for the Determination of Susceptibility to Diphtheria. Gladys Ward.
3. The Treatment of Syphilis in Macedonia on Active Service. Trevor Hayman Fowler.
4. Retrograde Catheterization for Impermeable Stricture of the Urethra.
5. Suggested Autoinoculation of a Rodent Ulcer. S. D. Dyke.

1. Intrinsic Cancer of the Larynx: Usual Site of Origin, as Demonstrated at 50 Laryngo-Fissures, and Its Influence on Diagnosis, Prognosis, and Treatment.—St. Clair Thomson concludes as follows: 1. Intrinsic cancer of the larynx originates on the vocal cords or in the subglottic area. 2. It has never been found in the posterior commissure (interarytenoid region), nor originating from the ventricular bands or the ventricle of Morgagni in the 50 cases examined both indirectly with the mirror and by direct inspection after splitting the larynx. 3. A malignant growth may originate on any part of a cord, but is more common in the central portion or anterior half than in the posterior area of the larynx. 4. As is now well known an epithelioma originating in this region remains for a long time limited to the cord affected and the adjoining side of the larynx, but it may cross the anterior commissure, and, in later stages, it invades the arytenoid and the area to the outer side of it. 5. The inner surface of the cord may be affected primarily or by extension. The subglottic area may be invaded by a growth originating in the cord. But a cancer may also start below the level of the cords, in the subglottic area. 6. A subglottic cancer is much more common in the anterior than in the posterior half of the larynx. As regards prognosis Sir Thomson concludes: 1. That superficial and projecting tumors of limited extent are the most favorable. 2. That those situated in the middle third or anterior half of the cord are more promising than those invading the

anterior commissure in front or the arytenoid region behind. 3. That growths imbedded in a cord, or extending into it below an intact mucosa are not so favorable. 4. That an epithelioma extending along the inner margin of a cord is still less favorable. 5. Subglottic cancers are very unpromising as regards lasting cure by laryngo-fissure. They are frequently associated with impaired mobility or complete fixation of the cord. As regards operation, in every case, however limited in growth, the entire cord should be excised from the anterior commissure up to and including the vocal process of the arytenoid. The excision should go down to the lower edge of the subglottic area; above it should pass through the healthy ventricular band; and externally it must include the perichrondrium lining the thyroid ala. To facilitate this the thyroid ala should be removed so that a laryngo-fissure is really a partial hemilaryngectomy.

Hematuria as Seen by the Surgeon.—Andrew Fullerton asserts that while the general rules laid down by clinicians to enable the practitioner to make a shrewd guess as to the cause and origin of hematuria are useful, they cannot always be relied upon for accurate diagnosis. It is well to proceed as far as possible along the ordinary lines before resorting to the cystoscope or urethroscope to complete the diagnosis. An analysis of the writer's 600 cases of renal hematuria shows that 292 were due to kidney conditions, of which tubercle of the kidney furnished nearly one-third; 10 were due to ureteral calculus or injury to the ureter; 229 were due to bladder conditions, 113 of these being due to cystitis; 53 were due to enlarged prostate (including malignant disease), prostatic abscess and prostatitis; two were due to papillomata of the urethra and two to calculus in the urethra. In the treatment of hematuria of any severity the patient should be kept in bed, and morphine, if not contraindicated, should be administered. Calcium chloride or lactate, preparations of ergot and hazeline, and sterilized horse serum may be tried, or inhalations of carbon dioxide as recommended by Wright. The bleeding in cystitis should be dealt with by urinary antiseptics and lavage of the bladder. In essential renal hematuria, section of the kidney, decapsulation, fixation of a movable kidney, incision into the pelvis, with direct attack on the papillæ, etc., and injection of silver nitrate solution or adrenaline, are among the methods used. To control hemorrhage of the bladder pending more radical measures adrenaline may be used. A slower but more lasting method is irrigation with silver nitrate. In certain cases with massive clotting, an evacuating catheter similar to that used for lithopaxy may be used to remove the clots. It may even be necessary to perform cystotomy to clear out the clots. Packing the bladder is an unsatisfactory proceeding. If resorted to a way of escape must be provided for the urine, and the ureteral orifices must not be blocked. Raising the foot of the bed is helpful in some cases. No patient ought to be allowed to die of hemorrhage without an attempt being made to restore him by transfusion of blood or intravenous injection of gum saline solution.

The Practitioner.

June, 1921, cvi, 6.

1. Hyper- and Hypo-Thyroidism; Causation, Prevention and Treatment. Sir James Barr.
2. The Medical Aspects of Flat-Foot. Robert Hutchison.
3. Retro-Pharyngeal Abscess. Frederick C. Pybus.
4. The Cause and Treatment of "Adenoids." John Kynaston
5. The Abortive Treatment of Gonorrhea in the Male. H Wansey Bayly.
6. Red Hair and Tuberculosis. W. C. Rivers.
7. The History of Tuberculosis. H. E. Symes-Thompson.
8. A Theory of the Origin of Bacteria. Duke Mulloy.

2. The Medical Aspects of Flat-Foot.—Robert Hutchison holds that there is perhaps no common condition the symptoms of which are oftener misinterpreted than flat-foot. Flat-foot presents itself in childhood, when it is the result of laxity of muscles and ligaments, and produces difficulty in walking and deformities, but no pain; in early adult life, when it often develops quite acutely, and may cause great pain; and about middle age, when it comes on gradually as the result partly of diminished elasticity which advancing years bring, and partly in consequence of the increased strain thrown upon the arch by the rise in body weight, which so often supervenes at this time. It is these middle-aged cases which are most apt to be overlooked. The pain associated with flat-foot in these cases may be attributed to gout, rheumatism, neuritis, the lightning pains of tabes, or even to "neurasthenia." The edema of the feet and ankles which flat-foot may cause is sometimes mistaken for cardiac dropsy, and pain in the right knee and hip which result from it may be regarded as due to sacroiliac disease. It is important to remember the possibility of such mistakes. If the true cause of the symptoms is recognized, treatment is as simple as it is satisfactory. All that is necessary is to order a suitable pair of instep supports.

New Orleans Medical and Surgical Journal.

June, 1921, lxxiii, 12.

1. Missed Abortion. E. L. King.
2. Corrective Rhinoplasty, with Presentation of Case. A. I. Weil.
3. Nineteen Radical Sinus Operations (Knapp) Done Under Local Anesthesia. M. P. Boebinger.
4. The Hero Doctor. Homer Dupuy.
5. Annual Oration—Louisiana State Medical Society. J. Zach Spearing.

2. Corrective Rhinoplasty, with Presentation of Case.—A. I. Weil describes the operation employed in the typical case reported. Modifications for other types of deformities may be made according to circumstances, whether it be for the reduction of an oversized nose, a rib or other bone implant to correct a sunken or saddle nose, and the like. The local reaction from these operations is sometimes very great, the discoloration being very marked and the swelling of the soft parts and lower lids being sometimes so great as to close the eyes. In the case cited the local reaction was comparatively slight and passed off in about a week or ten days. There was no general reaction, no rise of temperature, and no vestige of infection. A surprising feature was the almost entire absence of pain after operation, where one would naturally expect considerable pain to follow this rather strenuous manifestation.

Endocrinology.

May, 1921, v, 3.

1. Adrenal Insufficiency. G. N. Stewart.
2. The Microscopic Appearance of Two Testes Nine Months Following Unilateral Vasectomy. Homer Wheelon.
3. The Internal Secretion of Sandstroem's Glands. Parathyroid Hypofunction and Eclampsia. Aldo C. Massaglia.
4. Hypopituitarism—Froelich Type. In an Infant, Nine Months Old. M. Boyd Kay.

3. The Internal Secretion of Sandstroem's Glands. Parathyroid Hypofunction and Eclampsia.—Aldo C. Massaglia has conducted experiments which show conclusively that the thyroid and the parathyroid glands have different functions. The former exerts a trophic action on the metabolic changes of the body; when this function is abolished myxedema follows. The latter exercise an antitoxic action; when this is abolished fatal tetany is the result. Vassale and Massaglia continued the study of the function of the parathyroids, and were able to demonstrate that this tissue neutralizes the toxins arising from pregnancy and muscular fatigue. This study gave rise to the hypothesis that a hypofunction of the parathyroids can produce eclampsia. Massaglia and Sparapani found, moreover, that the eclampsia of animals is similar to the experimental tetany which occurs in the female dog during pregnancy, when there is a parathyroid hypofunction. Since the problem had not been completely solved, further studies were made, which are recounted in the present communication. It was found that the parathyroid glands appear to have the function of neutralizing or of breaking down into waste products of simpler chemical composition the complex bodies of catabolic changes, or toxic substances derived from pregnancy and puerperium, from the intestine, and from muscular fatigue. An intoxication from a parathyroid hypofunction injures, more or less, the kidneys, the liver, and the nervous system. There exists between the liver and the parathyroids an indirect functional correlation in neutralizing toxic substances which arise from the intestine. A parathyroid hypofunction in pregnancy or in puerperium is then certainly a pathogenic factor of eclampsia. This factor does not

exclude other factors in the pathogenesis of eclampsia. The explanation of the pathogenesis of eclampsia and its different syndromes is discussed. It is necessary, after the diagnosis of eclampsia is made, to discover what organ has yielded first in its antitoxic function, and so to determine the nature of the poisons causing the intoxication. Then it is possible to obtain good results by instituting an immediate antitoxic treatment with special reference to the organs first affected. This etiologic diagnosis is not easy to establish, especially when the attack occurs almost without warning. But eclampsia is most often caused by a parathyroid hypofunction, and, for this reason it is wise always to use the opotherapic treatment (parathyroidin). Moreover, this treatment should be instituted before the appearance of any strong convulsive symptoms, because when the nervous system is severely injured it recovers with great difficulty. When medical treatment is without effect, it is the part of the obstetrician to determine when it is time for emptying the uterus.

Long Island Medical Journal.

May, 1921, xv, 5.

1. The Field of Usefulness of the Polygraph and Electrocardiograph in the Diagnosis of Cardiac Disease. H. E. B. Pardee.
2. The Effects of the Vagus Nerve on the Heart Beat. William W. Laing.
3. Remarks on the Primary Treatment of Accidental Wounds in Relation to the General Practitioner. J. A. Manzella.

3. Remarks on the Primary Treatment of Accidental Wounds in Relation to the General Practitioner.—J. A. Manzella concludes the discussion of this subject with the following surgical "don'ts": (1) Don't as a rule probe wounds. (2) Don't neglect to shave hair around a wound. (3) Don't use strips of dry gauze in corner of a closed wound, particularly a small wound for drainage; it usually makes an excellent cork. (4) Don't suture wounds tightly. (5) Don't use collodion as a primary dressing. (6) Don't be in a hurry to amputate badly crushed fingers and toes; with patience they often do surprisingly well. (7) Don't put on tight dressings or splints over wounds, particularly within first twenty-four hours; subsequent swelling and edema cause much damage. (8) Sterile adhesive strips may be used at times to coapt skin in parts not so movable. (9) Paraffined gauze strips make excellent drains. (10) Don't use catgut in skin if possible. (11) When in doubt as to the vitality of deep tissues don't close up wound entirely. (12) Don't overlook severed tendons.

Le Progrès Médical.

April 23, 1921, xlix, 17.

Pneumonia in a Subject with Laryngeal Fistula.—Pallasse describes the case of a boy of 13 who at the age of 10 years had been tracheotomized for laryngeal diphtheria. He had worn the tube for nine months, and afterward no attempt had been made to close the fistula. When ordinary lobar pneumonia developed with its attendant dyspnea a question of scientific interest was the amount of air which passed in and out of the fistula. The pneumonia ran a mild course, defervescence occurring by the fourth day. The fistula and the natural passages were alternately closed in order to study the respiration through each of the orifices unassisted. Incidentally the part played by the larynx in the genesis of respiratory sounds was studied. In the patient in question the persistence of the fistula was due to the advice of the physicians because the calibre of the larynx had undergone some retraction as a result of the diphtheria. The intratracheal pressure of the child is ordinarily about 4 to 6 cm. water, while in speaking this is increased to 16 cm., and in crying out to 100 cm. In regard to the speed of the air which traverses the trachea it is 24 cm. per second in quiet breathing, 50 cm. in conversation and 123 cm. in crying out. These figures were obtained by Chanon and Sargnon in experiments on children in 1906. The quest of the author was limited largely to duplicating some work of Chauveau and Bondeau in pneumonia in tracheotomized horses. The only conclusion reached was that the *souffle tubaire* was not essentially modified by any of the variations in the mode of breathing.

Le Progrès Médical.

April 30, 1921, xlix, 18

Cancer of the Tongue.—Professor Delbet gave a clinical lecture on this subject, in which he presented a patient with a large mass on one side of the tongue, despite which localization speech was possible, which fact, said the lecturer, implies that the lesion has not yet seriously involved the floor of the mouth. The buccal mucosa is the seat of leukoplakia, which indicates a defective evolution of the epithelium through which it assumes the features of epidermis. In addition the epithelium is macerated like the epidermis of a laundress' fingers. The patient gives a positive Wassermann. Epithelioma of the tongue most commonly develops on leukoplakia, either through the latter becoming papillomatous or in sequence to the formation of fissures. The relations between leukoplakia and syphilis are uncertain, but the former should awaken suspicion of the latter. When a lesion appears on the tongue one can usually exclude tuberculosis because of its rarity and of the association of pulmonary phthisis, but differentiation between epithelioma and syphilis is important from the clinical viewpoint. The association between cancer of the tongue and constitutional syphilis is known to be a frequent one, and the seroreaction will not necessarily clear up the subject. The treatment test is proper to institute but the patient cannot afford to wait idly in the interim. A biopsy must be practised at once. If the result is positive we should make a diagnosis at the same time of the radiosensibility. The basocellular epithelioma is tremendously radiosensible while the spinocellular growth is radioresistant and may be aggravated by both radium and *x*-rays. Here at the present time the knife seems indicated, although the future may find a way to neutralize this radioresistance. The author advises against radiation after surgical removal.

Revue médicale de la Suisse romande.

***April*, 1921, xli, 4.**

Kola Addiction.—Starobinsky describes a case of this malady in a woman of 57, whose mother took the drug steadily for 25 years and died at the age of 73, three days after breaking off the habit. The patient herself has been taking kola steadily for 15 years and could not work without it. She took a teaspoonful of the powdered kola every morning, and ate but little food. The author had her stop the habit, and at the end of eight days she was so weak that she took to her bed. With the kola suppressed, her behavior resembled that seen upon withdrawing morphine from an addict, so far at least as many symptoms were concerned—motor agitation, absolute insomnia, etc. Later there were mental confusion and delirium. She recovered very slowly and did not return to the drug. During the withdrawal she received only camphor as a cardiac tonic. Technically the case was one of caffeinism and the symptoms were those described by Roch under chronic caffeine addiction or intoxication. The condition is not a serious one when compared with morphinism or cocainism. The author classes it with nicotinism as a "benign addiction." The chief menace is in the lowered nutrition and the permanent hypertension. The death of the mother after sudden withdrawal was due to cerebral hemorrhage, and perhaps was only a coincidence; at any rate, suppression of the drug should have lowered and not increased the intracranial blood pressure.

Le Presse Médicale.

May 4, 1921, xxix, 36

The Neckless Subject (Klippel-Feil Syndrome).—Dubreuil-Chambardel states that the Klippel-Feil syndrome was first described in 1912 in the *Nouvelle Iconographie de la Saltpêtrière*. The original patient, a man of 47, appeared to be without a neck. The case was studied by radiography and at autopsy. In life the head seemed to be fixed squarely on the trunk, but dissection showed that all of the seven cervical with the first four dorsal vertebræ were fused into a single mass, the length or height of which was 8 cm. and the width 5.6 cm. The four upper ribs were inserted into

this mass and at the same time occupied the cervical region. The second case was reported in 1913 by Lesbre of Lyon, the third by the American orthopedist Meisen; an entire series of six by Bertolotti; the tenth by Lortet and Dupont, eleventh by Lance, and the twelfth by the present author. The latter proceeds to analyze these twelve cases after the statement that fusion of the cervical vertebræ was seen in autopsy cases long before the time of Klippel and Feil's report which first called attention to the clinical condition. Little is yet known of the etiology. Nine of the twelve patients were males and no heredity has yet appeared in the histories. Life is not necessarily shortened (Rokitansky found the condition at autopsy on a man of 70). The three clinical peculiarities which stand out are absence of neck, limitation of mobility of head and low implantation of the hair to which Feil has added a certain degree of kyphosis or round back. Conditions which might be confused with it include suboccipital Pott's, which, however, is an acquired and painful affection. The radiogram removes any doubt. Torticollis should readily be excluded, as should cervical spina bifida.

La Presse Médicale.

June 11, 1921, xxix, 47.

Myoclonic Uremia.—Roger and Chaix consider this affection as one which may simulate myoclonic encephalitis. The latter has been abundantly described of recent years and has an algic or painful component, as well as a tendency to affect local muscle groups—hiccough and nystagmus may be mentioned as examples. In this connection continuous study of uremic cases shows that similar motor phenomena may appear. The authors describe in full a case of uremia in which choreo-myoclonic movements were very much in evidence. This recalls the fact that in epidemic encephalitis there is often nitrogen retention which is usually temporary, although notes are given of a case of encephalitis which developed in a patient with an old renal lesion. This was a case of masked uremia and is instructive to the extent that in an epidemic of encephalitis, uremic intoxication might well be overlooked. Dieulafoy distinguished clinically between certain pathological affections in respect to lack of muscle control. Thus he described a slow type of uremia in which, just as the subject fell asleep, he experienced an entire series of motor phenomena—electric shocks, subsultus tendinum, twitches and the like. The subject is apt to show apathy, somnolence and hebetude, and in theory at least these local motor manifestations may pass into epileptiform seizures. Occasional variations are tetanoid or tonic spasms and jacksonian epilepsy. The condition in question is best illustrated by a case. A man of 47 complained of dyspnea, prostration, anorexia and nausea, headache, vertigo and nosebleed. The history was negative save that a year before there had been a similar experience. Upon examination there were noted certain myoclonі of the left arm, shoulder and fingers with similar behavior in the corresponding lower extremity. No prognostic significance was attached to these cloni, as the patient was quiescent a year later.

Gazette des Hôpitaux.

May 24-26, 1921, xciv, 41.

Uremia and Internal Secretions.—Rémond and Minvielle continue their investigations along this line with special reference to the antagonism of the parathyroid medication. It had been learned that ablation of these organs, which has long been accused of causing or increasing spasmophilia, can also aggravate uremia. The latter is produced by ablation of the kidneys and thyroid, and if the parathyroids are also removed the uremic state is notably aggravated. According to the endocrine theory there is a superactivity of the adrenals in uremia. The present article is devoted to the clinical aspect. The antagonism of the thyroid and parathyroids is well shown in human uremia, since the former when administered as a remedy is known to aggravate the condition, whereas, as already stated, the parathyroids act beneficially. In some of the cases cited there are no measurements of blood urea, the Ambard coefficient being used as a measure of nitrogen retention. Under parathyroid medication, including hypodermic use, the constant was notably increased. In another series of cases the blood urea was actually measured and was found to be lowered by the same drug. To cite one of the most instructive cases, a woman of 52 had had chronic nephritis for 15 years and had numerous petty symptoms of uremia along with edema and enlarged heart. There was a positive Wassermann. Blood pressure 251. Total blood nitrogen 3.14 gms., total blood urea 1.62 gms. Oliguria—but 300 ccm. urine daily. The patient had been receiving mercurial inunctions and milk regimen without benefit. When at her worst with uriniferous breath and anuria she was bled 500 ccm. and given parathyroid. Improvement was rapid in all directions, including notable fall of urinary nitrogen.

Finska Läkaresällskapets Handlingar.

March-April, 1921, lxiii, 3-4.

Visual Disturbances Caused by Wood Alcohol.—Rostedt states that since 1917 there has been a rapid increase in the number of cases of wood alcohol poisoning in Finland. The cause of this increase is clearly the attempt which began at that period to make the country bone dry. Grain alcohol has been replaced industrially by denatured spirits which contain from 2 to 3 per cent. of crude wood alcohol. The number of victims to date is 60, of whom half have been blinded. The amount of spirits actually ingested is difficult to determine, and but 8 patients of the 60 could give exact information on this point. The amount of denatured spirits drunk varied from 100 to 400 gms., which represented from 2.5 to 10 c.c. of methyl alcohol. Usually the dose taken was set down as about half a pint, which would represent 7.5 c.c., and this may be taken as the amount sufficient to blind. In most cases the visual disturbances appeared in the course of the third day of the intoxication. The course of these disturbances is very rapid and in from one to three days the acute stage is over. Following, there may be slight improvement, which, however, is not permanent. The peripheral portion of the visual field is seldom altered at the outset. There is a central scotoma which varies in size and degree. With the ensuing atrophy of the optic nerve the visual field contracts concentrically from the periphery and there are disturbances of color vision. The eyegrounds appear normal at first, but in the course of several weeks the papilla is quite paled out and may be excavated or have a greenish tinge. A highly important discovery by Hammarsten and Lindberger is to the effect that wood alcohol poisoning chiefly has to do with the crude wood naphtha, which contains toxic impurities mostly unidentified, and which comprise fusel oil. The author would therefore substitute some other form for wood alcohol poisoning. In home distilled brandy there are the same unknown or partly known impurities as occur in crude wood spirit. According to the author we know next to nothing of the toxic effects of pure methyl alcohol. It was once used in medicine and may still be found in old materia medicas with dosage of 15 to 45 minims.

Fatal Luminal Poisoning.—Chavigny and Ruhlmann relate the case of a man who in addition to a psychosis was an alcohol addict. He took 6 grams of luminal in the course of a few days and died in coma. The autopsy gave entirely negative results, as it does also in the case of animals poisoned with this drug. It is therefore difficult to prove that death was due to the drug, although morally there can be no doubt of this. —*La Presse Médicale.*

The Choroid Plexus in Endocrine Syndromes.—Sabrazès and Duperié state that there is an intimate relationship between thyro-ovarian endocrine disease and anomalies of the choroid plexus. In a case cited of thyro-ovarian insufficiency there were superadded hydrocephalus and hyperthermia, and this according to the authors spoke for a sclerogenous process in the choroid plexus. Monakow has previously asserted that the choroid plexus may participate in endocrine syndromes.—*La Press Médicale.*

Book Reviews.

CANCER AND ITS NON-SURGICAL TREATMENT. By L. DUNCAN BULKLEY, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital; Member of the American Association for Cancer Research. Price, $6.00. New York: William Wood and Company, 1921.

THIS is a well conceived book on a most important subject that should be of vital interest to every practitioner of medicine, whether internist, surgeon, or specialist. Cancer has been studied intensively for years and it is today almost as much of a riddle as it was a half century ago. Mice and monkeys, dogs and fishes have been inoculated and experimented upon in every possible way and volumes of reports of the work done have been issued, yet the profession in general is as far as ever from the knowledge that will be of practical use to cancer sufferers. It seems odd that it has never occurred to the experimenters that the proper study of mankind is not mouse but man. Dr. Bulkley is one of the few (among whom Bell of London deserves special mention) who have studied the disease as it occurs in man in all its aspects—etiology, pathology, biochemistry, and metabolism, and those who are not satisfied with what they have learned from animal experiments would do well, before settling back with a confession of invincible ignorance, to see what has been discovered by a study of the patient and his mode of life. This is already so much that one wonders whether the problem would not have been fully solved by this time had it been approached by all experimenters in the right way.

The most interesting and suggestive section of the book is the one on treatment. It should be read without prejudice, and if so read it cannot but give food for thought. It is curious that even those who believe in nothing but surgery should not be willing, after surgery has removed the neoplasm, to try medical measures just as an experiment to see whether they may not prevent a relapse. Then, if in ten years statistics show that the number of permanent cases is much greater than in former days, some credit will perhaps be given to the medical management as well as to the assumed improvement in operative technique. If any broad-minded surgeon is willing to try the experiment he will find out what to do from this interestingly written book.

PRÉCIS DE MICROBIOLOGIE CLINIQUE. Par FERNAND BEZANÇON, Professeur de bactériologie à la Faculté de Médecine de Paris, Médecin de l'hôpital Boucicaut, Membre de l'Académie de Médecine. Avec 200 figures dans le texte et 7 planches. Troisième édition entièrement refondue. Paris: Masson et Cie., 1920.

BEZANÇON'S book stands in the same relation to French laboratory workers that Hiss and Zinsser's "Textbook of Bacteriology" bears to American bacteriologists. It discusses first certain general considerations and technique, and then classifies the bacteria morphologically and considers for each organism its history, its morphology, its cultural characteristics, certain features of its biochemical manifestations, its serological behavior, and such applied serotherapeutic values as, in the opinion of the author, seem well established.

This new edition contains a chapter on anaerobic bacilli, studies of which were especially developed during the war, and for the most part by American investigators. The volume ends with a section devoted to established methods for the routine bacteriological examination of clinical material, such as blood, exudates, cerebrospinal fluid, urine, feces, buccal secretion, sputum and pus. The sanitary bacteriological examination of water and air is added to complete the value of the text in the service of health officers.

TREATISE ON GENERAL AND INDUSTRIAL ORGANIC CHEMISTRY. By DR. ETTORE MOLINARI, Professor of Industrial Chemistry at the Royal Milan Polytechnic and at the Luigi Bocconi Commercial University. Translated from the third enlarged and revised Italian edition by THOMAS H. POPE, B.Sc., A.C.G.I., F.I.C. Part 1, with 254 illustrations. Philadelphia: P. Blakiston's Son and Co., 1921.

THIS volume, which is only part of a large work, fills a unique place among works on chemistry. It deals with the subject from the theoretical side, from the practical side, and it also seeks to show the relation of chemistry to several industries and commercial pursuits. The work is on the same general plan as the author's book on Inorganic Chemistry. The present volume is divided into two parts, the first deals with some of the questions arising in connection with organic chemistry in general; the second treats of the derivatives of methane, and discusses the hydrocarbons (saturated and unsaturated), the halogen derivatives, the alcohols, the derivatives of the alcohols (aldehydes, ketones, ethers), the acids and their derivatives. The author has inserted numerous tables showing costs, and quantities, and various other statistical data. The descriptions and discussions are concise and easily understood; at the same time the author avoids excess of detail, and selects only methods which have proved their value. The book is different from any work dealing with medical chemistry, but it contains a great deal of information which will round out a physician's view of chemistry and perhaps it may lead him to take an interest in a subject which is too often neglected. The volume (with the previous one on Inorganic Chemistry) is a standard work of reference, and should be in every scientific library.

DISEASES OF THE NOSE AND THROAT. By HERBERT TILLEY, B.S., F.R.C.S., Surgeon Eye and Ear Department, University College Hospital, London; Surgeon Ear and Throat Department, King George's Hospital (Red Cross); Teacher of Laryngology and Otology, University of London; Laryngologist to the Radium Institute, London; ex-President Section of Laryngology, Royal Society of Medicine, London; Formerly Surgeon to the Throat Hospital, Golden Square. Fourth Edition. Price, $7.50. New York: Paul B. Hoeber, 1920.

THOSE familiar with the earlier editions of the work will be glad to know that this latest edition is now published in this country. The book has long been favorably known in England, and deservedly so, for it is one of the best treatises on the nose and throat now obtainable. The author is one of the leading laryngologists (or, in the time-saving jargon of the specialties, triologists) in Great Britain, and his career as a teacher has given him the ability to impart knowledge to others in clear and simple language. The book is exceedingly practical, especially in the section on treatment, the reader being told just what to do and how to do it in the easiest and most effective way.

The subject matter is arranged in the usual way according to location—nose, accessory sinuses, pharynx, and larynx. The illustrations are numerous, 266 in all, and those portraying the anatomical relation and picturing operative measures are capital, most of the latter being on plates. By this means the use of uncalendered paper for the text is made possible, and the reader is spared much eye-ache and blurring of vision. The book will be found most satisfactory by the general practitioner living in the country, and not himself an expert laryngologist yet often forced by the duties of his position to treat affections of the nose and throat and the accessory sinuses.

LABORATORY MANUAL FOR THE DETECTION OF POISONS AND POWERFUL DRUGS. By Dr. WILHELM AUTENRIETH, Professor in the University of Freiburg i. B. Authorized Translation. By WILLIAM H. WARREN, Ph.D. Fifth American Edition. Philadelphia: P. Blakiston's Son & Co., 1921.

LIKE the fourth American edition, the present edition is a translation of the fourth German edition, for a fifth German edition has not appeared. There are but few changes. Tests for methyl alcohol have been introduced and certain minor corrections made, but the book is essentially like the preceding edition. The work is familiar to many laboratory workers and has proven itself. Poisons are divided into four groups: those volatile with steam, organic substances not volatile with steam, metallic poisons, and substances not included in the first three groups. There are three chapters on special examinations and quantitative methods. It is fairly complete, although some of the more recent methods have not been introduced. Gettler's work with methyl alcohol, for instance, is not represented. It is a valuable book for those engaged in this particular line of work.

THE BASIS OF PSYCHIATRY. (Psychobiological Medicine.) By ALBERT C. BUCKLEY, M.D., Medical Superintendent of Friends' Hospital, Frankfort; Associate Professor of Psychiatry, Graduate School of Medicine, University of Pennsylvania; Alienist to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. 79 Illustrations. Price, $7.00. Philadelphia and London: J. B. Lippincott Company, 1921.

As most medical books do, this one tells in its title its chief reason for existence. Almost 450 pages are filled with good working material for the student, provided he does not demand too detailed knowledge from the author. It begins with biological phenomena, carries through cerebral, then autonomic development, mental growth, psychological processes, etiological factors in mental disorders, different types of mental diseases, logically following through to the disorders of the senile period. It would seem rather discouraging to a student to pick up a book of this description and to find after all the newer theories tried out and proved at least worth something and worth knowing, that constitutional tendency is such a big peg upon which so many causes of mental diseases are hung. One sometimes wonders how one-half of the working world manages to earn a living, considering the amount of constitutional tendency there is abroad in the land. The author works out his chain of symptoms of the different diseases in a clear and interesting manner, but when it comes to the treatments he gives the impression of having tied himself in hard knots to the apron strings of older authorities. For instance, in the treatment of neurasthenia, and we use this because it is one of the more common conditions than the others described, he states in part, "In states of marked exhaustion very careful attention must be given to the matters of food and elimination. The amount of food should be limited to the patient's ability to digest. . . . As soon as possible eggs should be added to the milk diet." Then follows a description of how eggs should be given. Now, while great stress in this particular treatment is laid upon elimination, so far as one could find there is not any reference made to food idiosyncrasies in diet. The above treatment might completely upset many a neurasthenic patient who could not digest eggs in any form. Ideas of the relation of anaphylaxis and feeding receive scant consideration. Psychoanalysis, be it good, bad or indifferent, is coldly discussed, or rather stated over several pages, while farther on in the book, under the Psychoneuroses the author says, "The experience of the writer is in accord with that of Dercum and Lloyd that the instances in which sexual matters form the basis of worries, fears, and depressions are not in the majority; that the results to be obtained can be reached without resorting to the operation of 'mental catharsis,' which has the disadvantage of being tedious, painful to the patient, and in the end indefinite as to the accuracy of the results obtained, for the reason that it is difficult to separate clearly that which is primarily the product of the patient's mind from those psychoanalytic results which are products of the examiner's mind."

As a guide purely and simply this book is well worth possessing. It is exceedingly well written and offers fascinating reading and matter for study. In fact, the author's power to interest makes one wish that he had not attempted to cover so much ground in his specialty, but that he could have given more of his attention to the detailed development of psychiatric conditions. In fact, the author's own power to hold interest through his ability of presentation and his evident deep knowledge of his work makes the reader disappointed when he has suddenly thrust before him as he reads a collection of opinions of other authorities. The glimpses the author allows of his own deep knowledge of psychiatric states arouse a hope that at some future time he will again present this book on psychiatry, but containing not so modest an estimate of personal point of view.

THE TECHNIQUE OF PSYCHOANALYSIS. By SMITH ELY JELLIFFE, M.D., PH.D. Second, Revised and Enlarged Edition. Price, $2.50. New York and Washington: Nervous and Mental Disease Publishing Company, 1920.

IN writing of the attitude of the laity, ignorant of the tenets of psychoanalysis, the author says, "The would-be critic is usually in the position of one who, unable to decipher his own Chinese laundry check, immediately feels competent to discuss the whole subject of Oriental languages, history, and culture." Thus, you see on page 35 of this monograph, a resistance has been set up by the author, which would immediately antagonize any student of this subject unless he were sufficiently well instructed to be an analyst, then he would not need the interestingly written knowledge offered here.

Apparently, psychoanalysis is a sealed subject unless one happens to agree with the author. Nevertheless there comes drifting through the mind a wonder if, in a given case of psychoanalysis, the analyst should *not* be "large and stout—5 ft. 10 in., 200 pounds, clean shaven, with a roundish face (description of himself by author, page 85), could the unconscious, temporary love transference from patient to analyst, which seems to be a necessary process for the benefit of the analyzed, be so easily accomplished as this author quite unconsciously infers? Suppose the analyst were dark, small, thin, ugly, and severe, what would happen to the process of transference of affection from unknown depths in the patient to the person of the analyst? Apparently, either all psychoanalysts are good looking or else a wooden image and a dictograph would do as well to help carry wandering love in the patient to a safe and sane harbor, after having been measured by the psychoanalytic yard-stick of the Œdipus-complex.

Queer, too, that so many psychoanalysts are fretted with "word-complex." If the majority of them would but clothe their ideas in simple, understandable English, then perhaps the criticism made by the author of this monograph and quoted above, would not be necessary.

PRINCIPLES OF HYGIENE: A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D., Dr. P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Seventh Edition, Thoroughly Revised. Price, $5.50. Philadelphia and London: W. B. Saunders Company, 1921.

ANY book the editions of which have reached the mystic number of seven has proved itself. It is nearly twenty years since this work first appeared and with each successive edition its worth has been more and more appreciated. Its popularity may be attributed to several causes, such as convenient size, moderate price, and clear and legible type, but especially to the author's handling of his subject—the judicious selection and arrangement of subjects and the very precise and authoritative descriptions given. Dr. Bergey knows his subject and he makes it easy for the reader to share his knowledge.

TRAUMATIC SURGERY. By JOHN J. MOORHEAD, B. S., M.D., F.A.C.S. Late Lt.-Colonel, Medical Corps, American Expeditionary Forces; Professor of Surgery and Director, Department of Traumatic Surgery, New York Post Graduate Medical School and Hospital; Visiting Surgeon to Harlem Hospital; Attending Surgeon, Park Hospital; Consulting Surgeon, All Souls' Hospital, Morristown, N. J.; Lt.-Colonel, Medical Reserve Corps, U. S. Army. Second edition, Entirely Reset. Price, $9.00. Philadelphia and London: W. B. Saunders Company, 1921.

THE first edition of this book was greeted warmly as one of merit and a valuable addition to the working library of the young surgeon. Other books have been written on fractures and dislocations, but the scope of this is wider, taking in injuries of all kinds, not only of the bones and joints, but of the viscera and of the external soft parts and skin, and dealing also with the results of injuries, such as shock, neuroses, etc. This second edition is enriched by the author's experience with war surgery, much of which he finds applicable to the treatment of injuries in civil life. Application is made of débridement, Carrel-Dakin irrigations, the Blake-Keller splints, Willem's mobilization treatment of joint wounds, etc.

The proof-reading of this edition seems to have been better than that of the first, for one encounters few typographical errors. The misstatement regarding the presence of crepitus and abnormal motility in impacted fractures of the surgical neck of the humerus, to which we called attention in the former reviews is repeated here on page 344.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 19, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE program of the evening was arranged in cooperation with the Section of Laryngology and Rhinology.

Analysis of the Systemic and Local Conditions Following Tonsillectomy and Adenoidotomy.—Dr. CORNELIUS C. COAKLEY and EDWARD L. PRATT made this presentation, the first portion of which was given by Dr. Coakley, who stated that their purpose was to analyze the conditions found in their private patients on whom they had operated during the period from January, 1908, to July 1, 1920. He first considered the technique employed and discussed the immediate effects and complications, and then the conditions later found, as shown by the replies to a "questionnaire" sent to each patient asking for certain information, the object being to obtain each patient's view of the value of the operative procedure. In all cases in which the result was not satisfactory, a letter was sent asking the patient to return for examination, so that they might determine whether an unfavorable result were attributable to any fault in the technique, or whether due to some other local condition. During the above mentioned period they had operated upon 926 patients for tonsils and adenoids. Of these 5 were under 1 year; 12 between 1 and 2 years; 43 between 2 and 3 years; 47 between 3 and 4 years; 47 between 4 and 5; 54 between 5 and 6; 36 between 6 and 7; 114 between 7 and 10; 120 between 10 and 15; 83 between 15 and 20; 142 between 20 and 30; 93 between 30 and 40; 38 between 40 and 50; 15 between 50 and 60; 6 between 60 and 68; in 71 the age was not given. Of these 794, or 86 per cent. were given a general anesthetic, and 132, or 14 per cent., were operated with local anesthesia. The operative technique was the same whether done under general or local anethesia. The selection of the anesthetic was mainly a matter of choice on the part of the patient and operator, with the exception that in acute lesions of the kidney and in cases of severe chronic bronchitis and arrested tuberculosis, they deemed local anesthesia preferable to general. Suction was employed in all stages of the operation to keep any escaped blood from entering the larynx. The tonsil was seized with the forceps, the anterior and posterior pillars were carefully freed from the capsules, a cold wire snare was placed around the partially freed tonsil, and dissection completed by closure of the wire loop. Immediately following the excision a rounded gauze sponge on a sponge holder was placed in the fossa to arrest hemorrhage. At the end of two or three minutes it was removed, and all bleeding points grasped with an Allis forceps; if on removing the clamp there was a recurrence of the bleeding, it was their custom latterly to ligate the bleeding vessel or vessels. Each tonsillar fossa was ascertained to be absolutely dry before proceeding to the excision of the adenoids, and was carefully inspected, as were also the enucleated tonsils, to see that no particle of tonsil tissue was left in situ. While performing the operation they had frequently noted in children discrete lymph nodes in the anterior or posterior pillar of the fauces, and sometimes in the velum or soft palate, well anterior to the tonsillar fossa. It was impossible to remove these lymph nodes without removing so much of the anterior or posterior pillars, as the case might be, as to result in a very marked shortening and contraction of the pillars, which was most undesirable. They had watched the course of these lymph nodes and found that at times they disappeared while at other times they continued to hypertrophy similarly to the lymph nodes that were found in the posterior pharyngeal wall. When so located that they might be mistaken for rehypertrophy of the tonsillar tissue, they might be differentiated from a regeneration of the tonsil tissue by the absence of crypts or lacunæ peculiar to tonsil tissue. These lymph nodes were not infrequent in children under five years of age, were rarer in children over five years of age, and seldom seen in adults. The amount of hemorrhage in children under six years of age was seldom more than a dram per tonsil, and the average amount of hemorrhage in adults was less than six drams per tonsil. The hemorrhage was usually less when local anesthesia was employed than when a general anesthetic was administered.

Adenoidotomy.—Dr. Coakley stated that they had coined this term to indicate the fact that they removed the excessive amount of lymphoid tissue in the nasopharynx in contraindication to its complete removal, as would be indicated by the term adenoidectomy. They found it impossible to remove all traces of lymphoid tissue from the vault of the lateral wall of the nasopharynx, and judging from the results of other operators they were no more successful than the writers. Owing to the imperfect removal of adenoid tissue it was never possible to state definitely that there might not be a sufficient hypertrophy of the tissue that remained to produce symptoms either referable to obstruction, sepsis, or infection, extending through the Eustachian tube to the tympanum. The instruments used for adenoidectomy were the LaForce adenotome, followed by Gottstein's curette, and the use of punch forceps to excise the lymphoid tissue below the Eustachian tube on the lateral wall of the pharynx. The amount of blood lost in operations on adenoid tissue was usually more than from the two tonsils combined. *Post-Operative Care.*—Following operation patients were put to bed, kept on their right side as far as possible in Sim's position, so that in case there was any bleeding from either tonsillar fossa or nasopharynx, it was easily noticed by the nurse as coming from the mouth or nose. As regards reaction to the operation there was a marked difference between children and adults, older children and adults being considerably more prostrated by the operation than children under six years of age. *Hemorrhage.*—Dr. Coakley distinguished two types of hemorrhage, namely, one that came on shortly following the operation, usually within twelve hours, while the other came on several days later. The proper treatment of hemorrhage following operation was the rapid removal of the clot, so that the bleeding point might be discovered, an artery clamp placed on the point and a ligature applied. He had never seen a case where this treatment did not arrest hemorrhage. Hemorrhages occurring later in the course of healing were due to the dislodging of the exudate in the tonsillar fossa involving the vessels whereby thrombosed vessels were reopened. In these cases the bleeding was usually controlled by pressure, or by clamp and ligature if necessary. In the series of cases under consideration 15 had had hemorrhages from their tonsillar fossæ requiring to be controlled. There were six males and nine females; the youngest 13 years of age, the oldest 45. Dividing them into classes, nine bled within twelve hours after the operation. Of the 140 patients over 40 years of age operated upon only 2 had had hemorrhages, or 1.3 per cent. There were two instances of hemorrhage from the adenoids; in one case plugging was required while the other ceased spontaneously.

Children who were subject to attacks of acidosis while their tonsils were *in situ*, were frequently similarly affected postoperatively, and their recovery from the operation was delayed according to the degree of the acidosis. They had had but one case of otitis media develop immediately after tonsillectomy. Similarly, they had had but one case of lung abscess following tonsillectomy. This case was reported in detail; it was generally agreed by the physicians and surgeons in charge of patient that an infected thrombus dislodged from a vessel in the tonsillar fossa was carried into the right lung as an infective thrombus. Aspiration of blood at the time of operation could not in any way be considered a real factor in this case. *Deaths.*—So far as they could ascertain but six patients had died since operation. These cases were reviewed in detail. One case of particular interest was that of man, 36 years of age, referred by Dr. Richard Weil and Dr. Theodore Janeway. He had a slight chronic cardiac valvular lesion. His physicians were desirous of getting him into better physical condition, and to avoid all sources of infection that might result in acute infective endocarditis, advised having his tonsils removed, since they were congested and contained much detritus. He made an uneventful recovery from the

operation. Dr. Simon Flexner reported that he could cultivate no bacteria from the tonsils. During two years following the operation the patient had several attacks of acute rhinitis and pharyngitis. About two and a half years after the operation he was found to have an infective endocarditis and bacteria were found in the blood. It was rather remarkable that this patient who had his tonsils enucleated mainly because Dr. Janeway felt that it might be a prophylaxis against acute endocarditis, did develop the disease after his tonsils were enucleated. In another patient, a boy 12 years of age, whose infected and hypertrophied tonsils were removed in the hope that a glycosuria might be improved thereby, it was very evident that the removal of the tonsils improved his general condition and prolonged his life. In two of these six patients the immediate cause of death was not known. In all it was at a date remote from the operation and apparently in no way related to the operation of tonsillectomy.

Dr. EDWARD L. PRATT continued the analysis of these 926 cases, reviewing the replies to the questionnaire sent to these patients. Of the 926 questionnaires sent out replies were received from 689 patients, or 74.4 per cent.; 60 were returned as not found, and 172 received the paper but did not reply. They had reviewed the answers to each question separately and had formulated their statistics exactly from the replies of the patients. To the first question "What caused you to have your tonsils removed?" forty different causes were given by the patients for the removal of their tonsils and adenoids; 244 patients, or about 41 per cent of the cases who gave a definite answer to the question, had had the operation performed for the relief of local throat conditions. Of these patients there were 9 who reported no benefit resulting from the operation because they continued to have frequent sore throats; all were re-examined and in only *one* case was any tonsillar tissue found. In the other 8 cases the cause of the continued throat trouble was traced to other conditions. There appeared to be no question that lymphoid tissue capable of hypertrophying to a considerable degree might be and often was present extracapsular to the tonsils, and might cause a pharyngitis which the patient described as sore throat or tonsillitis. Of the 36 cases giving diseased tonsils as the chief complaint, there were no unsatisfactory reports. The same was true of the 35 cases of hypertrophied tonsils. Quinsy was the next most common etiological factor, occurring in 18 cases, only one of which reported any attacks after the operation. In this case a piece of tonsil was found in the right fossa which might have been responsible for the quinsy. There were four cases of diphtheria and one of angina which reported no recurrence of the condition. Enlarged cervical glands were the chief cause of operation in 27 cases; of these 19 reported entirely successful results; 4 stated that the gland was reduced in size, and 4 reported no benefit. In 3 of the latter pathological examination showed the glands to be tubercular. There were 42 cases in which ear trouble was given as the cause for removal of the tonsils and adenoids. Of 15 who complained of impaired hearing or deafness, there were 9 who reported their hearing as restored to normal, and 6 who were not benefited; these had had badly impaired hearing for some years. There were 35 cases which sought relief from mouth breathing; of these 7 were operated for adenoids and 28 had both tonsils and adenoids removed. Of the total number, 31, or 88 per cent, were entirely successful; 2 partially successful and 2 reported no relief. One of these had a sinus infection and in the other there had been a recurrence of adenoid tissue. About 20 per cent of the answers to the first question gave some systemic condition as the chief cause for the operation. There were 23 different conditions given, of which Dr. Pratt reviewed the more important ones in detail. There were five heart cases. In one of these, a boy of 10 years, with a slightly enlarged heart and a systolic murmur, whose cardiac condition incapacitated him from participating in the usual activities of boys, following the removal of his tonsils the murmur disappeared and he was now able to indulge in all the sports of a normal boy. Two other cardiac cases reported that they were free from symptoms; the remaining two were improved but not entirely free from symptoms. There were 5 cases of acute nephritis with albuminuria and in all these cases all symptoms disappeared after operation. Of 5 cases of asthma, one was relieved, one improved and 3 reported no benefit. Of two diabetic cases, both failed to receive any benefit so far as the diabetes was concerned, though in the case to which Dr. Coakley had referred removal of the tonsils and adenoids unquestionably improved the general condition and joint pains from which the patient had long suffered entirely disappeared. Of 15 cases whose chief complaint was a general run down condition, 8 of whom were children and 7 adults, the results were completely successful, often as startling to the parent as they were gratifying to the operator. Other questions which were included in the questionnaire, the replies to which were reviewed, were as follows: 2. How many previous operations on your tonsils? 3. Has your general health been better, worse, unchanged since your operation? 4. Had you suffered from rheumatism before operation? If so, are you better, worse, or unimproved? 5. Had you had measles, scarlet fever, whooping cough, St. Vitus dance, chicken pox, or diphtheria, before operation? after operation? 6. Had you ever had quinsy before your last operation? After it? 7. Did you suffer from frequent colds in the head before operation? If so, are they less frequent now? 8. How frequently did you have any trouble with your ears (ear ache, discharging ears) (a) previous to operation? (b) after operation? 9. Has anything led you to believe your tonsils have grown again? If so, what? 10. Did you have a general anesthetic (ether) for your operation? or a local anesthetic (cocaine)? 11. Will you please state in a general way your impression of the results of the operation on your tonsils and adenoids? In analyzing the answers to the remaining questions, Dr. Pratt said he was aware that the results were subject in some cases to a varying degree of error. This was especially true of the third question. There were many factors which might influence the general health of the patient after any operation, so that it was hard to estimate, with any degree of accuracy, whether any given operation was a primary, or merely a contributing cause to the result. However, of the 689 cases returning questionnaires all but 14 answered this question and 85 per cent. reported that their general health was better; 12 per cent. reported that it was unchanged, and 3 per cent. stated that it was worse. Of 107 cases reporting that they had had rheumatism before operation, 71 per cent. reported as better and 20 per cent. as unimproved. Of 46 cases in which rheumatism was the primary cause for the operation, only 17 per cent. reported unimproved. Of 53 cases having attacks of quinsy prior to operation, only 2 had attacks after operation. Six hundred and eleven patients made statements as to their general impression of the results of the operation. Of this number 529 reported satisfactory results; 82 unsatisfactory results. The unsatisfactory results were carefully gone into to ascertain the exact reason why they were unsatisfactory. This did not mean that the entire 82 cases were not benefited. One group of 30 cases was not satisfied because the condition for which they sought relief was not improved. These conditions included phlebitis, sore throat, colds, and recurring attacks of pharyngitis. Another group of 24 cases was displeased not because the condition for which they sought relief was unimproved, but apparently because they had expected too much of the operation. The occurrence after tonsillectomy of such conditions as eczema, headache, neuralgia, nervousness, etc., etc., in patients whose complaint at the time of operation was in no way related to such conditions could hardly be considered as just grounds for condemning the operation. They concluded that about 6.8 per cent. of these patients had just reason for dissatisfaction. In concluding, Dr. Pratt said their experience led them to believe: 1. Where the pathological condition of the tonsil warranted its removal, age was a negligible factor as it would be in any other common surgical operation. 2. Hemorrhage either during or after operation, could and should be controlled according to the same surgical principles as governed its control elsewhere in the body during a surgical operation.

3. A well done tonsillectomy and adenoidectomy caused a marked lessening of the acute infections of the upper respiratory tract, and lessened the tendency toward attacks of acute middle ear infections. 4. The percentage of successful and partially successful results in cases of rheumatism justified the removal of tonsils in cases where the tonsils were proved to be diseased, and where the elimination of other sources of infection had failed to give relief. 5. Cardiac and renal cases associated with infected tonsils should be studied with care before advising tonsillectomy, lest serious results ensue. In properly selected cases associated the percentage of successful results justified the operation. 6. Tonsillectomy was not to be recommended as a panacea for all ills, but when the operation was well done, with the view of relieving a definite pathological condition the percentage of successful results was most gratifying.

Dr. SAMUEL A. BROWN stated that this analysis by Dr. Coakley and Dr. Pratt presented a number of interesting facts. First was the direct and definite way Dr. Coakley had answered so many of the questions constantly coming up before them as clinicians relative to the advisability of operating upon the tonsils at different ages and the possibility of hemorrhages and other factors of that type. This presentation could not but be helpful to those who met these problems frequently. Dr. Brown stated that he was particularly interested in the case of cardiac trouble in which the symptoms disappeared after tonsillectomy. He said he could not conceive that this was a true endocarditis. It seemed to him that there must have been a relative murmur or a functional murmur associated with anemia. The question after all was whether there was not a toxemia that was causing the muscular deficiency of the heart and that was what they were interested in when they removed the tonsils. They all saw cases in which the muscular efficiency was improved, the general condition improved and toxemia eliminated after the removal of the tonsils. In relation to the rheumatic cases, it was his experience that they should advise the removal of the tonsils, reserving the possibility that the rheumatism might be associated with infection other than that of the tonsils. But one should not be over-enthusiastic as to the results of removal of the tonsils in cases of rheumatism and should explain to the family that improvement could be expected only where the tonsils were the foci of infection causing the symptoms. Dr. Brown asked Dr. Coakley to express an opinion as to the advisability of removing the tonsils in the presence of acute exacerbation of symptoms, and also whether tonsillectomy was advisable during active rheumatic fever, in the persistent cases.

Dr. WALTER L. NILES said it seemed to him that this very interesting analysis brought forward the important question of the relation of tonsillectomy to general health from a new angle, that was from the standpoint of the patient; the patient had been allowed to judge of the results of the operation, and after all that was something that must be taken into consideration. He thought that the very gratifying results in this series of cases must have been due to the excellent technique employed. He was interested in the subject from the standpoint of the systemic condition, and especially interested in the report of complete freedom from pulmonary abscess. He agreed that in the one case of empyema the operation of tonsillectomy could not be held responsible. He had come to regard pulmonary abscess as a not infrequent sequel of tonsillectomy and had seen at least a dozen cases in which tonsillectomy seemed to have been the etiological factor. Pulmonary abscess was of such serious significance that it must be taken into consideration both in deciding as to the advisability of operation and the type of operation. Keeping the throat free from blood during the operation was undoubtedly an important factor in avoiding this complication. The symptoms of lung abscess did not manifest themselves until four or five days after the operation and were very frequently taken for tuberculosis. At Saranac he had seen a number of cases of lung abscess that had been diagnosed as tuberculosis. As an aid in the diagnosis of lung abscess the *x*-ray did not tell very much, but in the presence of such symptoms after tonsillectomy had been performed one should be very suspicious of pulmonary abscess. With reference to the heart conditions, he thought this presentation emphasized the importance of the tonsils as a source of infection and doubted whether in many cases the endocarditis was not present at the time the tonsillectomy was performed; he imagined the infection must be present in the heart valves many years before the symptoms developed, but in cases of endocarditis the removal of the tonsils was a preventive of the further entrance of bacteria from that source. He believed that cases of acute rheumatic fever were often benefited by tonsillectomy and were to be regarded somewhat differently from those of subacute bacterial endocarditis. He was much interested in the kidney cases reported and fancied they brought home a lesson that should be regarded more frequently. One saw many cases of early nephritis, not interstitial nephritis but parenchymatous nephritis, without hypertension but with edema, and in a number of such cases he had seen the symptoms clear up after tonsillectomy. The small number of cases reported this evening in which tonsillectomy had apparently benefited cases of early nephritis bore out his feeling on this subject. As to chronic arthritis it was well to remember that Dr. Coakley did not advise tonsillectomy simply because the patient had an arthritis. He thought a great deal of the dissatisfaction with the operation was because the patient had not been carefully studied and a reasonable determination made as to whether or not the tonsils were infected. Some of Dr. Coakley's cases illustrated the fact that many foci of infection other than the tonsils might be present and lead to secondary systemic manifestations, so one should not take chronic arthritis and regard only the tonsils, but should take into consideration other foci of infection. In concluding, Dr. Niles said he felt that this discussion would aid in determining the probable outcome of a tonsillectomy, and emphasized the importance of studying the individual case and not performing a tonsillectomy lightly.

Dr. WOLFF FREUDENTHAL said the information they had received to-night was surely very interesting. He could only congratulate Dr. Coakley and Dr. Pratt on their very excellent results; 86 per cent of good results after tonsillectomy was remarkable and he was sure it was entirely due to the skill of Dr. Coakley and Dr. Pratt. His own experience went back over thirty years and he did not dare hope that his results were as good as those mentioned this evening. He took a peculiar standpoint in regard to tonsils. Dr. Coakley reported that he did tonsillectomy in children under three years of age. Dr. Freudenthal did not do a radical operation on children of that age unless the tonsil was absolutely hidden behind the pillars. Otherwise he did an old-fashioned tonsillotomy. He felt that perhaps he was the only man in New York who continued to do that operation, but the old practitioners were not men who acted wholly without reason and they had some very good results too. His experience was that it was better to take out only that part of the tonsil that interfered with breathing when the child was so young, even at the risk that one might have to do a complete tonsillectomy later on. He left as much tissue *in situ* as he could for many reasons. A few years ago he had published a paper in which he spoke of the destruction of the physiological function brought about by complete removal of the tonsils and also of the destruction of a great deal of the pharyngeal function. The speakers did not mention the detrimental effects of tonsillectomy which were also to be taken into consideration. When one sees the large amount of scar tissue in some patients following tonsillectomy one is not surprised that these patients should suffer more with throat symptoms than before the removal of the tonsils. He had seen many lesions, as, for example, adhesions of the anterior and posterior pillars and had seen almost the entire soft palate adherent to the posterior wall of the pharynx so that it was difficult to free it. Many of these patients came from other clinics to his department. Quite a number in private practice. It might be recalled that Dr. Fleischman came out with the idea that the tonsils had a certain function in stimulating the leucocytes and were *glands of internal secretion* comparable to

the thyroid and adrenals and secreted a distinct substance which was discharged into the oral cavity and into the blood stream. Many who performed tonsillectomy had numerous failures, since few were as successful as the men here to-night. Indeed, the results were sometimes very bad. Dr. Freudenthal asserted he had seen rheumatic fever, tuberculosis, and other diseases develop in spite of the fact that the tonsils were taken out and all the teeth as well. In view of this his advice was "Be very slow in taking out the tonsils and all the teeth."

Dr. HAROLD HAYS said these two papers brought out a number of points that should cause them to think considerably. Two points were of particular importance. In view of the large number of successes following tonsillectomy reported to-night he was wondering how many patients would refuse operation because of the new treatment by the *x-ray*. He feared that a great many persons would delay having the operation done where it was absolutely necessary and would submit to *x*-ray treatment in spite of the very inconsequential proof so far as the results of *x*-ray treatment were concerned. Another point was that he had seen a number of failures following tonsillectomy where a secondary operation had to be performed and Dr. Coakley and Dr. Pratt reported having seen similar failures. From this we ought to understand that although tonsillectomy was considered a simple operation it should not be performed by everybody, but only with circumspection and by those with experience. It would have been interesting if Dr. Coakley and Dr. Pratt had said something of how the throats looked in the cases in which the operation had failed. One saw many malformations as a result of improperly performed tonsillectomies that were never reported. As to hemorrhage, it did play a large part in tonsillectomy, and for that reason in many patients the coagulation time of the blood was not taken. He had found that one could not place much reliance upon the coagulation time of the blood as an indication of the possibility of hemorrhage. He had operated upon patients in whom the coagulation time was high, even ten or twelve minutes, and had encountered no severe bleeding, while in others in whom the coagulation time was four or five minutes he had had trouble. Nevertheless, he felt that in bleeders one should take the coagulation time of the blood. Dr. Hays said he was impressed with the results reported in the mouth breathers in this series of cases. As a rule one could not promise too much in the way of relief to mouth breathers by removal of the tonsils, for many times nasal breathing was not as good as it should be, and the condition present was such that it could not be corrected by tonsillectomy and adenoidotomy but only by orthodontia. Dr. Hays said he used to claim that if the anesthetic were properly given lung abscess would not follow tonsillectomy, but unfortunately he had seen a case of lung abscess in which the greatest precautions had been taken. He felt that lung abscess might be due not only to the aspiration of blood but to lack of resistance in the lung tissue. However, under general anesthesia with suction he was confident that there were fewer abscesses than formerly occurred when lung abscess had not been diagnosed and recorded. They saw in this series, 14 cases in which the chief complaint was general malaise, which was relieved by tonsillectomy. In this connection Dr. Cotton's report of the relief and improvement of various mental conditions following the removal of a foci of infection was interesting. Such evidence forces one to the conclusion that many systemic conditions were due to foci of infection in the tonsils, teeth, and intestinal tract, and frequently the general condition was improved by removal of the tonsils. He thought it would be very difficult for most men who were doing this operation to present statistics as successful as these. The subject had been handled, Dr. Hays thought, in a most illuminating manner.

Dr. BEAMAN DOUGLASS said he had not expected to discuss these papers but felt that he ought to say something in corroboration of the views of the speakers, presented in such an unusual way and with statistics on a sufficiently large number of cases to enable them to draw conclusions. The papers contained no surprises, or at least very few surprises to the man who saw many tonsil operations. It conveyed to the minds of those who had never made a statistical study confirmation of their general experience as to what happened in these cases. One point in this report, he did not understand and that was how a vasomotor rhinitis could be cured by tonsillectomy unless the adenoids were removed. The other parts of the papers were very satisfactory and coincided with the results of the work at the Post-Graduate Hospital, yet the conditions under which this work was done in a hospital were very different from those in private practice. In the Post-Graduate Hospital they had several classes of men doing the operations. They had the high-class men who were doing private work and the postgraduate students, yet among 1,500 operations they had had but three instances in which there was hemorrhage sufficiently serious to call the house surgeon from his room to the ward. They had had no pneumonia cases and only two deaths, both occurring in the service after operation by high class specialists. One was said to be due to morphine and the other to hemorrhage not stopped in time. There was a strange uniformity in the two series of cases, yet in the Post-Graduate series they had high-class specialists, a great many mediocre operators and many students. He had wat hed the cases very carefully and was surprised that they had so little trouble and that they were so free from postoperative complications. He felt that there was nothing to say against tonsillectomy or the new way of performing the operation. Dr. Freudenthal said he was probably the only one doing the old operation of tonsillotomy, and no one else ought to do it. Since the introduction of tonsillectomy it was perhaps conservative to say that three million tonsillectomies had been done in the United States, and many on whom the operation was performed had had time to grow to adult life and older ages and one did not hear either directly or indirectly any bad word for the tonsil operation. Though it was not a minor operation it was largely devoid of danger and gave good results. Probably the percentage of good results reported this evening was a conservative one.

Dr. CHARLES HENDEE SMITH stated that one of the remote effects of tonsillectomy was its influence on the child's weight. Everyone has seen children who came to the dispensary a day or two after an operation on the tonsils with circles under the eyes and a foul breath and who were taking no food. If one weighed these children before and after the operation it would be found that they had sustained a considerable loss of weight. If weighed regularly it would be found that these children recovered their normal weight very slowly. He had seen a child lose as much as ten pounds and take three or four months to recover it. By keeping the child in bed a week, until his appetite returned, he did not burn up his reserve fat as fuel and recovered quicker from the effects of the operation. At the end of a week the loss would be regained and the child go on to uninterrupted recovery. When tonsillectomy was performed on members of the cardiac and nutrition classes at Bellevue they made it a rule that the child must be kept in bed for a week. He believed that was the most important factor in the after care of tonsil cases.

Dr. COAKLEY, in closing the discussion, said Dr. Brown had brought out the point as to the occurrence of acute articular rheumatism after tonsillectomy and also in regard to operation upon cases of acute articular rheumatism that had not yet recovered from the acute attack. So far as the first problem was concerned, rheumatism immediately after tonsillectomy, he had record of but one case. That patient had acute articular rheumatism associated with mild polyarthritis and acute tonsillitis; she recovered from the tonsillitis and practically recovered from the polyarthritis. In this case, Dr. Coakley said he was urged to operate as soon as he thought wise because she was a cook and a very necessary person in the household to which she belonged. At the operation one of the tonsils came out very nicely and cleanly; it was impossible to get the other tonsil out completely and a portion was

left in the supertonsillar fossa. A short time after operation, perhaps forty-eight hours later, there was a mass in that tonsillar fossa larger than before the patient was operated upon and the acute polyarthritis became much more severe. It seemed that the connection between these two occurrences was very great. In no instance in which there was complete tonsillectomy had he ever seen acute polyarthritis or rheumatism follow the operation. As to the second question, he had often felt that the time to take out the tonsils in polyarthritis, where the tonsils were *in situ* and diseased, was during the acute stage. The nearest he had come to that, however, was in scarlet fever cases at the Rockefeller Hospital where they were trying to work from the tonsils as a source of infection. Dr. Flexner had asked him to take out the tonsils so that he could examine them for organisms. He performed tonsillectomy on six or eight patients in whom the temperature was between 102° and 103° F., and the tonsils were full of exudate. In no case was there albumen in the urine as a result of the anesthesia, and in most of the cases the temperature dropped following the operation. It was quite possible that in certain cases of acute polyarthritis tonsillectomy might be effective in improving the condition; he would like to see it tried. As to the patient who Dr. Janeway thought might be getting chronic endocarditis, he was an important man in the community and they were afraid he might develop an endocarditis. He did the tonsillectomy and the man did not die until three years after the operation. It was barely possible that he had the organisms locked up in his heart at the time of the operation, but Dr. Janeway thought his chances of escaping endocarditis were better if his tonsils were removed. As to Dr. Freudenthal's experience with tonsillotomy, he did not see why one was justified in leaving one-half of an infected tonsil any more than he would be justified in leaving one-half the appendix in doing an operation on that organ, and saying that if the operation was not successful the remainder of the appendix could be taken out later. He agreed that tonsillectomy in children two or three years old was a more difficult operation than in adults as the capsule was exceedingly thin and one must be extremely careful not to destroy the anterior or posterior pillar, but with care it could be done in children as well as in adults. If part of the anterior or posterior pillars were destroyed and one attempted to do a tonsillectomy later the result was not pleasing. Dr. Hays had spoken of the coagulation time of the blood. He agreed with Dr. Hays that one could not place a great deal of reliance upon the coagulation time as an indication of the amount of hemorrhage that would occur at operation, but when a patient stated that he was a bleeder it was wise to take the coagulation time. Dr. Hays expressed regret that reference was not made in the papers to deformities following operation. He regretted to say that they sometimes did get deformities, and they occurred a little more frequently in the posterior than in the anterior pillar, but if one was careful and dissected the posterior pillar first and then the anterior pillar deformity would not often occur. One could not say that if the patient had been operated upon before, for in secondary operations one did not always get as good results as in primary operation, he saw no reason why lung abscess should always be due to the inhalation of blood, why it might not be of the infarct type. During the operation the parts were in motion and there was a certain amount of tearing loose of blood vessels and clots and an infarct might get into the lung. There were perhaps more infarct cases than we thought; that was a matter that should be looked into. In regard to the loss of weight following tonsillectomy in children to which Dr. Smith had referred, there was less trauma in the dissecting operation than in many operations done with instruments of the Sluder type, and there was less interference with the ability to take food. They kept all their patients quietly in bed for forty-eight hours, following operation; this lessened the danger of taking cold as well as being an advantage in other respects. Even the child with diabetes on a restricted diet lost only a quarter of a pound following tonsillectomy. The children they operated upon did not lose weight to any extent.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting Held May 25, 1921.

THE PRESIDENT, DR. GEORGE MORRIS PIERSOL, IN THE CHAIR.

The Rat Menace of the United States.—Dr. S. B. GRUBBS, Surgeon, U. S. Public Health Service, read a paper in which he said that there was undoubtedly a rat menace; a menace to life and a menace to business from bubonic plague which had been spreading over the world during the past twenty-five years. There was, on the other hand, an economic loss from rats that was going on each day and night. For our purposes it was sufficient to recognize that we had to deal with the gray, or burrowing rat, and the black, or climbing rat. All rats possessed an intelligence that was most uncanny, certain highly developed special senses, and a strength and persistence that overcomes many difficulties. Generally speaking, both kinds of rats were scattered all over the civilized globe, were intimately associated with man, and fed upon everything that he produced as food for himself and his domestic animals. The gray, or Norway rat, was the pirate rat of the story books. While not nimble, he had managed to board ships and to travel to all ports. He killed for the love of killing, as well as for food; what he wanted he took; he feared no animal his size. He was short of tail, broad of jaw and back, heavy and muscular; good at digging, but poor at running or climbing—let others run or climb when he walked forth. He lived where he chose, which was in burrows, or near the ground, in or under a protecting structure. Under the term black rat were included *Mus alexandrius* and *M. rattus*. This one was more slender, graceful, and agile. His tail was long. He could run well and climb wonderfully, but, being no match for the gray rat, thrived in the walls and roofs of houses and such places as his enemy could not go. All rats were prolific breeders. Beginning at two months, females would produce as many as eight to ten litters a year, each consisting of eight to twelve young. Fortunately rat infant mortality was large, and a decreased food supply would reduce both the number of litters and the number of young in each. Restricting the nesting places also decreased the number of litters, but had slight effect upon the number in each. In addition, restricted nesting places meant restricted protection, so that in the struggle for existence the young and weak ones were driven out or killed by the stronger ones. It was upon the restriction of rat food and of rat nesting that all our efficient and economical measures must be based. Rats had diseases, some of which might be transmitted to man. Rat leprosy, infective jaundice, and rat-bite fever might be largely of academic interest, but bubonic plague was an every-day danger and an economic loss. With the beginning of this century plague invaded the western hemisphere, appearing in San Francisco in 1900 and in Enseñada and Mazatlan, Mexico, in 1902. Coming from the other direction in 1912, it reached Porto Rico, probably from the Canary Islands, and shortly after it appeared in Havana and New Orleans. During 1920, plague was found in Pensacola, Florida, and in Galveston and Beaumont, Texas. In February of this year it occurred in Porto Rico once more. In those places that were solidly and permanently constructed, such as many European ports, or where the disease was fought by a vigorous anti-rat campaign, as in the United States, it might be eradicated, but where buildings were harbors and efforts were divided between rat control and prevention of human cases the disease usually became endemic. He believed the chief value of rat catching was to locate rat infection in advance of human cases, and so they examined every rat they could get, and also insisted on permanent ratproofing, not only of infected, but of all buildings. Plague was a hard disease to exclude, and difficult to eradicate when once admitted. The experience in New Orleans, where human plague reappeared after eighteen months without finding any rat infection—April, 1917, to October, 1919—during which time 50,000 rats were examined, must make us timid about declaring the infection definitely eradicated, and should cause us to

advocate that in places once infected, rat control and surveys in some form should continue indefinitely. Dropping for a moment this public health aspect of the rat question, the speaker said, he would consider the harm that the healthy rat does. A large amount of damage was done by rats seeking food or gnawing apparently for the mere fun of it. Everyone who stored merchandise, except under exceptional circumstances, would find rat losses of some kind if he would investigate. Captains and managers of vessels who were alert to save, usually knew that rats played havoc with certain cargoes, and were, therefore, glad to have their ships fumigated, although this might cost them $100, in addition to several hours' delay. All they asked was that the fumigation should get the rats and stop claims against them for rat damage to cargo in transit. The greatest loss was from the consumption and waste of food products. The best general estimate that we had now was that there was one rat for every city dweller and ten for every one living in the country, and that the food of each rat cost approximately half a cent a day, or $1.83 per year. Primary rat-proofing, made as a part of the original construction, added but slightly to the expense. If this was neglected, however, so that it became necessary to alter buildings already up, the expense was considerable. We know from experience that quarantine alone could not be entirely relied upon. We needed to stress the advantage of rat-proofing in advance of infection. It would be good business for every port, and in fact, for every inland city, to require new construction to be rat-proof. Such requirements would gradually convert our rat-ridden seaports into places where rats could easily be controlled, where rat losses would be small, where plague would have a small chance of getting started, and where, if it did, it could rapidly be exterminated.

The Rat in Relation to Philadelphia's Food Supply.—Dr. HENRY D. MARTIEN, of Philadelphia Bureau of Meat Inspection, read this paper, in which he said that in the recent rat campaign special investigations were conducted of conditions, laying stress upon places where foodstuffs were stored or handled. This class of buildings included food warehouses, animal abattoirs, chicken keeping and slaughtering establishments, markets, meat markets, fish and oyster houses, grocery stores, bakeries, restaurants, and fertilizing plants. These places afforded rats a most bountiful ration to feed upon, and further provided most favorable conditions under which they bred. Dirty, careless merchants, buildings with defective walls or foundations, broken wooden floors, unscreened ventilators; doors, windows, and transoms left open during the night; doors and windows in poor repair, defective sidewalks, privy wells, defective plumbing and storing of boxes, barrels, and papers in cellars and vacant rooms were some of the conditions which were encountered in his routine inspection work. It was these conditions that he strove to correct. Another most important feature of the rat control work in regard to food supply was the surrounding environment, such as stables, poorly built buildings, carelessness in handling foods, and in the disposal of waste material. The chicken keeping and killing establishments were a very common place of rat infestation, as it was almost always the rule that rats and chickens went together. The rat-proofing of a chicken establishment was a difficult problem for the following reason: The price of poultry and the margin of profit made the owners of these places most reluctant to institute necessary improvements to keep out the rat. Dr. Martien said he was not advocating high prices, but if the shopkeeper put his building in proper sanitary condition and kept it so he must work on a greater margin of profit. The abattoir was possibly the worst infected place that presented itself to-day, on account of the fact that a vast amount of material that was at hand to feed upon and also on account of presenting most favorable breeding places. The pens in which the live stock were kept afforded most favorable breeding places as well as a shelter; stables which were in almost all cases located near these abattoirs provided favorable breeding places. Some of the means employed in Philadelphia's deratization work were briefly: Anti-rat propaganda scattered by means of anti-rat editorials and publications in the daily newspapers; pamphlets and bulletins scattered by the Department of Public Health and the United States Health Service. An educational campaign must be conducted, depicting the proper methods of rat-proofing. The erection of buildings with rat-proof foundations should be encouraged. The building laws for new buildings and repair work should be corrected. Wooden floors should be replaced with cement, defective concrete floors should be patched with concrete; defective openings around pipe and rat holes should be sealed with cement; all ventilators, doors, windows, transoms, and skylights should be screened. In short, we should build out the rat. In rat-proofing a building the following conditions must be considered: Ground area, walls, ceilings, garret roof, dead space in general, ventilators, abandoned sewers, doors, windows, outside piping, water and sewer piping, down spouts, wiring, and air and light shafts. A very small detail might be overlooked whereby a rat-proof structure might become badly infested. In the educational work several classes and conditions were met with: First, the man who was progressive in business and was eager to comply with the city's request; 10 per cent. of the merchants could be placed in that class. Second, a group who were willing to comply, but on account of ignorance were continually a health menace. A large majority of the people with whom the speaker came in contact would fall in this class. Third, those who were in business for gain only and cared not for any law. In conclusion he pointed to some of the results attained in Philadelphia's rat work. Today they had under control the rat situation in the wholesale fish market, and one might say the market was clean. In the cold storage plants the rat was finding a hard time to exist, and the same statement applied to the abattoirs. The educational campaign had been most successful as a large majority of the food handlers had been convinced that the rat was a health menace, a pest, and a destroyer of property, not only by eating food products, but also by setting fire to property.

Bubonic Plague: The Rat Situation in Philadelphia.—Dr. C. Y. WHITE, director of the Laboratory of Hygiene of Philadelphia, read this paper, in which he stated that he had been in three campaigns in Philadelphia, one starting in the latter part of 1912-13, then in 1914, and in the fall of 1920. The earlier campaigns were undertaken for the purpose of determining whether bubonic plague was present in Philadelphia or not. They made a strenuous effort to capture as many rats as possible. In the last campaign, while they tried to get rats, the chief message was through an educational campaign. To help this educational proposition along the department prepared a great number of circulars. These pamphlets were placed chiefly in business houses and in places where they tried to educate those who came in direct contact with the rat. It was pretty well accepted at present that plague was carried from place to place, or port to port, or locality to locality by the rat, but the actual infection to the human being was due to the rat flea. In the plague situation in the south it was demonstrated very well, or at least surmised, that the flea had a great deal to do with this dissemination. Dr. White said the department had examined about 12,000 rats. They found 22 leprosy rats in those dissected in the three campaigns. Dr. White said he felt that in Philadelphia, in order to keep up the rat campaign, it should be made a part of the function of the Public Health Department. He thought Dr. Grubbs would agree with him that it was impossible to expect the community to rid a place the size of Philadelphia of rats. As fast as one killed them off probably so fast they would breed, but a community the size of Philadelphia should know the condition of its rat population and that could be done by surveys, probably not quite as extensive nor quite as large as the United States Public Health Survey suggested. They suggested about 10 per cent. survey, which would mean in Philadelphia about 200,000 rats.

The cost of the rat survey in the South had been from $1 to $1.30 per rat. In the rat campaign in Philadelphia, last fall, while it was not as extensive as the southern rat campaign, they were able to catch a rat and dissect it for about 30 cents. So they felt

that if they were to have connected with the department here a small rat corps, consisting of probably three or four rat catchers and an inspector, they could accomplish much in one year as to the rat population. Then if they found an infested rat, devoting the employment of the larger corps to clean up. We should strive to induce Congress to give our Public Health Service in Washington a bigger appropriation, so that they could go to the root of the matter and handle the situation outside of the United States. The keystone to the whole subject of the plague situation was to keep out the rats rather than to try to get them out after they came in.

Dr. JOSEPH MCCRACKEN of Canton, China, said that he would like to say a little bit about what they had found in the Orient. He was fortunate enough to be in Canton, where this plague was supposed to have begun, and sitting on the wall of the city of Canton, in one hour he counted over 200 coffins going out of that one gate to be buried on the hills back of the city. When it was considered that there was a population about the size of Philadelphia all within an area of not more than two miles square, and where the roofs were so close one could almost step from one house to the other and realize that there was absolutely nothing done in that whole city for the sake of health, not anything whatever by the government, and very little by any individual, and when one realized that there was practically no sewer system in that city, and that the place was riddled with rats as well as infested with the bubonic plague, it almost made one wish one had a diver's suit to go down and walk on the streets; and yet, after living in Canton six or seven years, he knew of only one foreigner who had died of plague. That foreigner was kind enough to pick up a patient afflicted with bubonic plague, and he vomited almost into the helper's face, and he died of plague a few days later. Most of the talk was about bubonic plague, and that was the general kind they had in the South. He knew of a very few cases in the southern part of China which was pneumonic; it was bubonic. He was of the opinion that there were two separate diseases. It had generally been their idea that the bubonic plague was carried by the rat and the pneumonic possibly by some other animal similar to, but not a rat. In northern China a recent statement by Dr. Wu, in charge of the plague in North Manchurian Mission, and Dr. Young, a practitioner in Pekin, showed that the first cases were bubonic and then the pneumonic form developed. That was certainly not brought out in the epidemic which existed in China a few years ago. It was of the pneumonic type. The mortality in the bubonic form was very much less than that of the pneumonic, which was absolutely fatal; so fatal was it that Dr. McCracken remembered that when they had an epidemic in northern China some of the southern nurses volunteered to go up and help in the plague, and eleven went up. After nine had died with pneumonia one of those left came home with high fever and headache, and thinking his time had certainly come, he told the Chinese boy in the hotel where he was living what to do with his trunk and fur overcoat, and then he took a big dose of medicine and thought it would be the last of him. He woke up the next morning, feeling much better, but when he looked for his trunk and fur overcoat they were minus. The boy had skipped. In the houses of the native Chinese, where one had very little authority over the people, it was almost impossible to carry on anything like a thorough campaign.

Dr. SENECA D. EGBERT said that he felt that the point that was made in regard to the development of the idea of cleanliness in many of our stores and other establishments in the city was most important. The survey he made a year and a half ago had impressed upon him that many, many places where food was handled and dispensed were beyond the pale of cleanliness. The people who managed them did not know what cleanliness meant. There was a tremendous amount of campaigning that we all might do. We could help our patients to feel that they must carry on this campaign of education. In other words, we could insist upon cleanly food coming from cleanly places and refuse to deal with places that were not cleanly.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO STATE BOARD OF MEDICAL EXAMINERS.

Denver, January 4, 1921.

ANATOMY.

1. Define and locate lateral sinus, fissure of Sylvius, anterior fontanelle, conjunctiva, and mitral valve.
2. Describe the shoulder joint with overlying structures and muscular attachments in the immediate vicinity.
3. Define hernia. Describe minutely the anatomical course of the inguinal and femoral types.
4. State definitely the result of cutting these nerves in the living subject: radial, facial, and recurrent laryngeal.
5. Give attachments, action, and nerve supply of the following muscles: adductor longus, gastrocnemius, triceps femoris, sternomastoid, and temporal.
6. Describe the thyroid gland.
7. Discuss the anatomical divisions of the small intestine.
8. Describe the location where the femoral artery is most readily tied. What structures must be cut to secure it at this point?
9. Describe Hunter's canal and its contents.
10. Describe in detail the ligaments of the uterus.

PHYSIOLOGY.

1. Describe the digestion of a meal of beefsteak and potatoes.
2. Does alcohol possess a food action, and on what do you base your answer?
3. What digestive changes takes place (1) in the small intestine, and (2) in the large intestine?
4. State the origin, nature, and destination of the glycogen of the liver.
5. State the origin and the various uses of lymph in the human body.
6. Describe the changes that take place in secreting glands during activity and rest.
7. State the influence of the blood circulation on the secretion of the urine. How would the division of the renal nerves affect the secretion of urine?
8. Define afferent, efferent trophic, inhibitory, motor, and vasomotor nerve fibers.
9. How is accommodation in the eye accomplished?
10. What nerves control the action of the heart?

CHEMISTRY

1. Define atomic and molecular weight.
2. Differentiate (*a*) A mass of matter; (*b*) a chemical compound; (*c*) an elementary body. Give example of each.
3. What are chlorides, bromides, and iodides? Give examples.
4. What is common salt? (*a*) How is it obtained? (*b*) Give the manner in which it acts when used in freezing mixtures.
5. What foods undergo lactic acid and butyric acid fermentation?
6. Explain the principal action of yeast.
7. What organic acids are present in vegetables and fruit?
8. How does urea originate in the body? In what morbid conditions is the amount diminished and in what increased?
9. Write the chemical equation of the reaction occurring when sodium bicarbonate is administered for hyperacidity of the gastric juice.
10. Give a reliable test for bile in the urine.

ANSWERS.

ANATOMY.

1. *The lateral sinus* is a venous blood channel situated between the periosteal and meningeal layers of the dura mater of the brain. It extends from the internal occipital protuberance to the jugular foramen.

The fissure of Sylvius is situated on the outer surface

of the cerebral hemispheres. It is a deep fissure of the brain beginning on the outer side of the anterior perforated space, and extending outward to the lateral surface of the hemisphere.

Anterior fontanelle is a diamond shaped space found in the skull of infants; it is situated between the parietal and frontal bones.

Conjunctiva is the mucous membrane covering the anterior part of the eyeball and reflected upon the inner surface of the eyelids.

Mitral valve is the valve protecting the orifice between the left auricle and left ventricle.

2. The *shoulder-joint* is an enarthrodial joint formed above by the glenoid cavity of the scapula and below by the head of the humerus. Its ligaments are glenoid, coraco-humeral, and capsular. The glenoid surrounds the edge, deepens the glenoid cavity, and is continuous above with the long head of the biceps tendon. The capsular ligament, extensive and loose, arises above it from circumference of glenoid cavity behind the ligament, is attached below to the anatomical neck of humerus, and is pierced by tendons of two or three muscles. The coraco-humeral, or accessory, is a fibrous band which extends obliquely downward and outward from the coracoid process to the anterior part of great tuberosity, strengthening the capsular ligament. A *synovial membrane* lines the joint, and forms the bursa under the subscapularis. It is reflected round the tendon of the biceps, and lines the bicipital groove. The *nerve supply* is from the circumflex and suprascapular nerves. The *arteries* are branches of the anterior and posterior circumflex, and the suprascapular.

The *muscles in relation with the joint*, are: above, the supraspinatus; below, the long head of the triceps; in front, the subscapularis; behind, the infraspinatus and teres minor; internally, the long head of the biceps. The deltoid covers the joint in front, behind, and externally.

3. A *hernia* is a protrusion of part of the parietal peritoneum, through some weak point in the abdominal wall, in the form of a sac; in this sac may be a portion of the omentum, small intestine, or occasionally some other abdominal organ.

The forms of inguinal hernia are:

(1) *The Direct*, in which the hernia does not occupy the inguinal canal, but leaves the abdomen to the inner side of the deep epigastric artery, through the space known as Hesselbach's triangle. There are two forms of this variety: (*a*) the hernia may escape between the epigastric artery and the obliterated hypogastric artery; (*b*) or it may escape between the obliterated hypogastric artery and the outer edge of the rectus muscle.

(2) *The Indirect* or *Oblique*, in which the hernia occupies, wholly or in part, the inguinal canal. An *oblique inguinal hernia* may pass into the scrotum or labium majus, when it is called *complete*; or may be retained in the inguinal canal, when it is called *incomplete*, or a *buboncele*.

COVERINGS OF INGUINAL HERNIA.

DIRECT.	INDIRECT.
Skin.	Skin.
Superficial Fascia.	Superficial Fascia.
Intercolumnar Fascia.	Intercolumnar Fascia.
Conjoined Tendon.	Cremasteric Fascia.
Transversalis Fascia.	Infundibuliform Fascia.
Subperitoneal areolar tissue.	Subperitoneal areolar tissue.
Peritoneum.	Peritoneum.

Femoral hernia leaves the abdomen through the femoral ring and descends into the femoral canal; this canal is funnel-shaped, is about half an inch in length, and ends at the saphenous opening. Femoral hernia is always *acquired*, and has a sac. Its course is first vertical, then forward, then upward over Poupart's ligament. Its coverings, from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous tissue, and peritoneum. The neck of the hernia is situated at the femoral ring; to its outer side lies the femoral vein, and to its inner side is Gimbernat's ligament; in front of it is Poupart's ligament, and behind it are the pubis, the pectineus, and the pubic portion of the fascia lata.

4. *Section of the radial nerve* may cause a slight loss of sensation on the thenar eminence and the back of the hand and fingers.

Section of the facial nerve causes a paralysis of muscles of facial expression on the affected side; the face on that side is smooth and free from wrinkles; the eye cannot be closed; the nostril cannot be dilated; the mouth is drawn to the unaffected side, and food passes between the cheek and the teeth; attempts at whistling show distortion of the face. There may also be loss of the sense of taste in the anterior two-thirds of the tongue on the affected side.

Section of the recurrent laryngeal nerve causes hoarseness, and loss of voice; or the voice is weak, and altered in character.

5. ADDUCTOR LONGUS. *Origin:* Front of pubic bone where the crest and the symphysis meet. *Insertion:* Into the linea aspera of femur, between the vastus internus and adductor magnus. *Action:* Adductor of the thigh, and flexion of thigh on pelvis. *Nerve supply:* Obturator nerve

GASTROCNEMIUS. *Origin:* Upper and back part of inner condyle, and outer surface of external condyle and adjacent part of back of femur. *Insertion:* Into lower and back part of os calcis. *Action:* Extensor of foot, it raises the heel; it also flexes the femur on the tibia. *Nerve supply:* First and second sacral nerves.

STERNOMASTOID. *Origin:* Upper and outer part of the anterior surface of the manubrium sterni, and upper surface of the clavicle at its sternal end. *Insertion:* Outer surface of mastoid process of the temporal bone, and outer part of the superior curved line of the occipital bone. *Action:* To flex the head to the same side as the muscle; the two acting together flex the head on the thorax and also raise the upper thoracic wall in forced inspiration. *Nerve supply:* The spinal accessory nerve and a branch from the cervical plexus.

TEMPORAL. *Origin:* Temporal fossa and inner surface of temporal fascia. *Insertion:* Into coronoid process of inferior maxilla. *Action:* It raises the lower jaw, and aids in drawing the jaw back. *Nerve supply:* Inferior maxillary division of fifth cranial nerve.

6. The *thyroid gland* is situated on the sides and in front of the upper part of the trachea, and extends upward on each side of the larynx. The *thyroid gland* consists of two lateral lobes and an isthmus: it is situated at the front and sides of the neck. The lobes extend from about the middle of the thyroid cartilage to the fifth or sixth tracheal ring; the isthmus generally covers the second and third tracheal rings. The lobes measure about $2x1^{1}/_{4}x^{3}/_{4}$ inches; the gland usually weighs about one ounce. *Blood supply:* Superior and inferior thyroid arteries, with thyreoidea ima; and superior middle, and inferior thyroid veins. *Nerve supply:* Branches from the inferior laryngeal nerve, and from the middle and inferior cervical ganglia of the sympathetic.

7. The *small intestine* is situated in the abdominal cavity. It begins at the pyloric end of the stomach, in the epigastric region and ends at the ileocecal valve in the lower part of the right lumbar region. Its average length is about 23 to 25 feet. It is divided into three portions, the duodenum, the jejunum, and the ileum. The duodenum is the first part of the small intestine, it is about ten inches long, and extends from the pylorus to the left side of the body of the second lumbar vertebra. The jejunum and ileum form the coils of the small intestine and are covered by the great omentum; they form the remainder of the small intestine, the upper two-fifths being the jejunum and the lower three-fifths the ileum; there is no line of demarcation between these two parts. The coils of the jejunum and ileum are suspended from the posterior abdominal wall by the mesentery.

8. *The femoral artery is readily tied* at the apex of Scarpa's triangle, which is four to five inches below Poupart's ligament. *The structures severed*, are: Skin, superficial and deep fascia, and the femoral sheath.

9. *Hunter's canal* is situated in the middle third of the thigh, extending from the apex of Scarpa's triangle

to the opening in the adductor magnus muscle. It is covered over by an aponeurosis which extends from the vastus internus to the adductor longus and magnus, and contains the femoral artery, femoral vein, and internal saphenous nerve. Externally, the canal is bounded by the vastus internus; and internally by the adductor longus and magnus.

10. THE LIGAMENTS OF THE UTERUS. (1) *Broad ligaments*, which extend outward on each side from the side of the uterus to the side of the pelvis. (2) *Rectouterine ligaments*, which extend backward from the intraperitoneal portion of the cervix uteri to the peritoneal investment of the rectum. (3) *Round ligaments*, which extend from the uterus just below the Fallopian tubes, through the inguinal canal to the labia majora. (4) The *ovarian ligaments*, which extend from the superior part of the uterus, behind the Fallopian tubes, to the inner end of the ovary. (5) The *uterosacral ligaments*, which extend from the highest part of the cervix uteri to the sides of the sacrum opposite the lower border of the sacroiliac synchondrosis.

PHYSIOLOGY.

1. *Beefsteak* consists of protein and fat; *potatoes* consist mainly of carbohydrate, with a little protein. In the mouth the ptyalin of the saliva changes the cooked starch into dextrin and maltose. In the stomach, the proteins are changed into proteoses and peptones. In the small intestines the proteins are still further reduced to polypeptides and aminoacids (by the trypsin of the pancreatic juice); the cooked starches are converted (by the amylopsin) into maltose; and the fats are emulsified and saponified.

2. "The exact value of alcohol as a food, broadly considered, is uncertain. Recent experiments, carefully made on man, however, clearly show that when moderate amounts of alcohol are ingested, the alcohol is burned up in the body—*i. e.* oxidized like any non-nitrogenous food. The potential energy of the alcohol is transformed into kinetic energy, and consequently alcohol is to be considered as having some food value. It may, therefore, be classified with the non-nitrogenous foods. Further, as a non-nitrogenous food, alcohol may replace an isodynamic amount of fat or carbohydrate in the diet without change in the balance of income and outgo. Alcohol serves to protect body protein and fat from oxidation *i. e* like a typical non-proteid food it diminishes the oxidation of tissue protein by being itself oxidized. These facts, however, do not imply that alcohol is necessarily a desirable food or that it is physiologically economical. It is to be remembered that, prior to its oxidation in the body, alcohol may produce deleterious effects of various kinds, more than counterbalancing any gain which may result from its oxidation. It may likewise give rise to changes, either directly or indirectly, in the various metabolic processes of the body, which must of necessity influence more or less its value as a food. Alcohol has a direct and an indirect influence upon the secretion of gastric juice. In this direction it acts as a stimulant. It likewise stimulates the secretion of saliva."—(Chittenden in *Reference Handbook of the Medical Sciences.*)

3. *In the small intestine:* Proteids are turned into proteoses and peptones, and further reduced into polypeptides and aminoacids; starches are converted into maltose; fats are broken up and emulsified or saponified. *In the large intestine* the same processes of digestion may *continue*, but nothing new (in the way of digestive activity) is started.

4. Glycogen is chiefly formed from the carbohydrates. The liver cells act upon the dextrose into which the carbohydrates have been converted by the action of the ptyalin and amylopsin. This may occur by dehydration, but the exact process is not known. At a subsequent period the glycogen is transformed into dextrose and is returned to the circulation. Hence the blood of the hepatic veins contains more sugar than the blood of the arteries, and these latter more than the blood in the veins (except the hepatic). It is the generally accepted view, but it is denied by Pavy, and the whole subject is in a state of uncertainty.

The destination of glycogen: It is converted into sugar (dextrose), is given off to the blood, and is finally oxidized in the tissues.

5. *Formation of lymph:* There are three main theories: (1) Ludwig's theory, or the filtration theory, coupled with osmotic changes between the lymph and blood; (2) Heidenhain's theory of lymphagogues; and (3) Starling's theory of the permeability of the capillary walls. The subject is summed up by F. A. Bainbridge as follows: "Lymph formation is not a secretory process, but is brought about by purely physical processes, namely filtration and osmosis; and the factors concerned in its production are (1) the capillary pressure, (2) the degree of permeability of the capillary walls, and (3) the metabolic activity of the tissues. There is no reason to suppose that in health the permeability of the capillaries alters, and therefore the formation of lymph is increased chiefly by variations in the first and third of these factors."

Function of lymph: (1) it conveys nutriment to all cells not directly reached by the blood; (2) in the intestines, it absorbs nutrient material (chiefly fat) and pours it into the blood stream for distribution; (3) it takes certain waste matters to the blood to be later eliminated by the lungs, kidneys, and skin.

6. The salivary glands may be taken as an example of secreting glands, and the following changes have been observed in them:—"In a section of a *submaxillary* gland, which is *resting*, that is, has not been secreting for some time, the cells are large and nearly fill the alveoli. Each cell has a nucleus placed near its outer end and surrounded by a small amount of protoplasm which is granular and stains readily. The rest of the cell is quite clear and transparent and stains with great difficulty if at all. Since the material composing this clear part of the cell is of the nature of mucin, the submaxillary gland is spoken of as a *mucous* gland. In similar sections of the *parotid* gland, also in the *resting* condition, the cells are smaller than in the alveoli of the submaxillary gland. Further, the nucleus lies near the middle of each cell, and the whole cell is extremely granular and stains fairly easily. The body of each cell is composed of albumin and is free from any trace of anything like mucin; hence the parotid is known as an *albuminous* gland. After these glands have been *secreting* for hours, as the result of stimulating the nerves supplied to them, the appearance of their cells is greatly changed. The cells of the *submaxillary* gland are now smaller; the nucleus is nearer the center of each cell and the whole cell stains readily. In the *parotid* gland the cells are similarly smaller, the nucleus more distinct, and the cell substance stains more readily than in the condition of rest. If instead of taking sections of the hardened gland a piece of the fresh parotid be examined, it will be seen that at *rest* the cells are full of granules throughout; while after *activity* the granules are fewer and lie near the inner end of the cells." (From Huxley's *Elementary Physiology*).

7. The secretion of the urine is to some extent dependent on the blood circulation. Increase in the amount of blood, increase in the blood pressure or in the action of the heart will result in an increase in the secretion of urine. *Section of the renal nerve* causes a dilatation of the renal arterioles, with increase in the amount of urine secreted, but there is no increase in the solids.

8. An *afferent* nerve fiber is one that conducts nerve impulses from the periphery towards the brain or cord.

An *efferent* nerve fiber is one that conducts nerve impulses away from the brain or cord, and towards the periphery.

A *trophic* nerve fiber is one that nourishes a tissue or organ or part of the body.

An *inhibitory* nerve fiber is one which conveys a nerve impulse which results in the lessened activity of a part.

A *motor* nerve fiber is one which causes contraction of a muscle.

A *vasomotor* nerve fiber is one which conveys nerve impulses to the muscular coat of a blood vessel.

9. *"Mechanism of Accommodation.*—The lens is an elastic structure, and when released from the flattening influence of its suspensory ligament tends to assume a spherical shape. During accommodation the ciliary muscle (especially the circular fibers) contracts, drawing forward the choroid and relaxing the suspensory ligament; this diminishes the tension of the lens cap-

sule and allows the inherent elasticity of the lens to increase its convexity. The change in curvature affects chiefly the anterior surface of the lens. This is Helmholtz's theory and the one usually accepted. Lately Tscherning has advanced a different theory; he maintains that the ciliary muscle increases the tension of the suspensory ligament during contraction and that this causes peripheral flattening of the lens with bulging anteriorly at its center. The act of accommodation is accompanied by contraction of the pupil, and (in binocular vision) by convergence of the visual lines." (May's *Diseases of the Eye.*)

10. The nervous mechanism consists of an inhibitory and an acceleratory supply. In addition, there are various intrinsic ganglia in the heart which are supposed to be responsible for the heart-beat. The *cardio-inhibitory* center is connected with the nucleus of the vagus in the floor of the fourth ventricle, and the fibers from it pass to the heart along the vagus nerve. Its function is to slow the beat of the heart. It is sometimes known as the anabolic center, because it lessens the rate and force of the heart and so allows time for building-up processes (anabolism). If the peripheral end of the cut vagus is stimulated, the heart is slowed and may be entirely stopped. It is a tonically active center, that is, it acts continuously, so that the simple cutting of the vagus takes off the brake and lets the heart run away.

The *cardio-accelerator* center is also in the floor of the fourth ventricle. It acts through the sympathetic fibers which descend in the spinal cord and leave it through the anterior roots of the first and second dorsal nerves, and go thence to the cardiac plexus. This center keeps up the rate of the heart beat.

CHEMISTRY.

1. *Atomic weight* is the weight of the atom of an element as compared with the weight of an atom of hydrogen.

Molecular weight is the weight of a molecule of a substance (element or compound) as compared with the weight of an atom of hydrogen.

2. *An elementary body* is a substance which cannot by any known means be split up into other, dissimilar, substances; Example, nitrogen.

A chemical compound is a substance made up of two or more elements, chemically united, and in definite proportions; Example, nitric acid.

A mass of matter is an aggregation of molecules resulting from the union of two or more substances, whether elements or compounds or mixtures, and without any regard to quantities or to chemical union; Example, a lump of earth.

3. *Chlorides*, are binary compounds containing chlorine, or salts of hydrochloric acid; Example, sodium chloride NaCl.

Bromides are binary compounds containing bromine, or salts of hydrobromic acid; Example, sodium bromide, NaBr.

Iodides are binary compounds containing iodine, or salts of hydriodic acid; Example, potassium iodide, KI.

4. *Common salt* is sodium chloride, NaCl.

It is *obtained* from salt deposits in the earth, and is then purified. It is also obtained by evaporating brine.

Freezing-mixtures: The absorption of heat in the passage of bodies from the solid to the liquid state has been used to produce artificial cold. This is effected by mixing together substances which have an affinity for each other, one of which at least is a solid. Chemical affinity accelerates the fusion, and the portion which melts robs the rest of the mixture of a large portion of sensible heat, which becomes latent. If the mixture cannot supply sufficient sensible heat, the latter will be absorbed from all surrounding substances. When ice is mixed with salt in the proportion of two parts of the former to one of the latter, the ice is rapidly melted, the rapid thaw involving a rapid disappearance of heat. If the mixture surrounds a liquid at the ordinary temperature, and if care is taken to prevent the ice from obtaining the necessary heat from other sources, the heat will be abstracted from the liquid, and in a short time its temperature will be so reduced that it will become frozen. The temperature obtained by the mixture of ice and salt, or snow and salt, is about 0° F.

5. *The following undergo lactic acid fermentation:*—Levulose, lactose, dextrose, invert sugar, cane sugar and maltose.

The following undergo butyric acid fermentation:—Levulose, maltose, dextrose, invert sugar, cane sugar, and lactose.

6. The principal chemical action of yeast is the splitting up of glucose into carbon dioxide and ethyl alcohol:—

$$C_6H_{12}O_6 = 2C_2H_5OH + 2CO_2$$

Other chemical changes also occur, such as the formation of small quantities of glycerol, succinic acid, and propyl, butyl, and amyl alcohols.

7. *Organic acids present in vegetables and fruit:*—Citric, malic, tartaric, oxalic.

8. *Urea formation.* The greater part of the urea produced in the body is formed in the liver. The liver cells form the urea from two sources: (1) The larger amount, produced by the liver cells, is derived from the amino-acids which have been absorbed from the small intestine, and which are not required by the tissues; this constitutes the *exogenous* urea. (2) The smaller amount, produced by the liver cells, is derived from the ammonium carbonate, which is the outcome of nitrogenous catabolism, and which is derived from the tissues; some is also produced by the action of the uricolytic enzyme upon uric acid; this constitutes the *endogenous* urea.

9. $NaHCO_3 + HCl = NaCl + CO_2 + H_2O$.

10. Test for *bile in the urine:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	S. W. Welch, Montgomery	Montgomery
Arizona*	A. Martin, 207 Goodrich Building, Phoenix	Phoenix
Arkansas	T. J. Stout, Brinkley	Little Rock Nov. 8
California	C. B. Pinkham, Sacramento	Sacramento Oct. 17
Colorado	David A. Strickler, Empire Building, Denver	Denver
Connecticut*	R. L. Rowley, Hartford	Hartford
Delaware	H. W. Briggs, Wilmington	Wilmington Dec. 13
Dist. of Col'bia	E. P. Copeland, Washington	Washington
Florida*	W. M. Rowlett, Tampa	Jacksonville Aug. 1
Georgia	C. T. Nolan, Marietta	
Idaho*	L. E. Hansen, Wallace	Boise Oct. 4
Illinois	F. C. Dodds, Springfield	Chicago
Indiana	W. T. Gott, Crawfordsville	Indianapolis
Iowa	G. H. Sumner, Des Moines	Iowa City
Kansas	H. A. Dykes, Lebanon	Topeka Oct. 11
Kentucky	A. T. McCormack, Louisville	Louisville
Louisiana	E. W. Mabler, New Orleans	New Orleans
Maine	F. W. Searle, Portland	Portland
Maryland	J. McP. Scott, Hagerstown	Baltimore Dec. 14
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Lansing Oct. 11
Minnesota	T. McDavitt, St. Paul	Minneapolis
Mississippi	J. D. Gilleylen, Jackson	Jackson
Missouri	G. H. Jones, Jefferson City	St. Louis
Montana*	S. A. Cooney, Helena	Helena Oct. 4
Nebraska	H. H. Antles, Lincoln	Lincoln N.A.
Nevada	S. L. Lee, Carson City	Carson City Nov. 7
N. Hampshire	C. Duncan, Concord	Concord Sept. 8
New Jersey	A. MacAlister, Trenton	Trenton Oct. 18
New Mexico	R. K. McClanahan, E. Las Vegas	Sante Fe
New York	G. M. Wiley, Univ. of State of New York, Albany	New York Albany Sept. 26 Syracuse Buffalo
No. Carolina	K. P. B. Bonner, Moorehead City	Raleigh
No. Dakota	G. M. Williamson, Grand Forks	Grand Forks
Ohio	H. M. Platter, Columbus	Columbus Dec.
Oklahoma	J. M. Byrum, Shawnee	Oklahoma City
Oregon	R. E. Watkins, Portland	Portland
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburgh
Rhode Island	B. U. Richards, Providence	Providence
So. Carolina	A. E. Boozer, Columbia	Columbia
So. Dakota	H. R. Kenaston, Bonesteel	
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville
Texas	T. J. Crowe, Dallas	Austin
Utah	G. F. Harding, Salt Lake City	Salt Lake City
Vermont	W. Scott Nay, Underhill	Burlington
Virginia	J. W. Preston, Roanoke	Richmond Dec. 13
Washington*	W. M. O'Shea, Spokane	Spokane
W. Virginia	R. T. Davis, Charleston	Charleston
Wisconsin	J. M. Dodd, Ashland	Milwaukee
Wyoming	J. D. Shingle, Cheyenne	Cheyenne Oct.
National Board	S. Rodman, 1310 Medical Arts Building, Philadelphia	

*No reciprocity recognized by these States.

Miscellany.

SOME MEMENTOS AND THEIR CUSTODIANSHIP IN THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia has become the repository of some most interesting mementos of persons of great accomplishments in medical science. These are Jenner, Rush, Pasteur, Lister, and the two Curies. The mementos are in a case in the cabinet of the College and are at present under the custodianship of Dr. William Henry Welch of Baltimore.

The idea of a custodianship of these mementos was conceived and put into effect by Dr. Robert Abbe of New York, eleven years ago. At that time he came into possession of the watch of Dr. Benjamin Rush, the donor requesting that he bequeath it to the most distinguished member of our profession whom he might consider to represent the spirit and qualities eminent in Dr. Rush, and by him to be passed on to successive custodians as the years went by. It was justly thought that it would be considered a mark of distinction thus to be one of a chain of honored names perpetuating the renown of Benjamin Rush.

In the MEDICAL RECORD of November 5, 1910, Dr. Abbe outlined this scheme and announced his choice of the first custodian. He wrote:

> In seeking a name for the first custodian I have, by elimination, chosen one whom I think you will agree with me has added to scientific research, an untiring spirit of work, a broad human helpfulness, patriotism, and literary culture—Dr. Weir Mitchell. It is especially fitting that Dr. Mitchell is a Philadelphian and an ex-president of the College of Physicians of which Dr. Rush was a founder. Dr. Mitchell agrees with me that the idea of perpetuating this memorial is most happy, and he accepts the trust, and agrees to nominate a successor, and to have the watch preserved in the cabinet of the institution as one of its most valuable assets.

As a companion piece to be kept with the watch, Dr. Abbe had made a book of blank pages finely bound, in which he wrote a brief biographical statement as representing the estimate of one of the profession in New York, followed by one from the pen of Dr. Weir Mitchell of Rush's own city. Following this is a collection of photographs and engravings of all the existing portraits of Dr. Rush, with such autograph letters as could be obtained. Then comes the letter presenting the watch and inaugurating the scheme by the lady from whose hands it came to Dr. Abbe. On succeeding pages are to be portraits of successive custodians of the watch, with a statement of the essential reasons of choice, as well as the letter of acceptance of the trust.

Dr. Mitchell chose Dr. Simon Flexner of New York as his successor in the custodianship, and the latter, after three years, passed on the honor to Dr. Welch.

The cabinet now contains the following articles: The watch, above mentioned, and also a silver shoe buckle, set with brilliants, worn by Dr. Rush and presented by his great-grand-daughter, Mrs. Catharine Rush Porter. An inkstand used by Edward Jenner, and bequeathed to the College of Physicians by Weir Mitchell. A small case of instruments used by Joseph Lister and secured for the cabinet through Sir Rickman Godlee, whose wife was a daughter of Professor Syme of Edinburgh and a niece of Lord Lister. The fourth souvenir is a model of a tartrate crystal which Pasteur made, labeled, and mounted with his own hands, for use in demonstrating the nature of crystals formed in wine fermentation. The model was a gift to the College from Calmette of the Pasteur Institute, and was brought over by Dr. W. W. Keen. The latest, memento is an instrument, devised by Professor Pierre Curie and used by him and Mme. Curie to determine the strength of electron discharge from radium. By means of this instrument, called the quartz-piezo-electric apparatus, M. Curie illustrated his discovery that crystalline substances, when compressed or expanded, emit electrons due to the strain put upon them. This instrument was presented to the College by Mme. Curie in person, in response to a request by Dr. Abbe for a souvenir of her work. In presenting the apparatus Mme. Curie placed her hands upon it to insure it "freedom from homesickness in this beautiful land."

A fund has been established by Dr. Abbe, who is an honorary fellow of the College, to maintain and enhance the collection and to perpetuate the idea of honoring the great men of past achievement who have developed the science of medicine.

The "Nonliftable" Man or Woman.—The daily press has for the past six months or more contained frequent accounts of men and women who could not be raised from a recumbent position on the floor by an outlay of strength sufficient to raise several fold the dead weight. For some reason the subject received no attention in the leading medical weeklies, although the subject is not a new one. Last April the matter came up at a session of the Society of Comparative Pathology in France, and a brief account is found in the April 27 issue of *La Presse Médicale*, xxix, 34. The paper was read by Azoulay with the title "Physiological and Psychological Considerations upon the Nonliftable Man." Reference is made to an article by Ruffier in the January number of *Physis*, a scientific journal. The subject of the test is at a psychological advantage over the lifter. The one to be raised is said to grasp the lifter about the carotid region in bracing himself for the test and this could work to a disadvantage in several ways in compressing the large vessels and nerve trunks. Again the torsion of the right wrist of the lifter weakens the total lifting power of the arms. In discussion Moret relates that he tried to lift a woman weighing 48 kilos and his inability to do this was apparently the result of the placing by the woman of her index finger on his cervical region. Before this maneuvre he was able to lift her, but the mere application of the finger as mentioned, although no pressure was exerted, seemed to prevent a repetition of the act. The woman had also taken his wrist in her hand, but the author does not say whether force was used. Legrand had had the same experience and believes that the nervous state of the lifter is the leading factor. Demonchy said that if a sheet of paper is placed between the finger and carotid it has an inhibitory effect on the phenomenon.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 6. Whole No. 2648. NEW YORK, AUGUST 6, 1921. $5.00 Per Annum. Single Copies, 25c.

Original Articles.

CONSTITUTION AND THE PERSPECTIVES OF PATHOGENESIS OF TODAY.*

BY JOHN C. HEMMETER, M.D., PHILD., LL.D.,

BALTIMORE, MD.

PROFESSOR IN THE UNIVERSITY OF MARYLAND.

THE time is ripe for an historiographic research of the ideas and conceptions which leading thinkers in medicine have held concerning the nature of the bodily constitution.

In the study of the causes of disease, we have become absorbed in the wealth of modern investigation and literature concerning mainly two great disease producers. *First, invading microorganisms* and other living infectious agents, and *secondly, chemical substances* arising within the body or entering the body from without. As a third group of causes, we have become familiar with the excitatory or inhibitory influences exerted by an unphysiological nervous system. I do not say pathological nervous system for this expression would range the third group into one or other of the first and second groups, for a decidedly pathological nervous system is either the consequence of an infection or of the deleterious influence of some chemical substance of an exogenous or endogenous origin; but when I say unphysiological, I mean a state in which the central and peripheral nervous system is capable of functioning normally but at times functions in a manner which, while it is not pathological, yet it is not in perfect coordination with the normal performances of the other organs. There is an erethism of the central nervous organs which, while not physiological, cannot be classified as pathological. And yet, this erethism may lead to abnormal states in other organs.

Disregarding the diseases which are admittedly inherited, these three pathogenetic ideas dominate all of our thinking concerning the nature of disease. In this comprehensive view of causes, the medical mind has, however, not given due consideration to another factor in disease production which overtowers in colossal importance all these three causes together; and this factor is the *human constitution itself* upon which the pathogenetic factors just mentioned exert their various influences.

It might be argued that in the very brief scheme of diseases mentioned I have not referred to abnormalities caused by trauma; for example, diseases caused by pressure or violent and mechanical changes of position; seasickness; aviator's vertigo. But this leads to a great many other diseases which are not due to infection nor chemical causes; for instance, the diseases due to hyperthermia or extremes of temperature in general; exposure to great heat and cold; the effect of radiating energy as a disease-producing cause—sunlight, Roentgen rays, radium emanations, etc.; the effect of electricity as a cause of morbidity; of atmospheric pressure and atmospheric humidity. All of these disease factors in their finality will express themselves in chemical or physical changes, or in injury to the nervous system, secondary to such changes, and thereby come under the brief classification before mentioned.

Constitution and Disposition.—Inasmuch as these two terms are frequently confused, sometimes mistaken for synonyms, and even erroneously defined, it will be necessary to give a precise meaning of the terms before proceeding.

These two terms are erroneously defined in the "National Dictionary of Medicine," by John S. Billings and collaborators. They are erroneously defined in part, in the last edition of Webster's Dictionary. In "Hallische Universitätsreden" for 1916, the eminent clinician, E. Adolph Schmidt, states that "constitution" and "disposition" mean the same thing.

Definition of Constitution.—The degree in which the organism is capable of overcoming difficulties; of enduring deprivation; the greater or lesser resistance against exogenous injurious influences; the ability to compensate and equalize detriments that have already been caused by mild disease-producing factors.

Definition of Disposition.—Receptivity to disease; inherent sensitiveness to pathogenic factors; facilitation for reaction to injurious influences.

Disposition is a quality; constitution is a quantity.

In human pathology, the two conceptions are in reality antagonistic. A strong constitution, meaning increased resistance, is as a rule coexistent with decreased disposition; and a weak constitution, meaning lessened resistance, is coexistent with increased disposition.

Constitution is a variable disease factor, and, according to Martius, is the measure of the resistance of the organism toward pathogenic influences and is composed of the changeable state of individual organs of the body, and therefore constitution varies individually and is different according to different conditions of the organs. The general or total constitution is thereby separated into a sum of partial constitutions. We can therefore conceive of constitution quantitatively, but disposi-

*President's address at the annual meeting of the American Therapeutic Association, Washington, D. C., June 3, 1921.

tion should be considered only qualitatively. Only those factors go to make up the constitution which come to the organism during intrauterine life.

It is certain that human individuals of different classes and animals of different species are attacked by certain pathogenic factors with greater or less facility, while others of the same class of individuals remain free under the same external and internal conditions. Those that are attacked are designated as "disposed'; those that remain free are called "immune." Classes and species may be equally disposed or sensitive to a certain bacterial poison, but of these, we sometimes find one sensitive to another poison, while the other is immune to the second poison. For example, horses and heifers are equally sensitive to tetanus poison; but for diphtheria, heifers show no disposition, but horses, a very marked disposition; human beings are sensitive to the toxins of scarlet fever and measles, but animals show no disposition to these infections.

We have proceeded far enough to illustrate that constitution and disposition are two entirely different things. For further information concerning these factors see P. Bourcy, "Prédisposition et immunité," in Bouchard's Traité de pathologie générale, T. I. Paris, 1895. From this instructive work one can learn that a series of factors influence and accompany both the constitution and disposition. For example, race, age, sex, the momentary general health of the individual, but, above all, a long series of external conditions which have not yet been exactly defined because they cannot be ascertained in the human being and can only be controlled in disease produced experimentally. To illustrate this point, and also to emphasize the traditional idea of the causation of a human disease, let us summon before our mind's eye the development of a pneumonia. There are three factors necessary in its pathogenesis: (1) A peculiar quality of the body, the constitution; (2) a specific living microorganism, pneumococcus; (3) a sum of contemporaneous external and internal conditions.

Hitherto the medical mind has been tyrannized by an inverted perspective of disease pathogenesis; it has conceived the infecting microorganisms or the toxin, or the physical force as the exclusive factor in the production. This is a total disregard of the immense importance of the human constitution in its innumerable varieties and of the human disposition. This inverted view has been due to an overestimation of the importance of bacteriologic factors, and in its final analysis, is due to the greater facility and control which laboratory methods of culture and staining and experimental infection with microorganisms offer to the bacteriologist. The more important and far-reaching factor—the human constitution—has either been disregarded or it has been taken for granted that it was completely understood. As a matter of fact, this very human constitution and disposition, which are spoken of in the writings of Aristotle and Hippocrates, and all medical writers since then, are just beginning to be understood in their basic component elements within the last ten or fifteen years. The reasons for the imperfect comprehension of constitution and disposition are to be sought in the almost insuperable difficulties which they oppose to investigation; for not only must the clinical scholar familiarize himself with the details of biochemistry, the effect of physical forces, the relation of the specific personal anatomy of human beings, but he cannot avoid the study of the specific psychology of the human subject that he is dealing with in each special instance.

If, therefore, I recommend a method of observation for the nature of disease which bases it on at least three factors, it is because this mathematical perspective is valuable as a basis for philosophical clinicians in their struggle against the one-sided, rigid method of clinical thinking which has become a form of monopoly of medicine of to-day.

The laboratory worker, like a chemical experimenter, can form his own conditions, lay down and preserve by weight and measure all of the chemical, bacteriological and other factors that enter into his investigation; in short, mathematical circumscription can be made to control his research. But in such complex relations as the natural development of a disease the application of mathematical principles is not feasible and, therefore, it is absurd to speak of the disease as due to a single cause and its effects. In place of this it would be more promising for precision in clinical medicine if any pathological happening or event were deduced from the coaction of a sum of various etiological factors. This is the view which Martius advocates in "Pathogenese innerer Krankheiten," 1909, and which has received the approval of Verworn and Hansemann.

We can make a beginning by singling out from the many more or less important conditions necessary to produce a disease two basic factors: First, the cause; and second, the releasing moment. By *cause*, in our new method of thinking, we must understand the constitution and disposition of the human being in whose body the potential energy of the disease phenomena and the curative processes will play their rôles; it is the endogenous factor. But the *releasing moment* or factor is the microorganism, toxin, or physical force, as the case may be, and which is specific in each disease.

It will be immediately recognized that this manner of thinking is exactly the reverse of what we have been accustomed to up to the present time. "Pathological conditions and processes," said Virchow, "are physiological processes under difficult circumstances," and just as two normal human beings are never perfectly alike, much less can two cases of the same disease be perfectly alike. There are very few releasing factors, or exogenous causes, as you could call them, which produce exactly the same consequences in all human beings. Perhaps the mechanical trauma and extremes of temperatures may provoke the variable resistance of different individuals in a closely similar manner. But we soon discover with other physical causes (electricity, atmospheric pressure, radioactive substances, etc.) that the individual variation has to be reckoned with more and more.

We must not overlook that in infections it is the effect of toxins that we are dealing with more than the mechanical damage of the tissues by microbes. There are human beings who are so sensitive to definite toxins that they react to the most infinitesimal doses with the severest symptoms, while the majority of human beings do not react to the same toxins in any measurable degree. The medi-

cal systems of the older times called this "idiosyncrasy" and attributed it to a peculiar composition of the juices of the individual. More modern medicine speaks of this hypersusceptibility as "anaphylaxis" and "allergy."

The disengaging or releasing factors not of microbic origin and which are still frequently used and not understood are such words as "*catching cold*," *overexertion, exhaustion, disturbance of nutrition.* They seem to be common household words in medicine and yet not understood. Only in the last year have explanations of the process of catching cold been brought forward. It is asserted by H. Schade (Untersuchungen in der Erkältungsfrage, etc. *Münchener med. Woch.*, lxvii.) that catching cold is not an infection nor a neurosis, but an increase in the density of the tissues caused by the cold and a reduction of their elasticity. This can be measured by an instrument—the elastometer. The colloids of the tissues appear to be undergoing a precipitation which is not demonstrable histologically. The effect of cold can express itself in a cold-neurosis; for instance, of the kidney, bladder, digestive tract. The disposition to catch cold has arisen from hyperdomestication, especially from neglect of usage of the vasomotors of the skin. Especially disposed are the persons with a high degree of moisture in the skin—a general increased water percentage of the tissues; in short, the ancient lymphatic and erethic constitution. It is plainly evident that we are beginning to understand what catching cold means.

The physical changes of the tissues in catching cold are reversible, but if the intensity of the cold is very great, the "colloidity" of the injured tissues remains permanent. Such conditions have been called "cold-gelosis," because normally the almost liquid lymph of the tissues assumes a consistency like that of gelatine in the injured area. Schade believes that such "colloidity" may occur in muscles, joints, ligaments, nerves, even in the mucous membranes; in one case described by Freitag the cold-gelosis was observable in the cornea in the form of a clouded, opaque area. This condition was reversible and disappeared when warmth was applied.

A similar article by S. Colm—"Leitsätze einer Säftelehre"—explains the movements of the caryolymph by reciprocal physical and chemical reaction between certain colloids of the cell and certain molecules of alkali; the colloids he speaks of as existing in the intracellular substance are albumin and lecithin; the protoplasm is mainly composed of albuminous substance. The lecithin enters the construction of the cell membrane. The functions of life are attached to these two substances together with certain potassium and sodium salts. He describes a current of intracellular lymph caused by the tendency of the unsaturated colloid and the alkali molecules to add related molecules to their substance. According as the normal colloidal content or the alkaline salt content of the tissues varies from that percentage which is normal to the tissues, the function will begin to suffer, although the structure of the cell may continue to appear normal. If the alkaline salts alone deviate from the normal, we have only a functional derangement; but if the colloidal content of the tissues varies, changes in anatomic structure result—we have a pathological tissue. Accordingly, we are introduced to a conception of disease production on a physical basis, as follows: (1) Anatomical or colloid diseases; (2) functional or alkali deviation diseases. This affinity between the colloids, albumin and lecithin on the one hand, and the alkalies of potassium and sodium on the other hand, is made the basis for a new idea of tissue pathology which might make the study of the human constitution approachable on a physical basis. We know that the conductivity of any living tissue for the electric current depends upon the presence in that tissue of soluble electrolytes, this being the name assigned to the dissociated ions of salts, acids, and bases. An ion is an element set free by electrolytic dissociation. Therefore, the degree of electric resistance which a tissue normally opposes to the passage of a current is an index of the amount of ions dissociated in the water which bathes the cell protoplasm. In making this test of the resistance of tissues a great deal of preliminary work has still to be done, because the different tissues differ with regard to the degree of resistance which they offer to the electric current and they differ according to their state of rest or work. One of the first facts with which to become familiar in this study is that the greatest and highest resistance is offered by a healthy tissue and that when a tissue loses its normal resistance it has become diseased.

In recent papers found in the *Journal of General Physiology*, W. J. V. Osterhout of Harvard University has made this type of study of the mechanism of injury and the recovery of the cell a special research which he carries out on one of the common kelps of the Atlantic Coast—the laminaria (See also *Science*, April 15, 1921, p. 352).

Osterhout states that the electrical resistance of the living tissue is about ten times as great during life as it is after death, and he attributes this resistance to a layer of protoplasm surrounding the vacuole, a layer so extremely thin as to be comparable to what is commonly called the plasma-membrane.

As the passage of an electric current occurs by means of the dissolved ions in this thin layer of protoplasm around the cell substance, Osterhout concludes that the electrical resistance may be regarded as a measure of the permeability of the protoplasm to ions. The tissues have a rather constant electrical resistance. This normal electrical resistance has to be determined by proper instruments and constitutes the basis for further calculations. If an injury occurs and the resistance falls, let us say 10 per cent., we may say that the injury amounts to 10 per cent.

In the case of laminaria, if the injury caused by placing the kelp in a solution of sodium chloride amounts to 5 per cent., the tissue will recover its normal resistance if it is replaced in sea water. If, however, the injury amounts to 25 per cent., the recovery is incomplete: instead of rising to normal, it recovers to only 90 per cent. of the normal. The greater the injury, the less complete the recovery. When injury amounts to 90 per cent. no recovery is possible in this plant.

Two aspects of injury are described. One is the temporary loss of resistance, which disappears, wholly or in part, when the tissue is placed under normal conditions: this may be called temporary

injury. The other is the permanent loss of a part of the resistance which is observed after more prolonged exposure: this may be called permanent injury.

The aim of these investigations has been to apply to the study of living matter methods which have been useful in physics and chemistry. Such fundamental conceptions as vitality, recovery, and death may be investigated by quantitative methods and the investigation of fundamental processes shows that they obey the laws of chemical dynamics. It is too early to apply the results of such studies to an interpretation of such a complex physical and chemical system as the human constitution. And yet I cannot resist the belief that an ultimate understanding of the constitution of the human being will have to be based upon a knowledge of the physical and chemical processes that are continually going on in the body, and that psychological clinical and philosophical inferences which appear to be not based on biochemical studies had best be held in reserve. It is quite possible to test the resistance of almost all of the tissues of the human body to the electric current; what we lack at present are practical instruments capable of direct applications to the human tissues under various conditions, instruments sufficiently delicate, yet accurate, under the clinical conditions in which their service is needed. Electrical resistance may instruct us as to the amount of dissolved salts in the tissue juices; as to the amount of alkali; and the equilibrium between acids and bases. There certainly will be in the near future an electrolytic method of informing the clinician of the depletion of the body in carbonates and other alkali-yielding substances, for the depletion in these substances constitutes the underlying feature of the tests for acidosis, namely the change in the carbon-dioxide content: (1) Of the alveolar air; (2) of the blood; (3) the concentration of the blood in alkalies, in hydrogen and hydroxyl ions; (4) the tolerance to fixed bases; (5) the alkalinity of the blood so far as it can be determined by titration. In fact, there are such methods in existence already, but they are always associated directly or indirectly with colorimetrics in which the clinician cannot depend upon an instrument, but must depend upon the accuracy of his color vision.

Acidosis is essentially an impoverishment of the body in alkalies; this being so, it should be measurable by determining the electrolytic conductivity of the various juices that can be obtained from the living human body.

Human constitution is not based only upon the purely and exclusively chemical interchanges, or upon the purely physical changes that go on in the tissues and organs, but depends largely upon the rate of metabolism. Different men and women under normal conditions have different rates of basal metabolism. Dr. Walter M. Boothby (*Jour. A. M. A.*, January 8, 1921, p. 86) states that the normal standard of the basal metabolic rate is not exact; this is due to the fact that all the technical factors necessary to obtain a normal standard have hitherto been observed only in the studies of Atwater and Benedict, Graham Lusk, and DuBois. In fact they are not feasible as yet in the practical pursuits of the clinician. But that there must be fine differences in the basal metabolism of individuals there can be no doubt, and as Dr. G. W. McCaskey states that the Benedict apparatus is of sufficient accuracy for clinical purposes, and Dr. Henry M. Thien states the same for the Jones apparatus, there should be no difficulty in determining the normal metabolic rate in a large number of healthy human beings under strict conditions of clinical and experimental control.

For all studies of human constitution the heat phenomena inherent in the living tissues must be made expressible mathematically.

As heat production and basal metabolism are due to the processes of oxidation in the tissues, we are brought face to face with the chemical agents that intermediate oxidation and reduction in the cell, and we are at this date, thanks to the studies of Wieland, Bach, and Frederick G. Hopkins of Cambridge, England, so far advanced that we are made acquainted with the precise agent by which the cell can affect oxidation and reduction. In the Christian A. Herter lectures at the Johns Hopkins University, April 12-14, this year, Frederick G. Hopkins presented his views concerning the oxidation and reduction mechanism of living tissues. The agent which produces these chemical transformations is a substance in which glutamic acid is linked up with cystine. The amido group of glutamic acid is linked up with the carboxyl group of cystine.

Glutamic Acid CH_2
|
$CH_2 — COOH$
|
$CH\ NH_2\ COOH$

Cystine $CH_2S\ CHNH_2\ COOH$

By means of this chemical substance the cell can effect both oxidation and reduction and it denotes a very great advance in biochemistry to have lived in an age where such a great revelation of the workings of the living substance has been made.

Hitherto I have considered the study of constitution only from the standpoint of biochemistry, and this leads to a study of constitution on the basis of the functional achievement of the body. There is, however, another manner in which to study this subject, namely, the anatomical method. This has for its object exact measurements of the size, volume, and contents of the organs. These measurements will give the mathematical expression for the various anatomical apparatuses which are the physical substratum for the work which the body does.

Anatomical Investigations of the Constitution.—Exact measurements of the human body in toto and in its parts were first made by the Belgian astronomer and anthropologist Quetelet, but W. Pfitzner ("die Proportionen des erwachsenen Menschen," *Zeitschr. f. Morphologie u. Antropologie*, ii., 222) proposed certain basal figures for the various measurements, and in our own country, Winfield Scott Hall, in the *J. A. M. A.*, December 21, 1901, proposed a mathematical formula to determine the median value of human dimensions. I have personally taken up this subject in an article entitled "Anthropometric Studies of the Osseous Proportions of the Human Body, With a View to Obtaining a Mathematic Expression for Enteroptosis" (*Internat. Beiträge z. Pathologie u. Therapie der*

Ernährungsstörungen. Bd. 2, Heft 3). But it must not be forgotten that the founder of exact measurements of the dimensions of the human body is that greatest of all painters, sculptors, mathematicians, philosophers, and scientists in general—Leonardo da Vinci. ("Il Canone di Leonardo sulle Proporzioni del Corpo Umano"; Favoro Giuseppe, Atti del R. Istituto veneto di scienze, lettere ed arti, Venezia, 1917-1918, lxxvii., 2, p. 227.) See also J. C. Hemmeter, *Leonardo da Vinci as a Scientist,* in Annals of Med. History, Vol. III, No. 1, 1921.

Beneke later gave exact measurements of volume and capacity of organs of 600 cadavers, thereby making a very valuable contribution of the anatomical apparatuses which cooperate to make up human constitution.

Stiller restricted his measurements to special anatomical deviation of a limited number of organs. He thought he had found debility of muscles and nerves associated with a low position of the abdominal viscera and a tenth rib that was not attached to the costal arch, and he constructed from this a peculiar disease which he terms "morbus asthenicus." It was a broadening out of the views which Glénard had already announced concerning splanchnoptosis However meritorious the studies of Stiller may be, and they constitute a brilliant clinical advance of the state known as enteroptosis, nevertheless it must be evident that organ abnormalities do not constitute a disease until the displaced organs function irregularly. What Stiller described was not a constitution, but a disposition; it was not a disease, but rather one of the factors that predispose to a disease if certain other exogenous factors are added.

The whole subject has been gone over again by myself in an article published in the *Interstate Med. Jour.*, xix., 3, 1912. ("Splanchnoptosis, or Constitutional Neurocardiovascular Asthenia with Osseous Dystrophies and Disproportions—Enteroptosis.")

Among the anatomical deviations that may contribute to form characteristic constitutions are abnormal connective tissue developments, the thickness of the wall and the width of the aorta; endemic goiter; and the so-called status thymicolymphaticus. All of these conditions are found only as narrowly circumscribed or restricted organ abnormalities and they are not in themselves sufficient to make up a constitution. Above all things, it is necessary to insist on a definition of what a constitution is in a normal creature. (See definition previously given.) The great problem of research concerning the human constitution must be to define at least part of its entity in mathematical terms.

In all measurements of the type quoted in the preceding, we can deal only with the supporting tissues and structures—the bones and connecting tissues, and it must be evident that from such canons of human proportions, we can obtain only mechanical conceptions concerning the totality of the human machinery. When we get to other tissues, for instance, the central nervous organs, and the glandular organs, we become convinced that it is not structure and form, but the achievement and the work done by the organs which is of greatest importance in the question of constitution.

Functional Investigations of the Constitution.—Every expression of life of the organism is bound to its basic elements, the cells; but deviation of function, either depressed or exalted, can occur without any demonstrable change in the anatomic structure of the cells, and for the practical clinician function is more important than structure, for as all endeavors of therapy must be directed toward the restoration and maintenance of function, it is essential to know what a diseased lung, liver or spinal cord may still be able to accomplish rather than to ascertain how these organs appear under the microscope. This has led to the great development of functional tests which have revealed the fact that conditions of insufficiency of the kidneys, the heart, the liver, and so on, may exist without any morbid state becoming manifest. Such latent or potential organ insufficiencies are discovered in the entire absence of symptoms, and they constitute partial factors of constitution.

The clinical investigator on discovering such secret defects in an apparently healthy body, naturally becomes elated over the penetrating power of instrumental and chemical research, a state of elation that rapidly calms down when he asks himself the question—"What is the cause of these potential organ insufficiencies?"—for certainly we have the secret of the constitution not plainly before us by merely establishing a latent or potential organ insufficiency—we must still find out what produced this.

In an address to the American Therapeutic Society in Washington by invitation of the Program Committee of 1913 on "Hypertonicity and Hypotonicity of the Vagus and Sympathetic Nervous Systems" I called attention to certain neurochemical synergisms of the normal body and the pharmacodynamics of certain exogenous and endogenous chemical substances. The address was published in the *N. Y. Med. Jour.*, January 17, 1914. A part of the article deals with the question whether or not disturbances of the endocrine system can be recognized before they have led to distinct disturbances in the organisms. At that date the investigations of Eppinger and Hess, and of H. H. Meyer, concerning the provocative introduction of adrenalin and certain pharmacal substances had already been undertaken, and they revealed a definite reactability, that is, a readiness to respond to these chemical substances in certain systems of nerves, especially the autonomic and sympathetic systems.

The entire inspiration to this field of research is due to Brown-Sequard, and the coordination of countless physiological discoveries and anatomical research with the objective facts elicited from clinical investigation has been illuminated by no one in such a talented manner as by our fellow member, Sajous. One has only to read and study his chapters on the Internal Secretions in Their Relations to Pharmacodynamics to be impressed with the truth that here is a new revelation of therapeutics, not new in the sense that nobody ever announced such ideas before him, but new in the clinical sense that at last the dawn of a new therapy has broken, a therapy that is at once rational and practical.

The labor of this brilliant coordination of the facts of science with the demands of practice could only have been accomplished by an encyclopedic mind. But also concerning the nature of human

constitution, the study of the endocrine system throws a brilliant light. It is established that the anemia of young females at a certain age is not as Virchow thought, due to congenital narrowness of the aorta, but to defective function of certain blastogenic glands and of the bone marrow. There is an endogenous obesity which is independent of the amount of food taken in. This obesity can continue even when the food is reduced below the caloric requirements; for it is due to certain disturbances of the thyroid gland and the pituitary body. We know that diabetes is associated with the internal secretion of the pancreas.

There are revolutionizing dystrophies of the entire human frame which change, as it were, the tribal appearance of the human being—mongoloidism, eunuchoidism, infantilism—which are due to a disturbance in a reciprocal balancing of various endocrine systems and the status thymolymphaticus is only intelligible if it is viewed in the perspective of disturbed internal secretion working on the total organism.

That vast field of research on immunity which has been blasted out of the unknown by Metchnikoff and Ehrlich, which is based upon the explanation of the formation of antibodies, etc., as well as the defensive ferments of Abderhalden, are human endeavors aiming not only at the cure and prevention of disease, but unconsciously laying bare some of the secrets of human constitution; for antibodies and defensive ferments are products of body cells.

When we ascertain by analysis of blood that certain specific immune bodies are circulating in the body we gain a profound insight into the economy of the organism and, to some extent, into its disturbances. But the entire constitution and the entity of the disease afflicting it is even then not open to our eyes; for most of the factors that go to make up the human constitution are not acquired by the individual during life, but the greatest part of these factors is inherited. The factors of inheritance, as well as of acquired constitution, lead us to a brief consideration of heredity.

Constitutional Immunity Due to Selective Adaptation Between the Human Being and the Infecting Organism.—Prof. Max Neuburger, in his historic studies of the epidemics of antiquity, has emphasized the impossibility of ascertaining in our time what the exact diagnosis of those diseases may have been. In very remote periods, for instance, in the plagues described in the Old Testament, (II. Samuel, xxiv., 15, 16; I. Chronicles, xxi., 14-16; in this epidemic 70,000 people lost their lives; Numbers, xvi., 49, the epidemic of Korah, in which 14,700 people died) a diagnosis in our sense of the word was not attempted, in fact, was impossible. Such a master of historiography as Thucydides has described a destructive infectious disease which invaded Athens during the Peloponnesian war and given a minute and detailed account of the epidemic; and yet no clinician of the present day is able to state what disease this was, and Iwan Bloch maintained that the venereal plagues mentioned in the Bible (Baal, Peor) are not the same as present-day lues, etc.

The truth is that in the course of thousands of years reaction between the cause, by which I mean the peculiar constitution and disposition, and the releasing factor, the microorganism, may change so fundamentally that their outward phenomenon called the disease is no longer recognizable by the posterity two or more thousand years remote and does not fit into any of their classifications. There may have been many diseases in prehistoric times of which we have no record whatever, and there may have been others which thousands of years ago presented pathogenetic manifestations which to-day cannot be forced into our schemes of clinical classification.

But there is still another factor in the ceaseless adaptation between the human constitution and pathogenetic factors, and this I have called the reciprocal selective adaptation between the human constitution and certain infective organisms.

It is well known that the bacteria of different types lose their virulence and power to form toxins readily. It is also known that these two properties can be increased when a certain strain of bacteria undergoes what is known as animal passage, that is, the microorganism is made to exist for a time in the bodies of one or other of the mammalia.

In artificial culture microorganisms rapidly lose their virulence. It is also known that the virulence against one species of animal is as a rule specific and that virulence specific against one type of animal may go hand in hand with diminution of virulence against another type. Martius, in his "Pathogenese innerer Krankheiten" (1909), gives the evidence that pathogenicity is not a constant property characteristic of bacteria, as for instance, proteolysis is characteristic of certain enzymes, like pepsin or trypsin, but rather that pathogenicity signifies the ability of the bacteria to react in a specific manner when they come into a medium corresponding to their biologic requirements. Now this is nothing but a functional adaptation to certain chemical and physical conditions which the life of the bacteria require. The bacteria, in fact, have their constitutions and dispositions also, just like human beings.

In the following I will endeavor to make clear that infectious diseases that may have existed during former historic periods of the human race may have disappeared entirely, because the reciprocal relation between the constitution of the human and the constitution of the bacteria have been so adapted reciprocally that instead of a disease a form of symbiosis (living together innocuously) has been established.

Let us take the instance of one single infective organism—the bacillus of typhoid fever. It is well known that this organism, when existing in nature, loses its power of multiplication, eventually dies and disappears; on the other hand, by continued animal passage, or change of the host in which it then forms what the clinician calls an infection, its power of multiplication can be indefinitely increased.

Now it happens that the temperature and the chemical composition of the human body coincide with the conditions of the most prolific growth and most intense effectiveness of all the vital functions of these bacteria. In other words, the human body presents the optimum physical and chemical conditions for the growth of the typhoid bacilli, and but for the human body this bacillus and a large number of other pathogenic bacteria would be doomed to

extinction. In comparing the colon bacillus with the typhoid bacillus, it is found that the *Bacillus coli* can live without the human body, and by many bacteriologists is considered ubiquitous.

The next step in the development of the symbiosis is the phenomenon of the so-called human bacillus carriers. It is known that human beings can carry pathogenetic germs in their bodies for many years without being sick themselves. There are two classes of carriers: (1) Those who have already gone through the specific chain of pathological events, called in this case typhoid fever; and (2) those who have never had typhoid fever and yet show typhoid bacilli in their stools. In both instances the bacilli live in the optimum condition.

Dr. L. Radcliffe Grote of Halle does not consider that this carrying of bacilli is an accidental collateral phenomenon of the disease caused by fortuitous immunity processes in specific individuals; but he conceives it as the end result of a long series of processes culminating in a reciprocal adaptation between the infecting organisms and the host. Both factors have eventually reached a form of coexistence which corresponds to the biological conception of symbiosis.

The conception of symbiosis demands that the coexistence of two different kinds of organisms shall result to the advantage of both. The bacilli of the coli group offer to the human being a very distinct and important advantage because the glands of the digestive tract secrete no ferment which can digest cellulose. The splitting up of the capsules of most leguminous vegetables can be accomplished only by the intestinal bacteria, and in the experiments of Schottelius it was found that hens and goats which were kept under absolutely aseptic and sterile conditions of life did not grow as well as animals of the same strain who were permitted to fill their intestinal tract with bacteria.

Not all human beings are fitted to develop a state of symbiosis with certain bacteria, and not all bacteria have the properties fitting them to mutual adaptation with the human host. Specific and peculiar constitutions in both the host and the microorganism are necessary.

This process of mutual adaptation no doubt is one of the phenomena of natural selection and may have been going on between our race and parasitic infective agents for millenniums. Diseases which may have once wiped out human beings by the hundred thousands to-day do no longer exist (Psalm xc., 3) and infectious diseases of a severe type to-day may be unknown to the clinical historiographer of the year 3000. "*A disease*, accordingly, *is a phenomenon of collision between the biologic requirements of an infective organism and the human constitution organism in their effort to reach symbiosis.*" The vital necessity of both organisms conflicts in this struggle and the disease process is the expression of a process of adaptation between the host and the parasite. (L. R. Grote, *Münch. med. Woch.*, 1920, 38.) According to a footnote in this article Prof. von Drigalski made the observation in epidemiological investigation before 1904 that the typhoid bacillus can displace the colon bacillus completely and fill its biologic rôle in our body. He studied persons who permanently excreted pure cultures of the typhoid bacillus in their stools. These observations cannot be interpreted in any other way than that the typhoid bacillus has assumed the total work of the intestinal flora in man, and this means a most extensive adaptation of the typhoid bacillus to the requisites of the human intestine. Thus in this intensely interesting form of adaptation and natural selection both the human host, as well as the bacteria, undergo very grave fundamental transformation. The evident antagonism between both organisms during the disease has to be transformed into a reciprocal adaptation requisite to symbiosis. For both factors, host and parasite, the destructive element of the disease represents a very dangerous stage of transition. The human organism meets and equalizes the exigencies of this dangerous transition by the requirement of immunity. The bacteria meet them by colossal celerity and power of multiplication. Some bacteria develop so-called resisting permanent or enduring types.

I have gone into this phenomenon of symbiosis between host and parasite because it is not considered as one of the elements of the human constitution, and still it must be evident that it is a process which is continually going on almost unconscious to the clinical observer.

Heredity.—The properties or peculiarities which an adult organism capable of progeny possesses may be divided into three groups, according to their derivation: (1) The great majority of all properties of an organism were already possessed by his ancestors; these are the inherited properties. (2) There are properties by which an organism, it is true, differs from its ancestors and therefore are not inherited; yet he possesses them from the date of his birth onward; these are the congenital properties. (3) Every organism shows properties which he does not acquire until after his birth during the course of his individual life; these are the acquired properties.

The hereditary and congenital properties are conditioned by peculiarities of the blastogenic cells. They are therefore termed *blastogenic*. The acquired properties at the present time are considered as independent of the germ-plasm. They are pure acquisitions of the *soma* and, therefore, defined and distinguished as *somatogenic* properties.

If the differences between descendants and ancestors are very slight, and if, in addition, the differences between various individuals of the same brood among themselves and with the parents are connected by transitions, so that they can be brought in a continuous series, then we speak of *fluctuations* or *continuous variability*; but when these differences between the parents and descendants are very great, and also if the brood can be separated into two sharply distinguishable groups which cannot be arranged in a continuous series, then we speak of *mutations*.

To-day one often meets with the conception that only the mutations are inheritable, and not the fluctuations. This is due to the fact that the mutations are strikingly different from the original stock and therefore are more easily detected.

Thus far it has not been satisfactorily demonstrated that somatogenic properties are really inherited. The experiments of Standfusz, E. Fischer, Sumner and Kammerer seem to prove the trans-

mission of somatogenic properties, but Tower found that in repeating some of his experiments, that the influence of the experimental changes on the blastogenic cells could not be excluded. Almost all these observers, it was later on proven, had practised an unconscious natural selection, and Jennings concludes that the problem of the hereditary transmission of acquired characteristics in the infusoria meets with the same difficulties in the protozoa as in the metazoa.

As heredity plays such an important part in the transmission of human diseases, it must be evident that this subject cannot be considered as finally closed until it can throw light on human pathology, which long experience has demonstrated in certain definite forms to be transmissible.

The modern conceptions concerning the proliferation of the maternal and paternal blastogenic cells explain the process in such a way that the cells that serve future generations early separate from those cells which are to form the rest of the body; in other words, the blastogenic cells slumber in the germ glands until maturity of the individual, and thus the idea of continuity of blastogenic germ plasm brings with it the other idea that the entire body, all organs including the brain and their activities, are merely appendages for the preservation of the blastogenic cells which decide the species.

Degeneration of the body constitution acquired during life may affect the germ plasm, but hardly in a specific form of change of its inherent qualities so that the identical constitutional abnormality acquired by the parents shall be in evidence in the descendant. Such an influence has been termed parallel induction of the somatogenic and blastogenic cells.

In my article (*loc. cit.*) on the anthropometric measurements, with a view to establishing a mathematical expression for enteroptosis, I expressed the opinion that a frequently or continually repeated parallel induction of body and blastogenic cells might affect the chromosomes and plasma of the latter by summation of the stimuli. I mean that eventually a specific change may be produced in the blastogenic cells, although this may not be evident in the first or second generation. A conception like this meets with great difficulties unless an exceedingly intimate chemical connection between the somatogenic and blastogenic cells is conceded. That such a connection exists can be no doubt, for all the gonads, in addition to their external function, have also an internal function as endocrine glands. This explains the fundamental changes of the entire body during the development of maturity and the peculiar disturbances of the constitution in eunuchoidism and allied states; and conversely there is a dwarfed and defective function of the gonads when the pituitary body is diseased. The functions of the entire organism consists of a complex reciprocal correlation of the organs themselves, and there is possible, also, a functional adaptation of the growing, and yet undifferentiated cells to new external conditions of life.

If this adaptation concerns organs that stand in a close altruistic relation to the blastogenic cells, then it is conceivable that during the course of long periods of time, when these influences are effective in the same manner through generations, new inheritable properties can be acquired. The Darwinian theory of natural selection conditions a far-reaching variability of the blastogenic cells, and if some biologists assert that natural selection is the only way of evolution, then this power of variability in the germ cells must be infinitely great and must have been present already in the very beginning of organized matter. Plate asserts, therefore, in view of the insufficiency of these conceptions, that the principle of the hereditary transmission of acquired characteristics is a logical demand upon the thought of future investigators.

Overculture and Race Degeneration.—When the deleterious changes of the constitution are not confined to individuals, but extend to entire races or people, they can only be explained by influences which have worked upon long series of progenitors in the same manner. Such changes are noticeable among our race at present, and to convince the casual reader of this I will merely mention a few that will spring into the attention of anyone who cares to undertake the observation: (1) The increase in the inability of young mothers to nurse their children; (2) the increase in dental caries; (3) the increase in the number of individuals under thirty who have an impaired vision; (4) increase in otosclerosis; (5) the increase of rachitis; (6) the increase in the digestive disturbances and faulty nutrition; (7) the increase in psychic instability (psychasthenia, neurasthenia).

The race is losing part of its aboriginal instincts whereby the adaptation and reaction to environment was entirely automatic and sub-conscious. The race has become so accustomed to an extensive protection against all dangers to our existence that it has come to an insufficient use of our locomotor apparatus—nerves, muscles and bones. In addition, the modern means of transportation and the intense strain upon the central nervous system, created by the close cohabitation in colossal modern cities, leads to rapid exhaustion of these noble master organs. All the achievements of culture by the progress of hygiene, artificial immunity, sanitation, physiologic dietetics, operative technique, cannot compensate the race for the colossal loss of automatic sub-conscious adaptation of our organism to nature, if this should continue.

All these advances that I have mentioned cannot restore this biocosmic reciprocal automatism between man and nature. The aim must be to induce the race to get back to nature; a colossal and almost impossible task when one reflects that it means the dissolution of the big cities; the restoration of human beings to a life in the country, or at least in so much country that each individual is assured the requisite amount of natural earth, air, sunlight and immunity from the contamination of great cities.

Mendelian Theory of Inheritance.—In 1865, Johann Gregor Mendel published under the title, "Versuche über Pflanzenhybriden," in the Proceedings of the Society of Natural History of Brünn, Austria, his law of heredity. He made prolonged experiments in crossing varieties of the pea (*Pisum sativum*). His paper was overlooked until attention to his remarkable results was called by De-

Vries in 1900; he and also Correns and Tschermak at the same time independently rediscovered Mendel's law. Mendel selected seven pairs of characters, such as the shape of the ripe seed, of the cotyledons, of the seed-pod, color of the seed-skin, length of stem, etc. Large numbers of crosses were made between peas differing in respect of one of each of these pairs of characters. It was found, says Bateson, that in each case the *offspring of the cross exhibits the character of one of the parents in almost undiminished intensity*, and intermediates which could not be at once referred to one or other of the parental forms were not found. "*In the case of each pair of characters there is thus one which in the first cross prevails to the exclusion of the other.*" This prevailing character Mendel called the dominant character, and to the other he gave the name of recessive character.

Every Mendelian element in the germ plasm is represented by one or more inheritance units which are called *factors* or *genes*. Weismann and DeVries assume them to be living particles, and other theoreticians in inheritance assume them to be enzymes. Continued amphimixis of brother and sister in the human race has not occurred, and therefore, in our race, we have hitherto only accidental resemblances to Mendel's law. Marriage among close blood relatives may have been a racial necessity in the very earliest prehistoric state of the human race. The Mendelian idea that a descendant always has a definite calculable part of the heredity mass of his ancestors, but not a molecule of strange germ plasm, is with the human being an impossible conception.

Galton, on the basis of an investigation of heredity in certain animals, has formulated his results to the effect that, in a given case, 0.5 of the inborn characteristics will be derived from the two parents (0.25 from each), 0.25 from the grandparents collectively (0.0625 from each), 0.125 from the great-grandparents taken together (0.015625 from each), and so on in similarly diminishing proportion. This law, further elaborated by Pearson, and in some slight degree corrected on abstruse mathematical grounds, is by him acclaimed as a scientific generalisation of immense importance, comparable for its power of resuming in one brief statement innumerable facts, to Newton's famous law of gravitation. Apparently, on this hypothesis, the inborn qualities of an individual will be fully covered by the sum of inherited qualities (S—1) only when the lineage has been carried back *ad infinitum*. Go back only a few, say ten, generations, and you have already reached the source of the great majority—some nine hundred and ninety-eight out of each thousand—of inherited characteristics. (Chas J. White in *Makers of Men.*) But go back as many generations as you like, and a residue, albeit infinitesimal, of inborn qualities, not yet accounted for, will confront you still. And in dealing with human individuality, it is to be noted that some quite inconspicuous but deep-seated quality, of remote and obscure origin, may quite well be, in any given case, the little leaven that leavens the whole lump. Hence, in part, the apparently paradoxical results often attained by consideration of the recent family history of remarkable personalities. Beyond all available human records, beyond all human ancestry, beyond the prehuman mammalian and submammalian stock, beyond the primeval monocellular starting point, even to the groundwork of inorganic nature, we must pass for our ideal completion of the sum of inborn mental and physical characteristics. There the manifestation of the contemporary human career has its dawn; there the *Ego* begins its æonic march towards the fulness of predestined activity. (White.) It is further to be noted, with reference to Galton's law, that it is a statement of averages only, for "the introduction of the Mendelian law, combined with the results of recent cytology," makes it likely that in any given individual the maternal and paternal factors lie side by side and separate out in the gametes (ova or spermatozoa) of that individual, so that we do not inherit equally from all grandparents of each generation, but all from some and nothing from others.

739 UNIVERSITY PARKWAY.

THE ARREST AND CURE OF DEMENTIA PRÆCOX.

BY BAYARD HOLMES, B.S., M.D.,

CHICAGO.

THE opinion prevails that dementia præcox is irrecoverable. A careful reading of the literature discloses the fact that an occasional case with indubitable symptoms of this disease spontaneously recovers after decades of deteriorating custody, and after symptoms, too, indicative of the most pronounced cerebral affection. The recoveries are, moreover, marvelously complete.

On the other hand, the histopathologic records of Ranaudie and the investigations of Southard, Gurd, Rawlings, Sir F. W. Mott, and Monokow and Kitabayashi demonstrate actual destructive lesions which give adequate pathology for the unfavorable or absolutely grave prognosis attributed by alienists to this disease.

There is, however, one fact common to all these pathologic studies which must not be overlooked. Each of these students of the histopathology of the brain remarks the pregnant observation that the extent of the histopathology of the cortex and of the choroid is not uniformly proportionate to the gravity or duration of the mental symptoms. While the lesions are easily coordinated with the character of the symptoms when the lesions do exist, they are not always demonstrable. Some patients give a history of grave and prolonged symptoms without recognizable destructive cerebral lesions.

If one will accept for the moment my own theory of the production of this condition, the occasional phenomenon of a complete recovery after the gravest manifestations of the disease exhibited over a period of decades even, will not be incredible or inexplicable. According to this theory the disease is an intoxication. The toxin is produced in the cecum. The factors in its production are remnants of the patients' food, colon bacilli, time, temperature, hydrogen ion concentration and fluidity.

At the present time the food factor is presumed to be the aminoacid histidine, or a histidine like polypeptid.

The potent colon bacillus may or may not be a

special stirp. Our researches do not suggest more than the probability of specificity.

The time is measured by the retention of the cecal contents in a liquid condition in the active muscular cecum, on the one hand, and, on the other hand, by the time required by the particular strain or stirp of the colon bacillus to decarboxolate or catabolize the iminazol containing polypeptid, or the histidine.

The temperature is limited to the body temperature in health. Clinically, dementia præcox patients have shown improvement during pyrexia, especially during typhoid fever. This betterment in the symptoms might be due to the existence of a temperature unfavorable to the pathogenic stirp of the colon bacillus.

Each stirp of the colon bacillus has decided idiosyncrasies of growth in which the hydrogen ion reaction is a conspicuous factor. The contents of the ileum are alkaline from the duodenum to the ileocecal valve. The contents of the cecum have been found to be variously neutral and acid. Hp = 5.2 — 62. Under differing conditions of Hp the rapidity of growth of a specific strain of the colon bacillus varies and hence the amount of toxic residue of an aminoacid or polypetid food would be increased or diminished by changes in the reaction.

Microorganisms, and especially the colon bacilli, grow most rapidly, other things being equal, in a moving liquid medium. The contents of the cecum are a liquid mixture to which the residue of the ileum is added in little liquid squirts through the ileocecal valve. The regular and often powerful antiperistalsis of the cecum insures a thorough mixing, thus promoting the bacterial growth. At the hepatic flexure, there is a loop of the transverse colon two or three inches long, in front of the ring of Cannon, which ring is conspicuous in our patients. The wall of the cecum is more muscular than normal as a result of a sort of compensatory hypertrophy to overcome spasmodic constriction of the ring of Cannon. The cecal mucosa is essentially an active absorbing surface, while the mucosæ of the transverse and descending colon are only indifferently absorptive.

Our theory places the production of a toxic molecule in the cecum, which molecule, by a selective process, acts upon the brain to produce the mental symptoms and later the histopathologic lesions of dementia præcox. These symptoms are at first produced by a simple cell intoxication, which poisoning may, and does in some patients, go on to the destruction of the brain cells, as witness the figures and descriptions of the histopathologists. The symptoms which are first noticed in the majority of cases of dementia præcox are suggestive of cerebral irritation, but a careful inquisition generally develops evidence of an antecedent period of depression or habitude.

The sexual excitement of dementia præcox patients is of uncertain genesis. Ceni has shown conclusively that the molecules of cerebral neuroglia are toxic to the spermatogenesis of the testicle when liberated by cerebral concussion in animals. It seems highly probable that the genital symptoms of dementia præcox are secondary to the destruction of cerebral cells and the liberation of cerebral molecules. In any case the testicles and the ovaries of dementia præcox patients become smaller as the disease progresses, and the testicles are devoid of living spermatozoa in the majority of dementia præcox boys.

With such a theory of the disease, and after the demonstration of a cecal stasis of three days or more, it has seemed to me reasonable to attempt to terminate the production of the toxic amine by daily irrigations of the cecum with large quantities of water, five hours after the last meal of the day.

After demonstrating the inefficiency of enemas and discovering the existence and potency of the ring of Cannon, I was compelled to attempt the daily cleansing of the cecum through an appendicostomy.

Clinical demonstration is not popular to-day. This is the age of the laboratory method. Nevertheless, the clinical method is a most scientific and practical method. Its results may be demonstrated *ad libitum*. Especially is this the case with our theory of dementia præcox. No concourse of accurate laboratory experiments can equal in power of conviction a single clinical experiment which any general practitioner of medicine may institute and follow out with his next case of dementia præcox. It is for such general medical men as still have confidence in the value of clinical evidence that this presentation is made.

Let my theory of the origin of dementia præcox be accepted provisionally by the unprejudiced physician, and the indications for treatment would be immediate appendicostomy and daily irrigation of the cecum through the colon until all amino-acids are removed.

Case 1.—The first patient on whom this procedure was undertaken by me was A. H., Chicago. He was born of a good family, and brought up and educated by his mother's sister, a maiden lady of means, who was very fond of him. His physical development was superb, and he presented an artistic temperament, drew well, wrote in an original manner, and read metaphysical and philosophic literature extensively. He had a desultory education, about equal to a high school course. He was a smart dresser, and was convivial in disposition.

In June, 1914, he had given no suggestion of impending breakdown, so far as his aunt can recall, when suddenly he disappeared on his way by train between Philadelphia and Atlantic City. On leaving Philadelphia he had a small sum of money, not more than $12, and was well and appropriately dressed. When found in the swamps of New Jersey, two weeks later, he was practically a naked, emaciated, confused, incoherent, drivelling dement, refusing food and screaming, crying, and refusing every attention. He was taken to a hospital for a short time and nursed back to relative physical health. Several alienists saw him and made the diagnosis dementia præcox, recommending custodial care.

The parents in Chicago decided to take him home, and did so in 1915. At home he was seen by several consultants, who confirmed the diagnosis. He made some improvement, but remained untidy. The dementia præcox attitude increased, with verbigeration, mannerisms, peculiar drawings and impulsive laughter. He continued below weight, though able to feed himself when brought to the table. He slept in a semicatatonic supine position, his head elevated above the pillow. He could not be made to keep his bed dry and clean.

In July, 1916 his father consented to have appendicostomy performed, and the boy was taken to the Lakeside Hospital, Chicago. After careful catharsis and enemas, the appendicostomy was made and the colon irrigated with three quarts of dilute magnesium sulphate solution, while the patient was still on the

operating table. The patient was placed in a private room on the first floor under the floor nurse.

Early the morning after the operation the hospital clerk telephoned me that my patient had escaped from the hospital. He had dressed himself, taken his small hand bag and disappeared. His father informed the police, but within two hours he arrived home, having spent 10 cents for street-car fare out of 40 cents left him.

During the following six months his father irrigated the colon through the appendix with water, in which a small amount of magnesium sulphate was dissolved. The patient sat on the stool in the bath room. The ten-quart pail was hung about five feet above the stool and connected by an ordinary rubber tube with a dull glass point to the appendix. When the irrigation was begun the father read aloud to his son, thus passing the time profitably.

The patient improved rapidly and became tidy and dressed himself, came regularly to his meals, went out alone on the street, visited the movies alone, and began to write coherently and make drawings of real merit. He conversed with the family, and conducted himself properly on the street. He assisted some about the house. His father took him to a commercial art school, where he did some very interesting drawing.

At the end of a year the patient was much better than before the treatment was begun, but he could not assist his father in the office. He was particularly deficient in figures and unable to copy addresses from printed lists where some selection was necessary. On account of family conditions and social prejudices it was not possible for me to study the patient with any care or thoroughness. From the most cursory tests he seemed to be feeble minded or partially demented, though his mental condition before his episode is not well attested.

His improvement after appendicostomy was prompt and has been permanent more than four years, but there remains pronounced mental defect. We are uncertain as to the origin of this defect. He might have been originally feeble minded. Against this presumption is the fact that he has none of those habits and tendencies which are so common among the moron group. The history is against it also.

The patient had but one acute episode of little more than two weeks' duration, during which cerebral changes could have taken place. If considerable patches of neuroglia were destroyed, the destruction must have been rapid.

CASE II.—The second case contrasts with the first in many respects. A. B. was the third of four boys. His next older brother died of appendicitis when 13 years of age. His younger brother and the oldest are both alive and well. His paternal ancestors are all very long lived, and of Scotch-Canadian origin. His maternal ancestors are old New England stock, without any hereditary taint. In 1913 A. B. was 18 years old, and in the second year of high school. He was working outside of school delivering papers when the first acute episode came on suddenly. There was no doubt of the diagnosis of dementia præcox, and he was sent to a private sanitarium in Wisconsin. He required restraint. At the end of nine months he returned home.

During the following seven years he had several episodes of much the same severe catatonic character, and was placed in several different private institutions. His symptoms were accompanied by great loss of weight, and he was generally mute and untidy for two or three months at least on each occasion. The gravest prognosis was made at each institution in which he was placed. In the autumn of 1918 his last and most protracted relapse began. He was taken to the summer home of the family in Florida, and his mother and a helpful woman of mature age and some experience took care of him. His condition grew worse and worse until March, 1919, when he was taken to a sanitarium at Orlando, Fla. He was tube fed at once, but continued to lose weight, and bed sores appeared over sacrum elbows and knees. His weight fell to 74 pounds.

At that time his family decided to have appendicostomy performed, and under my written direction Dr. Clyde Brady performed the operation in Orlando on Aug. 1, 1919. Irrigation of the cecum and colon was begun ten days later. Since that time A. B. has made continuous improvement. In May, 1920, he returned to Chicago with his family, at which time he could walk. He celebrated his twenty-fourth birthday in August, 1920, with a little dancing party at his father's house. In January, 1921, he returned to Florida with his family. It was my privilege to visit at the family country house on one of the inland lakes and see for myself what his physical and mental condition had become.

The young man was alert and smiling as we drove up to the house, and helpfully and cheerfully welcomed us, for my wife was with me. It was supper time, and he assisted his mother and grandmother in getting the meal on the table, during all of which time he took part in the conversation in a most animated and vivacious manner.

On the following day I assisted him in finishing up the front door steps or entrance. It had been found necessary to replace the original steps. A. B. had planned these new steps himself. They were eight feet wide, and made of two-inch yellow pine on a broad cement foundation. The plan was rational, original, and yet architecturally in the vernacular of the new South. It was consistent with the house, for which it was the introduction. I worked with him in making the lattice work, and he talked and joked in a very natural and cheerful manner. He recited for me the 100th Psalm, which he said he had learned in his first year at high school, and did it without an error and with little hesitation. This was the first time he had recalled it in years. A day or two later he recited Hamlet's Soliloquy without break or hesitation until he came to "conscience makes . . ."; there he halted for a moment and, after slowly recalling the word, went on without further assistance. He drove the automobile part of the way coming home from Daytona, and took care of the car every morning before it was used. He always caught the minnows for bait without suggestion or jogging, and took me or any other guest out fishing with all the proverbial graciousness of the Southern host. He helped about the house and did errands in town for the family.

His memory of the happening during his worst condition is remarkable and apparently objectively complete. While at Daytona we occupied the same room in the hotel. He described to me his first sanitarium experience. He said the nurses locked him into a room and neglected him. They refused to give him a glass of Epsom salts which had been ordered, and he reported it to the doctor when he came around. The doctor, whose name he recalled, told him he was making too much trouble for $25 a week, and ordered him sent to a back ward with old paralytics, and there he was locked in a room, and at last tied hand and foot for nine days to his wet, stinking bed. His bowels didn't move until the ninth day, and then in bed. He spoke of such conditions with appropriate disgust.

He wrote a four-page letter to his father immediately on receiving a letter from him, and did it quickly and with extreme neatness. I read the letter, which was direct, brief and consequential, and found not a single error in spelling, punctuation or syntax. It was excellent in every particular.

A. B. has suffered a continuous but mild pyœphrosis since he returned from Florida in May, 1919, and Dr. Louis Schmidt of Chicago catheterized both ureters and reported both kidneys infected with colon bacilli only. The pus still shows itself. He also has some chronic posterior nasal catarrh, and a disagreeable hawking mannerism.

On first returning to Chicago from Florida in May, 1920, his head was thrown forward on his shoulders in the manner peculiar to catatonic dementia præcox, but he has straightened himself up, without any formal gymnastic training, until this deformity cannot be noticed. His voice has returned to nearly normal from the roughness and uncertainty which it showed at first.

His mental tempo was not noticeably slow, but his physical expression of mental phenomena was retarded and is more like that of an old person than of a boy. In working on the porch he was careful not to waste lumber and used short pieces economically. He was slower in deciding which pieces to use than a youth

usually is. In fishing he was less impetuous than most young men, and more patient when he got a strike. His memory of dates and places in the past was good, and he knew where everything was in the house as well as the average boy, but he did forget an errand now and then among the multitude of things necessary to get when going to town. There are a great many things to do on a country place in Florida, and he seemed to be able to keep the place in order and attend to many matters in the house.

Every day he irrigated his cecum with ten quarts or more of warm water, to which he added some growing yeast in sweetened water. This usually took at least three-quarters of an hour. Several times he had tried to drop the irrigation for a while, but he recognized that he could not neglect it.

If any one incidentally met A. B. he would notice no abnormality, but only a deliberation not quite consistent with his age.

Since returning to Chicago in April, 1921, he has had a febrile attack which led to an *x*-ray examination and the demonstration of calculi in both kidneys.

Comparing these cases, one is surprised that the single short episode of Case I was attended by more permanent mental enfeeblement than the repeated, prolonged severe episodes of Case II. Then treatment was begun within three years of the first symptoms in Case I, and improvement was quick and sharp, but not complete, while in Case II treatment was not begun until after six years, and it was slow, steady, and seems to be miraculously complete.

One would naturally expect better results from appendecal irrigation in cases of recent onset, and would be tempted to give a grave prognosis in the prolonged disease and in cases where there had been many severe episodes. Some evidence outside these two cases leads me to doubt the dominance of either time or severity of symptoms in making an unfavorable or favorable prognosis after treatment.

The indications for treatment, then, should not be fixed by the duration of the disease. Until investigation and research have furnished data to explain the miraculous phenomena of recovery after appendicostomy and irrigation, and some objective means of measuring the intracranial destruction *intra vitam*, we must go on and offer the severest and the oldest dementia præcox patients the hope which clinical history and this therapy suggest.

30 North Michigan Avenue.

PSYCHOGENIC AND NEUROGENIC FACTORS IN SKIN DISEASES.*

By MOSES SCHOLTZ, M.D.,

Los Angeles, Cal.

Dermatologist of the Graves Dispensary, Los Angeles Postgraduate Medical Department, University of California, Los Angeles County and Kaspare Cohn Hospitals.

THAT the nervous system plays an important part in the etiology and pathogenesis of skin diseases has been vaguely felt and empirically established long ago. With the extension of medical research a number of clinical observations have been accumulated to demonstrate such relationship. However, both neurologists and dermatologists have cited the facts and observations from their respective points of view only, in a casual and detached manner, without classifying the data or attempting a comprehensive analysis of them. To attempt such an analysis and to offer a systematic presentation of the known clinical facts of interrelationship between the nervous system and skin diseases is the purpose of this paper.

Psychogenic Factors.—The conventional division of neurogenic factors in psychogenic and neurogenic proper, *i.e.* sensorimotor and vegetative neurogenic, is maintained also here for the reasons of practical convenience.

Psychogenic factors play in the pathogenesis of skin diseases a much smaller part than vegetative neurogenic; yet the frequency of their clinical incidence is sufficient to merit a closer study and attention. A psychopathic condition most commonly met with in skin diseases is *mental depression and hypochondria* developing in chronic distressing itching or disfiguring dermatoses. This depression is often so deep and unbearable that attempts at suicide are not a rarity in these cases.

There is one dermatologic condition due directly to the mental morbidity and instability—this is *dermatitis factitia* in hysterical subjects. Dermatologically lesions of dermatitis factitia betray themselves by sharply defined borders, by unnaturally regular and fantastic shape and, above everything else, by being limited strictly to the parts of the body within the reach of the patient's hands. Therapeutically, lesions of dermatitis factitia are entirely within the neurologic sphere, offering a fertile field for psychoanalysis.

A clinical form standing morphologically very close to dermatitis factitia is presented by *neurotic excoriations* frequently observed in neurotic individuals. This form differs from dermatitis factitia mainly in the pathogenesis. In dermatitis factitia the lesions are produced deliberately for various purposes of a personal nature. Neurotic excoriations are self-inflicted involuntarily and subconsciously, as the result of a neurotic disposition and restlessness.

The incidence of skin lesions in various psychoses and their possible pathogenetic relationship is only casually recorded and hardly at all studied. This enormous field of research has been sadly neglected. Only scant and scattered observations are available on the subject. Thus Church and Peterson[1] record the following anomalies of the skin in various forms of insanity: Adipose thickening, polysarcia, precocious and abnormal development of the hair, premature grayness, hypertrichosis, vitiligo, pigmentation, nevi, adenoma sebaceum, molluscum fibrosum, ichthyosis, and various skin paresthesias, as a result of delusional ideas.

Emotional Factors.—The question of the possible influence of psychic shock and emotions on the production of dermatoses is rather ignored by dermatologists. However, so reliable an observer as the late James Hyde[2] of Chicago stated his belief that psychic factors have a demonstrable effect on the color and nutrition of the skin, as well as on the production of exanthemata. He also called attention to the undeniable and hitherto unexplainable effect of maternal impressions on the skin of the fetus in the form of development of tumors and nevi. Pusey[3] also testifies to the possibility of emotional phenomena acting as etiological factors in skin diseases.

*Read before the Society of Neurologists and Alienists of Los Angeles, January 19, 1921.

With the recent advent of Freudian ideas, as it might be expected, clinical reports began to come in which incriminate sex repression, as a possible underlying factor in some dermatoses. Thus John Stokes[4] in 1918 reports a number of cases cleared up by psychoanalysis. Jelliffe and Evans[5] reported in 1915 a case of psoriasis, as a hysterical conversion mechanism. From a dermatologic point of view, however, the case is not convincing, as it has not been proven that psoriasis has been induced by psychic factors, neither that it has disappeared after the uncovering of the sex reflex.

The whole field of the direct causal relationship of psychic and emotional factors to skin lesions is as yet an unwritten chapter, still waiting for the initial research. So far as the indirect influence of psychic factors on skin diseases through the intermediate influence of the vegetative nervous system is concerned, it can be granted even now to a very large extent, on both clinical and theoretical grounds.

Neurogenic Factors Proper.—The source of the intimate connection between the nervous system and the skin is to be found in their embryologic relationship, as they both develop from the ectoderm. The localization of all the sensory nerve endings on the skin surface enhances still more this relationship. With the exception of the brain and the spinal cord, skin possesses, probably, the richest nerve supply of any organ in the body, both in the number of nerve fibers and in their variety. The involvement of the sensorimotor and the vegetative nervous system in skin diseases can be manifested in many ways, being either primary or secondary. The simplest and the most common form of involvement of the nervous system is to be found in chronic itching dermatoses, when through discomfort and loss of sleep the patient develops a neurotic condition or a fully marked neurasthenia. On the other hand, if an itchy dermatosis develops in an individual already neurotically tainted, this individual obviously is less capable to tolerate itching without scratching; this aggravates the local lesions and intensifies the itching still more, thus creating a vicious circle.

Nervous pruritus without any primary skin lesions is quite a common condition. It is the purest type of skin neurosis. There are several varieties of this nervous irritability of the skin. Winter and bath pruritus are some of the common types.

Reflex and Sympathetic Skin Symptoms.—There are several dermatologic phenomena which point unmistakably to the involvement of the nervous system, but which are not as yet satisfactorily explained. Such, for instance, is a spontaneous and sudden disappearance of benign growths, like warts, after they have persisted for many months. Also a spontaneous sympathetic disappearance of warts from one side of the body after warts of the other side have disappeared under exposures to the *x*-ray. The rapid extension of the inflamed area in dermatitis venenata way beyond the area exposed to vegetable or chemical irritants is also suggestive of the participation of the vasomotor nervous apparatus.

The radiation of itching and the projection of various skin paresthesias on the surface from the internal organs, such as the prostate gland in the male and the ovaries in the female, are examples of the true reflex neurodermatoses. However, in other cases reflex dermatoses must be taken in a broader sense. The reflex action must be extended also on the vasomotor and trophic nerves. The action is rather indirect and complex in nature. For instance, dentition eczemas in children cannot be explained by a direct reflex action. The sensory irritability radiating through the vasomotor nervous apparatus may induce a local hyperemia and may thus prepare a local circulatory predisposition for eczema. But the eczema itself should be attributed to the toxins arising from the digestive disturbances, induced by dentition, rather than to reflex action from the dentition itself.

Herpetic Group of Neurodermatoses.—The most striking illustration of skin lesions being produced as a direct result of the inflammation and degeneration of the nervous tissue is, unquestionably, *herpes zoster*. In the light of our present knowledge herpes zoster is merely a symptom pointing to the pathological changes of the respective posterior spinal root or ganglion. The nature of these changes, however, can be manifold. Streptococcal infection of the ganglion demonstrated by Rosenau represents only one type of herpes zoster.

Very similar to herpes zoster clinically stand various types of *herpes simplex*. With certain differences in localization and distribution, both conditions show a striking resemblance in the essential morphological features. The writer is inclined to side with Hartzell in the assumption that herpes simplex is merely an abortive and irregular form of herpes zoster.

Dermatitis herpetiformis morphologically stands very closely to the herpetic group. Its frequent development after a nervous shock and its association with emotional and mental strain strongly suggest a nervous etiology. The fact that the best therapeutic results are obtained from nervous and general tonics, such as arsenic, quinine, and strychnine, also points in this direction but whether the nervous system is involved directly or indirectly through some toxic influence is still a matter of conjecture.

Lichen Group of Neurodermatoses.—Among dermatoses of strongly presumptive nervous etiology must be mentioned *lichen planus*. Its frequent association with a state of nervous debility and exhaustion, as well, as its resolution and cure by rest and tonics, are facts strongly supporting this assumption. Here also can be properly mentioned *neurodermitis* of the French authors which by American and English writers is referred to the lichen group.

From the point of view of pathogenesis, neurodermatoses can be conveniently divided in the following groups:

1. *Functional neurodermatoses* in which skin lesions develop on the basis of general nervous irritability, exhaustion or toxaemia. Here belong nervous pruritus, lichen planus, dermatitis herpetiformis, and functional disturbances of the sweat and sebaceous glands. Until lately pemhygus used to be referred to this group, but recent research more and more suggests its infectious nature.

2. *Vasomotor neurodermatoses* represent a vast and clinically important group. Here belong erythromelalgia, angioneurotic edema due to the irritation of the vasodilators, and spastic anemic

forms, the extreme type of which is Raynaud's disease. It is of interest to note that the involvement of the vasomotor nervous apparatus in these cases may be merely secondary, as a result of focal or general infection and toxemia. In spastic angioneuroses, such as Raynaud's it is questionable, whether the arterial spasm is not secondary to the endarteritis obliterans associated with it.

3. *Trophoneurotic dermatoses.* Organic neurodermatoses or trophodermatoses are as yet very little understood. Our present knowledge is limited to the morphological characteristics of various clinical forms induced by trophoneurotic changes and the resulting degenerative phenomena. What nervous fibres, ganglia, or centres control the nutrition of the skin, is unknown. To the trophoneurotic dermatoses belong idiopathic skin atrophies, particularly those of the diffuse symmetrical progressive type, disturbances of pigmentation, both in the sense of superfluous deposit, and the loss of pigment, alopecia areata, indolent and perforating ulcers, scleroderma, etc.

Endocrinopathies. Closely identified with trophoneuroses are endocrinopathies. While endocrinous glands form a system of organs independent of the nervous system, yet their function is so closely interwoven with the vegetative nervous system and their secretory activity retroacts so strongly on the isceral nervous apparatus that the incorporation of endocrinopathies in the general pathology of the nervous system, as some of the modern neurologists do, seems to be fully justified.

The most important dermatologic syndromes due to the dysfunction of endocrinous glands are: myxedema due to hypothyroidism, the hyperthyroid skin syndrome observed in Graves' disease, bronze discoloration of Addison's disease due to the pathological changes in the adrenal glands, and the adiposogenital dystrophia due to the changes in the hypophysis. Besides these forms which are due solely to the dysfunction of endocrinous glands and are proven so conclusively, there is a number of dermatological conditions where the endocrinous dysfunction is only one of the symptoms and is coexistant with other pathogenetic factors; to such conditions belong: scleroderma, angioneurotic edema, pathological blushes and erythemata, vitiligo, etc. It must be kept in mind, though, that this division and strict separation of neurodermatoses into distinct groups—functional, vasomotor, trophic and endocrinopathic—cannot be maintained in all cases or even throughout the whole course of certain individual cases. All these branches and functional varieties of the vegetative nervous system may be involved by pathogenetic factors simultaneously, with one or another dominating in various cases, or in different stages of an individual case.

Clinical Significance of Neurodermatoses.—A fact of great clinical significance is that most neurodermatoses, particularly those of trophic, vasomotor, and endocrinopathic nature, are not independent clinical entities but rather symptoms or syndromes incidental to the complex picture of many organic neuroses. This fact largely explains why these dermatoses may have a manifold etiology and also why various organic neuroses may present quite a variety of skin manifestations.

For instance, scleroderma, as stated by Jelliffe,[6] may be observed in a number of neurological conditions, such as peripheral nerve palsies, spinal cord injuries, syringomyelia, poliomyelitis, and multiple sclerosis; it may be also of pluriglandular endocrinous origin and even psychogenic through the action of the thyroid.

Similarly Raynaud's syndrome may be traced to psychic factors (shock, hysteria, precocious dementia), to the cerebral and spinal lesions (hemorrhage, trauma, paresis, multiple sclerosis, tabes, syringomyelia, tumors). It may be also observed in peripheral neuritis, endocrinopathies, and arteriosclerosis.

On the other hand dermatological literature shows that organic neuroses may present a great variety of skin manifestations. Thus, according to Pusey, in locomotor ataxia may be observed erythemas, urticarias, herpes zoster, bullous eruptions, trophic ulcers, and gangrene; in spinal meningitis, erythematous, vesicular, and bullous rashes; in syringomyelia and lepra, anesthesia, trophic ulcers, pigmentations, erythemas, and urticarias; in peripheral neuritides herpes zoster, sensory disturbances of the skin, vasomotor and trophic disorders, atrophy and changes in the skin texture.

Conclusion.—On the bases of the observations above cited, nosologically, neurodermatoses should be accorded a position on the borderline between dermatology and neurology. The clinical recognition and morphological differentiation, as well as the local treatment, are within the specific field of dermatology. On the other hand the pathogenesis and systemic treatment fall within the sphere of neurology. Obviously, then, the clear and thorough understanding and the therapeutic control of neurodermatoses cannot be attained until a close cooperation and a joint study of the patient by neurologist and dermatologist will be a routine procedure in these cases.

In the present state of our knowledge neurodermatoses may not have a specific pathognomonic significance from the neurological point of view. They do, however, serve as a surface indication of functional or organic changes in the vegetative nervous system, and to this extent they can be of great service to the neurologist. This paper has for its purpose the emphasis of this very fact and is offered as a plea for a closer cooperation between neurologist and dermatologist in the joint study of this important group of dermatoses.

REFERENCES.

1. Church and Peterson: Nervous and Mental Diseases, 1908, p. 723.
2. Hyde, James: Disease of the Skin, 1909, p. 69.
3. Pusey: Practice of Dermatology, 1911, p. 70.
4. Stokes, John: *Jour. of Cutan. Diseases*, 1918, p. 513.
5. Jelliffe and Evans: *N. Y. Med. Journal*, 1916, December 2.
6. Jelliffe and White: Diseases of the Nervous System, 1917.

718 Brockman Building.

Rapidly Fatal Case of Epidemic Encephalitis.—Rabion reports a case of the hyperacute type in a man of seventy which terminated fatally in forty-eight hours. The subject was in apparently perfect health when stricken. Death naturally occurred in coma.—*Gazette des Hôpitaux.*

WHAT PRINCIPLE MUST GOVERN ESTIMATES OF VISUAL LOSS IN COMPENSATION CASES?

By WILLIAM MEHL, M.D.,
BUFFALO, N. Y.

In a former paper, published in THE MEDICAL RECORD of May 14, 1921, I discussed the question of what percentages of loss of use of an eye should be allowed for various degrees of impairment of vision, in Workmen's Compensation cases. My chief contention was that the figures of a Snellen test should be accepted for exactly what they are, the fraction merely being translated into the equivalent percentage of remaining vision, without attempting to minimize the loss by splitting vision into component parts. Simplicity, uniformity in the recording of results, and practical justice combined argue for the acceptance of visual acuity as vision in compensation matters.

There is urgent need of a fixed standard for determining degrees of depreciated eyesight. Solicitations by compensation boards and insurance carriers have caused individual oculists and ophthalmological societies to work out tables of various kinds. These tables, instead of solving the problem, rather have increased the existing confusion. The explanation for the great diversity of estimates, is that there is no agreement as to the point of view from which to attack the problem. And yet, the point of view is clearly indicated in the compensation laws of most, if not all, the States which have such laws. Believing this to be an important fact, possibly not generally known to medical practitioners, and persuaded that attention should be called to basic principles of estimating vision, within the limitations fixed by laws as they stand, I submit the present paper, in hope that the discussion may clear the way for a final solution.

My former paper has been criticised on the ground that I failed to take into account that the recorded fraction of visual acuity does not represent a corresponding fraction of loss of economic or industrial use of the eye. I am well aware of this. But I did not attempt to touch the question of economic or industrial loss at all and did not see any necessity for considering it, since practically all present State Compensation Laws disregard visual working efficiency altogether. Until this condition is changed, there would seem to be nothing gained by having oculists argue from a different point of view.

What is the Law?—Loss of use of eye is almost uniformly interpreted as loss of vision, and *vice versa*, by the compensation laws in the United States, and no account is taken of the vocational handicap sustained. The point may be argued, but there it is in the law, and those who rate eye impairments in compensation cases must be governed by the law as it stands.

The laws of Connecticut, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Missouri, Ohio, Rhode Island, South Dakota, Texas, Washington, and West Virginia, and probably many other States, award compensation for "permanent loss" and "reduction of *sight*," "total or fractional part of *vision*," "irrecoverable loss of *sight*," "total and partial loss of *vision*."

In the New York law occurs the less explicit phrase "loss of use of eye." However, it is amply established that "loss of vision" is intended. I am informed that the Commission which administers the law has, from the very beginning of the operation of the law, made its awards for "loss of use of an eye" on the basis of visual acuity as revealed by Snellen tests. The Appellate Courts uniformly have sustained awards made on this basis, except that they compelled limitation to such loss of vision as remains after the highest tolerable correction by proper lenses. All this confirms the view I presented in my former paper.

Ohio has a provision which decrees that no compensation shall be allowed for "less than twenty-five per cent. loss of vision." It is obvious that 20/25ths of normal visual acuity is meant. Suppose the Milwaukee tables of 1919 were applied, then a person would get no compensation in Ohio, unless an accidental injury had reduced his visual acuity to at least 20/100ths of normal, which manifestly would be a gross injustice. I mention this merely in passing.

The assumption that physical impairment alone and not economic or occupational usefulness is intended, is confirmed by the schedules adopted in practically all the States which have enacted compensation laws. A watchmaker is paid compensation for exactly the same number of weeks as an unskilled laborer, when both have suffered an equal reduction of vision. A maker of fine tools is paid for no longer a period than a truck driver for the loss of an index finger. A man in a sedentary occupation gets as much for the loss of use of a leg as the man who has to climb telegraph posts or walk on elevated steel girders. The compensation is fixed for the limb and the organ which has been disabled permanently, regardless of the resulting occupational handicap or any other economic consideration.

My belief is that most of the legislatures in framing the laws assumed the practical impossibility of taking account of the thousand and one factors entering into the problem of fixing the reduction of earning power in individual cases, and decided to have compensation awarded on a basis of purely physical impairment alone.

We must remember that compensation is intrinsically an insurance proposition. The insurer must know beforehand what he will have to pay for a given injury, whether he is to meet losses of earning capacity or merely the physical impairment for which an arbitrarily fixed amount of compensation is allowed. The latter is the more easily determined of the two considerations. That makes it the more desirable from an insurance standpoint. In a case of visual impairment the findings of an ophthalmologist supply all that is required to settle the percentage of loss to be paid for.

It is exceedingly important that ophthalmologists should keep these things in mind. We are not experts on industrial questions, and therefore should not permit ourselves to substitute for purely scientific examination and report, opinions as to what we believe to be the proportionate impairment of *economic* visual efficiency.

Scientifically speaking, 20/40ths means 50 per cent. loss of visual acuity. As a matter of fact,

visual acuity is working vision. 20/40ths accordingly, represents loss of one-half the normal working vision of the eye. I feel that there cannot be too much insistence upon this point.

The latter statement has been called by one oculist "absolutely wrong and misleading," with the added comment that "were Snellen alive today he would be much chagrined at having his method so badly misconstrued." I cannot answer for what Snellen would say if he were alive today. What I do maintain is that if 20/20ths represents normal visual acuity or working vision, then 20/40ths is one-half of normal or fifty per cent. of normal, feeling reasonably sure that this is mathematically correct. I was not at all considering what constitutes blindness, in my former article, nor am I aware of any Snellen formula which represents blindness; therefore I cannot see why my statement should be criticised on the ground that 20/40ths is not the midway point between 20/20ths and blindness. All I contend is that 20/40ths means that normal visual acuity or working vision has been reduced exactly fifty per cent. by dropping from 20/20ths to 20/40ths.

As soon as a State legislature fixes *industrial* blindness at a given point, say 20/100ths or 20/200ths, and provides that all lesser impairments of sight shall be rated proportionately, we shall then have to assign to 20/40ths a different percentage. The State of New York last year amended the Compensation Law by fixing 20/100ths or "eighty per centum of the vision of the eye," as "the equivalent of the loss of the use of the eye." As no provision was added to govern awards below the "eighty per centum" mark, the Commission appears to have adhered to its former practice of merely translating the fractional figures of Snellen tests into the corresponding percentages, up to eighty per centum. There is, no doubt, ample justification for this. If, on the other hand, the Commission should take the initiative of grading partial reductions of vision in accordance with the percentage fixed as representing "the loss of the use of the eye," it would be equally right, and perhaps more consistently right, in adopting the following table of percentages:

	Loss		Loss
20/30ths =	12½ per cent	20/70ths =	62½ per cent
20/40ths =	25 per cent	20/80ths =	75 per cent
20/50ths =	37½ per cent	20/90ths =	87½ per cent
20/60ths =	50 per cent	20/100ths =	100 per cent

If another State should happen to have fixed upon 20/200ths as representing industrial blindness, and provided that lesser reductions of sight shall be graded accordingly, the percentages of loss would run like this:

20/30ths =	6¼ per cent	20/110ths =	56¼ per cent
20/40ths =	12½ per cent	20/120ths =	62½ per cent
20/50ths =	18¾ per cent	20/130ths =	68¾ per cent
20/60ths =	25 per cent	20/140ths =	75 per cent
20/70ths =	31¼ per cent	20/150ths =	81¼ per cent
20/80ths =	37½ per cent	20/160ths =	87½ per cent
20/90ths =	43¾ per cent	20/180ths =	93¾ per cent
20/100ths =	50 per cent	20/200ths =	100 per cent

In short, as soon as a point is arbitrarily fixed as representing industrial blindness, the percentages of loss of vision can easily be figured accordingly. This introduces, of course, an economic element which probably will be followed, in the course of time, by further modifications taking account of the comparative values of the loss of the first half of vision and that of the second half.

The wearing of correcting lenses constitutes a serious handicap for many workers, skilled and unskilled, in the open labor market. The upkeep of visual correction entails expense of considerable magnitude to laborers already set at a disadvantage by the wearing of glasses. Aside from all this, there is the undeniable fact that the 20/40ths eye has been deprived of most of its surplusage with which it was endowed by nature; and though this surplusage ordinarily may not be used, it was a possession of which the eye has been robbed.

To be sure, the loss of the first fifty per cent. of visual acuity is not as serious, economically speaking, as the loss of the second half. A homely example may illustrate the point. A man who is reduced from $5,000 to $2,500 a year, has lost actually one-half of his income, and no amount of camouflage can change the fact. Nevertheless the practical effect of the loss of the first $2,500 is not as serious as the loss of the second $2,500 would be. Every smallest loss *below* the 50 per cent. line will of necessity increase the hardship of his situation, until the man becomes altogether dependent upon others for aid. And yet, the loss of a surplusage in dollars and cents is not to be compared with the loss of the surplusage of vision. A man may save up money for times of reduction of income. The eye cannot bank its surplusage; when this is gone, the remaining vision is all it has to carry it through the future.

By way of parenthesis, and as a matter of practical experience, I should advise that no final award be made in cases of partial loss of vision, particularly not when the impairment is due to scarring of the cornea, before the expiration of twelve months from the day of accident.

The proposition that 20/40ths means loss of 50 per cent. of normal visual acuity, or working vision, was accepted universally as final until insurance carriers had to pay for percentages of such reduction, by the operation of compensation laws, when efforts naturally began to be made to minimize the percentages of partial impairments of sight, by urging the suggestion that visual acuity is only one factor of vision.

Component Parts of Vision Per Se.—Of course, visual acuity is not all there is of vision. Peripheral vision is a most important factor. So is binocular vision. We might go on and add color perception, which is common to both central and peripheral vision, and it is, therefore, a separable factor. Moreover, color perception undoubtedly is a necessary qualification for many occupations. However, there is no need of dividing vision into theoretically separable component parts.

Color perception is given no consideration even in the tables which purport to make allowance for every kind of vision. Binocular vision is eliminated by law in the State of New York in that its impairment is made equivalent to the loss of an eye. That leaves peripheral vision. It may well be argued that credit should be given for this in the rating of eye impairments. Theoretically the proposition is correct. Practically it does not work. All of us know this. The time required for examination is a serious item. Furthermore, an accurate estimate of the percentage of existing peripheral vision, in a given case, is almost impossible. No two oculists

would ever agree in their ratings, and compensation boards would lose confidence in our findings generally.

Visual acuity is the practical working vision. It is the vision most frequently destroyed or reduced by industrial accidents. Traumatic impairments of peripheral vision by itself are so rare that it would seem unjust to reduce the allowance for the ordinary eye injuries by suggesting that only one kind of sight has been affected. When there is an extremely rare case of destroyed peripheral vision, then is the time to take up this matter for special consideration.

The compensation for eye injuries is small at best, perhaps because payment on the basis of visual acuity was assumed. If a different basis is to be put in operation, we shall no doubt hear that the number of weeks for which compensation is payable must be increased to provide for more adequate pay.

For all these reasons I adhere to the proposition that vision should be interpreted as working vision, which is visual acuity, estimated after correction by lenses. In other words, the highest degree of visual acuity obtained, with correction by lenses which the eye will tolerate, as expressed in the Snellen figures, should determine the percentage of vision remaining. If a different interpretation is to be substituted, the legislature will have to make the first move and establish a new principle of insurance for eye injuries.

Economic Factors.—The principle of *economic* loss may, in the course of time, find universal approval and acceptance in compensation legislation in the United States, but it has not done so to an appreciable extent thus far. Until this is done, compensation will continue to be made for the nature of the injury by itself and loss tables based on assumed impairment of partial use will be disregarded. The awards must accord with the law or they will fail to pass the test of review by courts of appeal.

In several European countries the economic factor is, and has long been, the supreme and deciding consideration. There the injured are paid for losses of earning capacity sustained in the pursuit of their particular trades as long as they live. A representative of the trade to which the injured person belongs sits in an advisory capacity, with the government officer, who makes the award, to determine the decrease of occupational efficiency. Aside from the frank acknowledgment of class distinction among the workers, there is back of the proposition a system of state monopoly of compensation insurance. The latter fact furnishes one reason why the principle of economic loss is not likely to make rapid headway in the United States. Keeping a case of permanent impairment of every kind open during the life time of the afflicted must in the end lead to exclusive state insurance, as private companies would not be able to carry the many large reserves required to cover such cases. And as regards classification of workmen by trades and occupations, we shall meet with equally strenuous objection springing from the experience that, with us, men turn frequently from one line of work to another; even those who have learned a trade do not always stick to it. All of which makes it difficult to persuade a legislature to depart from the present simple plan of making purely physical loss determine for how long a period the injured shall receive compensation.

The only State I know of where the reduction of earning power must be considered when awards are made in permanent partial disability cases is California. The provision in question reads as follows: "In determining the percentages of permanent disability, account shall be taken of the nature of the physical injury or disfigurement, the occupation of the injured employee, and his age at the time of such injury, consideration being given to the diminished ability of such injured employee to compete in an open labor market."

In the principal Canadian Provinces, the European principle of payment of compensation for permanent partial disabilities, "during the life time of the employee," obtains to some extent. For example, Section 38 of the law of Ontario reads:

"(1) Where permanent partial disability results from the injury the compensation shall be a weekly payment of 55 per cent. of the difference between the average weekly earnings of the workman before the accident and the average amount which he is earning or is able to earn in some suitable employment or business after the accident, and the compensation shall be payable during the life time of the workman.

"(2) Where the impairment of the earning capacity of the workman does not exceed 10 per cent. of his earning capacity instead of such weekly payment the board shall, unless in the opinion of the board it would not be to the advantage of the workman to do so, direct that such lump sum as may be deemed to be the equivalent of it shall be paid to the workman.

"(3) Where deemed just the impairment of earning capacity may be estimated from the nature of the injury, having always in view the workman's fitness to continue the employment in which he was injured or to adapt himself to some other suitable occupation."

In British Columbia, the law is practically the same.

In Ontario and British Columbia the Province has its own Accident Fund and excludes private insurance of compensation.

In Quebec the employee is entitled "in case of permanent and partial incapacity, to a rent equal to half the sum by which his wages have been reduced in consequence of the accident." The total amount may be commuted to a lump sum of not more than $2,500. The latter clause was found desirable no doubt because in this Province private insurance is permitted, but every company must deposit with the Government of Canada or the Province of Quebec "an amount deemed sufficient to insure the performance of its obligations."

A Middle Course.—As suggested before, I doubt whether the economic principle will win its way to anything like universal acceptance in the United States. But there is a middle way, and it may be worth while to consider it: Instead of taking account only of the physical depreciation, or making the actual economic loss sustained, in each particular case, the determining principle, the legislature might be persuaded to fix for every fraction

of vision, as established by Snellen tests, a percentage of loss assumed to represent the impairment of the general economic usefulness of an eye, and this percentage to apply in all cases, regardless of the particular occupation of the injured individual, as is now being done in cases of amputation or ankylosis of fingers, arms, legs, etc. We should then be able to agree that, while 20/40ths means 50 per cent. loss of visual acuity, it does not mean that the injured eye has lost one-half of its general *industrial efficiency*.

The simplest plan would seem to be, as I have suggested before, that the legislature should fix the point, or percentage, of visual acuity which is to be considered the equivalent of industrial blindness (as has been done by the State of New York, for example), and then require the minor losses to be graded accordingly. The two tables of percentages included in this article indicate what I wish to convey.

Committees of employees, employers, oculists and insurance carriers should have their say in the matter. The legislative committee charged with the working out of the proposed revision of the law would then be in position to enact fixed standards of visual efficiency, which though in a measure arbitrary, would represent what is deemed a just interpretation of the Snellen figures, when applied to industrial loss.

I repeat, for I consider the point most important, the change from the present basis of insurance to one wholly different in principle demands serious consideration. The logic of economic interpretation leads of necessity to keeping cases of permanent partial impairment of vision open during the life time of the injured employee; correcting glasses must be supplied whenever needed, there must be periodical reexamination of the eye, etc. The suggestion is also implied that nothing short of exclusive state insurance can meet the situation ultimately if the economic loss principle is to be applied with all its logical consequences.

The middle way I have suggested may not work such far-reaching changes but the germ of the principle is there, and history shows that a principle is bound to affect more or less the whole structure in the course of time.

Summing Up Conclusions.—Where the law provides that compensation shall be awarded for a partial reduction of vision, examination by Snellen tests will establish what fraction or percentage of vision is lost. While these tests are confined to visual acuity, they are for all practical purposes the only reliable means for fixing loss of vision in general, as I tried to prove in my former paper on the valuation of visual impairments. Tables fixing what amount of peripheral vision shall be assumed to exist when a certain fractional loss of visual acuity has been established, are arbitrary and unscientific.

Loss of binocular vision is legally considered, in the State of New York at least, as equivalent to the loss of use of one eye. So this factor cannot be brought in to minimize the sustained impairment.

If instead of the principle of insurance of physical impairment *per se* there is to be substituted the principle of economic loss, then the legislature will have to make the first move and determine a new governing basis for compensation awards. The logic of industrial, occupational, vocational or by whatever other adjective the loss may be characterized, when the economic factor becomes the basic consideration, must of necessity lead to ultimate state monopoly of compensation insurance. These are matters which are of no direct concern to oculists as such and may well be left to be settled by experts in other departments of work.

I have indicated a middle way which may bridge over the transition from compensation for the purely physical impairment of sight to compensation for the actual loss of earnings caused by a traumatic reduction of vision in each individual case. The middle course would take account of the loss of useful vision in a very general way by fixing the point of industrial blindness and requiring lesser impairments of sight to be rated by appropriate percentages. This course, too, must first have the sanction of legislative enactment before compensation boards can permit themselves to be governed by it.

417 Franklin Street.

OCCUPATIONAL THERAPY IN MENTAL HOSPITALS.

AN ADMINISTRATOR'S VIEWPOINT.

By J. ALLEN JACKSON, M.D.,

DANVILLE, PA.

SUPERINTENDENT OF THE STATE HOSPITAL.

Revivals in the commercial, scientific and medical worlds are not uncommon and from decade to decade there is a revival in medicine of old ideas, old signs, and old forms of treatment. Many of these revivals are timely, and especially so is the revived interest in employment as offered in the treatment of diseases.

Employment has been practised in medicine, especially in mental medicine, since the early days of asylum treatment. Certain features, however, have been added which have given it a decided field of usefulness and the agency is now referred to in a general way as occupational therapy. Occupational therapy therefore may be defined as any form of occupation so directed as to meet certain definite therapeutic indications; the term occupational relating to a state of being busy.

Although the majority of mental hospitals in the United States are employing some form of occupational therapy (that is interpreting occupational therapy, as any "busy state" which benefits the patient's mental condition), the grade and form of therapy used range from ward cleaning to skill in arts and crafts, with a total percentage of patients employed showing a wide range of latitude.

It is difficult at the present time to determine whether a hospital is making every use of occupational therapy owing to the lack of general standardization. Provision for an occupational teacher on the pay roll gives no index to the amount of this form of therapy used. Neither does the lack of one imply any great significance, as many of the mental hospital nurses are well versed in certain forms of occupational therapy, and work is being carried on with a fair degree of efficiency. To draw conclusions, therefore, one must make an

analysis of the form of therapy used and its application.

The administrator, therefore, should establish a definite standard as a guide to carry on the work. A great step in this direction would be to determine first what should be included under the head of occupational therapy; what are to be the subheadings, if necessary. It would seem that all the patients formerly grouped under the heading of employment, diversion, recreation, and exercise, plus those who are enjoying that form of therapy known as invalid occupation, would be grouped under the general heading of Occupational Therapy, and further subheadings used if necessary such as those just enumerated.

Indication for Occupational Therapy.—No one thinks of the successful application of occupational therapy to every patient in the mental hospital. A definite number of dements, unclean and untidy cases in a hospital, will always prevent such an accomplishment. Upon the other hand, an assistant physician has not done his duty by his patient until he has tried on the individual cases some form of occupational therapy before passing them on to the hopeless group.

From the executive standpoint several grades of patients present themselves and each requires a special therapy. Briefly stated, these are as follows: (1) Acute cases; (2) infirm bed cases; (3) refractory and untidy cases; (4) convalescent cases; (5) mildly chronic cases (workers). Occupational therapy should be available for each group.

Personnel Required.—To obtain the best results from this agency we have available physicians, artisans of trades, nurses, and those persons specially trained in occupational therapy. In building up the personnel of a hospital, however, definite questions come up: (1) What is the duty of the specially trained occupational teacher in a mental hospital; (2) are we making the best use of occupational teachers? (3) is occupational therapy so intricate that pupil nurses cannot grasp it or is the subject of such a special nature that it requires training in special schools?

In answering the above questions seriatim I should say (1) instructors and demonstrators of occupational therapy to the student body; (2) no, as we make very little provision for teaching occupational therapy in our training school for nurses; (3) no.

Before planning for such an organization one realizes the large scope of the work. The close relation of such work to the duties of the ward nurse and her assistant; the conflict of authority of therapist and nurse if we organize efficiently such a service independently of the nursing service. It may be granted that in the arts and crafts room and the industrial buildings, the specialist may find a useful field, but here they may be replaced by artisans of definite trades, as cabinet makers, shoemakers, tinsmiths, seamstresses, etc. The logical personnel therefore seems to be the physicians, trained nurses, occupational instructors, and artisans of well established trades, each being assigned to specific duties.

Place of Application.—The acute cases may be provided with occupation at the bedside, singly or in groups or in a special room of the acute section. When an acute case goes to the arts and crafts room or industrial building, he or she, would seemingly no longer be classified as an acute treatment case, but an acute convalescent case. The work should be light, diverting, and not too tiresome.

For the infirm bed cases, who partially recline during the day, and the wheel chair cases there should be a special form of therapy applied, something light, pleasant and diverting.

The convalescent groups could best adapt themselves in the arts and crafts room or in the industrial buildings.

Our refractory and unclean group requires a special room on the ward.

The mildly chronic are best engaged in utility work, outdoor work, manufacturing, agriculture, truck farming, etc.

Organization of the Work.—From the foregoing statements the reader has already formed an idea as to the scheme of organization the writer is to suggest. Primarily occupational therapy, as all other therapy, is within the province of the physician and he should decide as to indications and contraindications of occupational therapy and the forms best adapted for the individual patients. The question, therefore, resolves itself into mapping out a definite system which will mould in the medical service. The scheme should include a supervising physician, assistant physician, charge and pupil nurses and an instructor and demonstrator of occupational therapy with properly manned arts and crafts rooms, industrial rooms, agricultural units, etc. The scheme should make available forms of occupational therapy for the acute cases, infirm cases, refractory cases, convalescent cases, and the mildly chronic cases.

The supervision of the entire administration should be under the direction of a trained psychiatrist, preferably the assistant medical superintendent. He should be familiar with the ward assignments, the class of patients treated therein, and the forms of occupational therapy provided by the hospital. In a general way he should check the assistant physician's activities in this phase of the work.

Role of Assistant Physician, Nurses and Instructors.—To the assistant physician we look for the most fruitful rewards. On him and the charge nurse rests the greater part of the responsibility of success or failure of occupational therapy. He should know the patients and the form of work which would best meet the needs of the patient's physical and mental condition. He should bear in mind the possibility of recovery of the patient as well as the possible chronic nature of the disease; training his patient so that he will be fitted ultimately to render some economic service to the hospital.

The stepping stones should be from bedside to convalescent, to arts and crafts, to industrial buildings, to service departments, and to agricultural departments. Each service, therefore, would be a developmental department, as it were, training the patient to attain a more useful type of employment. The type of patient and his former occupation may preclude the necessity of such a course of procedure and the patients may be assigned directly to any of the services. The charge nurse should see that the

work is carried on, and her work in turn should be checked by the superintendent of nurses.

The arts and crafts room should be supervised by a nurse who is well trained in the arts of occupational therapy. The industrial building should be manned with the highest type of men, who are artisans of their trades, one of whom shall be the chief of the department and held responsible to the administrative head of the hospital for the efficient and economic administration of the same.

Records.—Individual card records should be kept of the patient's work, the hours employed, the progress of the patient's mental and physical condition. The cost records seem unnecessary in those groups confined strictly to ward service, for it is a part of the medical service, and the charge of the organization should be borne by the medical service, as are drugs, bandages, etc. In the industrial buildings, however, and in the arts and crafts rooms, a definite record should be kept of the stock on hand, materials received, articles made, and disposal of the same. The work of the industrial departments usually consists of making articles required by the hospital. In the arts and crafts room the materials are usually made for sale, the proceeds of which revert to the patients' general entertainment fund and the purchase of new supplies, as materials used here should not be charged to maintenance.

At the State Hospital for Insane, at Danville, we find the application of occupational therapy more thoroughly checked by grouping all activities of patients under one general heading of occupational therapy and permit three principal subheadings such as occupied usefully, otherwise occupied, and unoccupied. The first heading is well understood. The second heading includes all patients who exercise, read, write, attend chapel, etc. The third designates the hopeless cases and those too acutely ill to appreciate occupational therapy.

Calculations are easily based on such data. For example, in the female department, with a population of 789 patients, 611 (77 per cent.) are enjoying some form of occupational therapy. Of these 421 (53 per cent. total population) are usefully occupied, while 190 are otherwise occupied and 178 are hopeless cases. In the male department we have 850 patients, 684 (80 per cent. of the total) of whom are enjoying occupational therapy. Of these 468 (55 per cent. of the total) are usefully employed, 216 otherwise occupied, while the remaining 176 are hopeless cases.

The foundation of such a system was laid at the Danville Hospital at an early era of the hospital by Dr. S. S. Schultz and added to by his successor, Dr. H. B. Meredith. The present administrator hopes to add one more stone in the building of the work by placing the administration under the general supervision of the assistant medical superintendent, the employment of an instructor and demonstrator of occupational therapy, the teaching of occupational therapy in the training school, instituting patients employment cards and carrying more of the work to the bedside of the acute and infirm cases.

Summary.—1. There is a need of a definite standardization of occupational therapy.

2. Occupational therapy should be provided for all types of cases.

3. Trained physicians, nurses, and skilled artisans of trades are required for the personnel.

4. Occupational therapy should be included in the curriculum of our training schools for nurses.

5. Occupational teachers should be employed for the purpose of teaching and demonstrating occupational therapy to the student body.

6. Suitable physical conveniences must be provided to carry on the work.

7. A definite organization is required to obtain the best results.

8. A definite amount of record keeping is required.

PROCTITIS AND SIGMOIDITIS.

By CHARLES J. DRUECK, M.D.,
CHICAGO, ILL.
PROFESSOR OF RECTAL DISEASES, POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

PROCTITIS, or inflammation of the rectal mucosa, is of much more common occurrence than is generally supposed. The anatomy and physiology of the rectum and sigmoid renders these organs very susceptible to catarrhal changes. The crypts in the mucous membrane are potential pockets for the lodgment of infectious material. The venous circulation, being in the opposite direction to the fecal current, always is sluggish. In the colon the fluids are absorbed from the food débris. Here, toxins pass into the lymphatics and enter the circulation. As the fecal mass hardens, it excoriates and sometimes actually tears the mucous membrane as it is being expelled. These chemical and mechanical irritations frequently repeated result in catarrhal proctitis. As the rectum, sigmoid, and colon have the same structure and function, the same catarrhal disturbances affect all parts. However, it often is hard to explain just why the disease is so localized in a given case. So-called catarrhal inflammation of the intestinal mucous membranes (an inflammation that cannot be accounted for by the presence of any of the now known bacteria) is very common, especially in the cities, where modern methods of living subject persons to over-indulgence in highly seasoned and stimulating foods and the maintenance of high nervous tension, together with lack of outdoor exercise. Our individual powers of resistance vary so much that some seem to maintain good health in spite of these adverse conditions, while others become indisposed on the slightest exposure or indiscretion; even a change of drinking water will in certain individuals cause a constipation of the colon or rectum. The onset of these catarrhal changes sometimes is insidious, and it may be impossible to define accurately the beginning pathological changes, because of the difference of temperament and habits in individuals. The prominent symptoms of inflammation in any part of the colon are referred reflexly to the rectum, and it may be added that the inflammation is seldom confined to any locality; it may begin either in the cecum or the rectum and spread the whole length of the colon.

There are many other inflammatory invasions of the rectal mucosa due to gonorrhea, syphilis,

dysentery, or diphtheria, but, excepting dysentery, these specific forms of infection are secondary to similar infections elsewhere.

Acute Proctitis.—Acute catarrh of the rectum, like that involving any other mucous membrane, comes on suddenly, and it may usually be traced to a definite cause. The onset is characterized by a chill and an elevation of temperature. There is a sensation of fulness, weight, heat, and burning in the rectum, or in severe cases actual pain, which radiates to the sacrum, the other pelvic organs, or down the thighs. Irritation of the trigonum vesicæ causes frequent micturition, tenesmus, and sometimes retention of urine. The rectum feels full, the anal sphincters are contracted, and there is a constant and ineffectual desire to empty the bowels. The feces, usually liquid, are forcibly ejected through the small orifice. This constant straining produces prolapse of the mucous membrane, especially in children. The patient always is more comfortable lying down than when up and about. During the first twenty-four hours the discharge from the rectum is liquid fecal matter; later, the engorged mucous membrane bleeds and the discharges are tinged with blood and contain mucus. In very severe cases, the mucous membrane will ulcerate and pieces slough off, accompanied with considerable discharge of clear blood. From this time the discharges contain mucus and blood mixed with feces.

An early and persistent symptom is the constant rectal tenesmus. The patient has a frequent and urgent desire to go to stool, but each time voids only a few ounces of liquid material accompanied with much straining and pain. The anus is red and painful, the sphincter irritable and spastic, and the introduction of the examining finger or the speculum is so painful as to necessitate an anesthetic. In the early stages the parts feel dry, feverish, and swollen to the touch; later, after secretion has started, the surface is moist and slimy, but the walls are so swollen as to seem closely approximated. Specular examination at this stage reveals a bright red, dry, and edematous mucous membrane, but later we find ulcerations. These ulcerations may be limited to one or two small points or there may be many foci, some of which may be quite deep and involve the whole thickness of the mucous membrane, even perforating the gut. When ulceration occurs above the peritoneal fold, it may cause peritonitis; when below that line, an abscess may result. Chronic or recurring proctitis in this way may cause a stricture.

Etiology of Acute Proctitis.—Among the causes of proctitis the following may be mentioned: Irritants directly attacking the mucous membrane, such as worms, highly seasoned foods or hard substances in the fecal mass, for instance, fish bones and hulls of cereals. Fecal irritants are common causes both of the acute and the chronic type. Constipation and fecal impaction of the rectal pouch alternating with periods of liquid feces often induce a sudden inflammation of the sigmoid flexure and rectum, or the rectal disturbance may be an extension of colitis resulting from the passage of the irritating discharges from above. Seasonal changes of food or water, particularly during the summer, or sitting on a cold, wet seat often are exciting causes. In all of these conditions, sudden and violent changes are important factors. Proctitis may result also from the use of strong purgatives, irritating suppositories, or as an extension of inflammation from hemorrhoids, prolapse of or eczema about the anus, or from disease of the neighboring organs, such as the bladder, prostate gland, vagina, or uterus. In a few instances, new growths within the rectum, such as polypi, adenoma, villous growths, and papilloma, also intussusception, occasion periodic exacerbations or protract the chronic proctitis.

Treatment of Acute Proctitis.—The treatment of acute proctitis varies considerably with the exciting cause, and therefore a thorough examination must be made before instituting any treatment. The parts being irritated and inflamed, the examination is very painful, unless an anesthetic, general or local, is administered. In many instances where for various reasons chloroform should not be given at the time of the examination, the patient may be relieved of most, if not all, of the pain by the application of a 2 per cent. solution of novocaine. A general anesthetic has much in its favor, because, while the patient is thus asleep, the sphincter may be thoroughly dilated, in that way relieving the tenesmus and greatly facilitating subsequent examination or treatment; at the same time, any local trouble or cause of the proctitis may be removed, thereby accomplishing two things at one sitting.

The first indication for treatment naturally is to remove the cause. Impacted feces or foreign bodies must be removed carefully so as not to injure the mucous membrane. The anal sphincters should be dilated, to permit easy and free emptying of the rectum. Decomposed, irritating, infectious intestinal contents should be removed by means of a saline cathartic, which should be taken in sufficient doses to produce a watery stool and a free flushing. After the bowel has been thoroughly emptied, it should be irrigated two or three times during the day with physiologic salt solution at 110 degrees.

For this irrigation the patient should be placed in the lateral prone position, with the hips elevated; the irrigator-reservoir being held one and one-half or two feet above the body. The irrigator tip should have a large return flow to allow free exit of débris. The solution is allowed to run into the bowel at a slow rate. Douching in this manner washes out a large amount of infectious material, such as secretions, fecal accumulations, and multitudes of microorganisms; it dissolves mucus and pus, flushing them out as shreds; also it contracts the vascular structure, thereby stimulating circulation, relieving the local congestion, and depleting the tissues.

Following the douche, about 2 drams of astringent antiseptics or other medicinal mixture is injected and the patient is instructed to retain it; at 1:5000 silver-nitrate solution being the most reliable. If the pain and tenesmus are not relieved, a 1-2-grain opium suppository may be inserted. These flushings are to be continued as long as there is any discharge of mucus or pus.

Enemas cannot be substituted for the irrigation, as they increase the tenesmus.

If the symptoms continue after the third day under this treatment, it will be found there are ulcers on the rectal wall, and these must then be treated locally. The patient is placed in the knee-chest position (which secures atmospheric dilatation), then a speculum is introduced and the entire rectum is inspected. Any ulcer present is wiped free of mucus or débris and painted with pure ichthyol or a 5 per cent. silver-nitrate solution.

The Diet in Acute Proctitis.—The diet should be carefully arranged so as to be absorbable and non-irritating and of such a quality as will insure soft or semisolid evacuations. A largely absorbable dietary is advisable also, in order that the bowels may move less frequently, thus diminishing the deleterious peristaltic movements. Milk should be excluded because it gives rise to hard, irritating curds in the feces. Fibrous vegetables, such as cabbage, kraut, celery, and green corn, are also forbidden, for they irritate the bowel. In their stead gruels of oatmeal, rice, and barley, egg albumen, gelatin, meat broths, and the proprietary prepared foods and peptones should be ordered. Water should be drunk freely and a full glass of flaxseed tea at night. This latter acts as a mild laxative, while also soothing the intestine.

Flaxseed Tea Recipe.—Take five tablespoonfuls of whole, unbruised flaxseed, pour over it a quart of boiling water and boil for ten minutes, strain through muslin while hot, flavor to suit by adding, before cooking, one teaspoonful of pulverized licorice, or one lemon, or ten drops of oil of peppermint or wintergreen, and two tablespoonfuls of sugar, or after cooling add a wine glass of wine. Make the tea fresh each day.

The patient should be kept in bed until all pus and blood have disappeared from the stools, because, when he is up and about the pendent position of the blood vessels, together with the thinness of their walls, and the associated congestion and inflammation, give rise to venous stasis, which seriously impedes or even prevents regenerative changes.

30 North Michigan Avenue.

Medicolegal Notes.

Physician's Immunity Under Harrison Act Limited to Appropriate Bounds of Professional Practice.—In a prosecution for violation of section 2 of the Harrison Anti-Narcotic Act the evidence showed that "the defendant was a practising physician in Pittsburgh, registered under the act so as to be allowed to dispense or distribute opium and its derivatives without a written order in official form 'in the course of his professional practice only'; that he was in the habit of issuing prescriptions for morphine sulphate without such written order and not in the ordinary course of professional practice; that he issued them to persons not his patients and not previously known to him, professed morphine users, for the mere purpose, as the jury might find, of enabling such persons to continue the use of the drug, or to sell it to others; in some cases he made a superficial physical examination, in others none at all; his prescriptions called for large quantities of morphine—8 to 16 drams at a time—to be used 'as directed,' while the directions left the recipient free to use the drug virtually as he pleased. His charges were not according to the usual practice of medical men, but according to the amount of the drug prescribed, being invariably one dollar per dram. All the prescriptions were filled at a single drug store in Pittsburgh, the recipients being sent there by defendant for that purpose; and persons inquiring at that drug store for morphine were sent to defendant for a prescription. The circumstances strongly tended to show cooperation between defendant and the proprietors of the drug store. At and about the dates specified in the indictment—the spring of the year 1917—and for more than two years before, the number of prescriptions issued by defendant and filled at this drug store ran into the hundreds each month, all calling for morphine sulphate or morphine tablets in large quantities." Affirming a judgment of the Federal district court for the Western District of Pennsylvania, overruling a motion in arrest of judgment of conviction, the Supreme Court of the United States says, in part, by Mr. Justice Pitney: "In each case where defendant was found guilty the evidence fully warranted the jury in finding that he aided, abetted, and procured a sale of morphine sulphate without written orders upon a blank form issued by the Commissioner of Inland Revenue, and that he did this by means of a prescription issued not to a patient and not in the course of his professional practice, contrary to the prohibition of section 2 of the act. Manifestly the phrases 'to a patient' and 'in the course of his professional practice only' are intended to confine the immunity of a registered physician, in dispensing the narcotic drugs mentioned in the act, strictly within the appropriate bounds of a physician's professional practice, and not to extend it to include a sale to a dealer or a distribution intended to cater to the appetite or satisfy the craving of one addicted to the use of the drug. A 'prescription' issued for either of the latter purposes protects neither the physician who issues it nor the dealer who knowingly accepts and fills it. Webb v. United States, 249 U. S. 96, 39 Sup. Ct. 217, 63 L. Ed. 497."—Jin Fuey Moy, 41 Sup. Ct. 98.

Regulation Requiring Monthly Morbidity Report Not Unreasonable, but Knowledge of It Not Presumed.—The Mississippi Supreme Court holds that under the Code of 1906, § 2489 (Hemingway's Code § 4838), empowering the State Board of Health to make and publish all reasonable rules and regulations necessary to enable it to discharge its duties and powers and to carry out the purposes and objects of its creation, a regulation requiring every licensed physician practising in the State to file a morbidity report on the first day of each month is not unreasonable. But, in the prosecution of a physician for knowingly violating such regulation, where the evidence wholly failed to show that the defendant had any knowledge of its existence, or that there had ever been any such publication of the regulation as to charge the defendant with knowledge of it, a peremptory instruction requested by the defendant should have been granted. There was no presumption that the defendant had knowledge of a rule or regulation of the State Board of Health. Conviction of violation of the regulation was reversed and defendant discharged.—Smythe v. State (Miss.), 86 So. 870.

Physician's Evidence as to Condition of Wound Three Months After Injury Competent.—In an action for personal injuries, the testimony of a physician who had not examined the plaintiff until about three months after the occurrence as to finding the wound discharging serum and pus, and that upon probing the sinus he had discovered a spicule of dead bone there, and his further testimony that such a condition might result although the treatment was skilful and proper, was held competent. Whether or not this condition was one of the natural consequences of the accident was a question for the jury.—Schuh v. Oil Well Supply Co. (Cal.), 195 Pac. 703.

Statute as to Advertising Held Constitutional.—The California District Court of Appeals, Second District, holds that Cal. St. 1917, p. 111, § 14, subd. 3, providing that the board of medical examiners may revoke the license of a physician or surgeon advertising so as "to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public morals or safety" is not unconstitutional as denying to citizens the equal protection of the law or as being class legislation; and is not void for uncertainty or indefiniteness. —Glass v. Board of Medical Examiners of California (Cal.), 195 Pac. 73.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, August 6, 1921.

ACHONDROPLASIA.

ACHONDROPLASIA presents a quite different aspect in the fetus from that in adults. In the fetus the hereditary antecedents are varied; achrondroplasia may be noted in one of the ascendants, but there is no rule in this respect. The same applies to syphilis, at birth the achondroplasic infant offers a very marked disproportion between the head and limbs, while the trunk is normal in size. The skin is often thick, forming numerous folds, and appears to be too abundant for the body it contains. The macrocephaly mentioned by some observers is usually only apparent, but forms a striking contrast with the micromelia which generally involves the four limbs, their segments being short and thick. The muscles are well developed, while the bones are short and thick with very large epiphyses. They are sharply curved, thus distinguishing them from the bones of rickets, the apex of the bend being at the union of the epiphysis with the diaphysis.

Achondroplastic infants offer nothing in particular as far as their growth is concerned. They walk at the usual time, the intelligence is an average one, and the development of the genital organs is normal. The peculiar dwarfish state is what strikes the observer as they have the appearance of small athletes, because the muscular system is well developed. The achondroplasic adult presents, besides the above mentioned characters, a very marked brachiocephalic head, and a rhizomelic micromelia as Péloquin showed long since; the arm is shorter than the forearm; the thigh than the leg, although the hands and feet are short and thick in all their parts, the shortening of these terminal segments is not proportional to that of the intermediary segments. The skeleton of adult achondroplasics presents less considerable deformities than that of the fetus; the bends in the bones are less sharp and are not constant. Radiography shows that consolidation of the epiphyses is considerably delayed while the pelvis is narrowed in all its diameters from arrested development of the iliac bones.

The histological structure of the achondroplastic osseous system is not as yet perfectly clear and quite contrary opinions exist. The term chondrodystrophia fœtalis has been given by Kaufmann to this process and he divides the affection into three principal varieties. (*a*) Chondrodrystrophia malacica, met with only in the fetus, characterized by shortening and softening of the bones of the entire skeleton; (*b*) hypoplastica, or normal type, and (*c*) hyperplastica, characterized by an exuberant disordinated ossification. Some observers regard these three forms as three different phases of the same process, and in point of fact they have not been differentiated histologically.

From an essentially clinical viewpoint, the process may be divided into a partial type, an atypical type, and a complex type. In the generalized type the lesions involve the ribs, clavicle, and vertebræ. In the partial type—which for some is of great importance—the lesions are localized in one or several limbs. Beside the atypical types, which are of clinical interest only, are to be placed the complex types—an achondroplasic subject may become syphilitic or rachitic, so that the differential diagnosis becomes difficult in absence of a histological examination, and these complicated cases are not very uncommon.

The pathogenesis of achondroplasia is still most uncertain but first of all this process must be distinctly separated from rickets. Independently of their differential characters these two affections present a distinct difference in their respective evolutions. Achondroplasia is a congenital affection undergoing its evolution during intrauterine life and has become cured at the time of birth. Achondroplasia may assume the appearance of rickets, but in one case it has been shown that the process was essentially a sclerosis of the cartilages of conjunction undergoing multiplication. The theory most generally accepted for explaining the origin of achondroplasia is based upon intrauterine autoinfection or intoxication which acts either directly on the cartilage or on ossification, or indirectly by the intermediary of certain glands—thyroid—or by the nervous system—trophic disturbances. The old opinion of Perrot, that achondroplasia is a dystrophy of primordial cartilage resulting from an hereditary primary change in the germ of the cartilage has now some partisans, but the pathogenesis is not altogether clear and the affection may, without doubt, be divided into a certain number of forms having different origins.

PURULENT METASTATIC PANOPHTHALMIA.

DURING infectious diseases—suppurating phlebitis, purulent otitis, puerperal infection, chronic bronchitis with bronchial dilatation, etc.—a patient may notice that his sight is becoming impaired. In a very few cases the vision is lost. Both eyes are rarely involved at the same time, but when panophthalmia is bilateral the second eye is involved within a few days of the first. There is photophobia, the eye is bathed in tears, these escaping in

paroxysms so to speak. The eye is sometimes tormented by distressing subjective symptoms, red or orange colored flashes or flames being seen, even when the eye is protected from the light. A yellow reflexion without pain appears in the papillary field; this is the vitreous humor beginning to suppurate, while at the same time a considerable palpebral edema appears which hinders examination of the globe. A gelatinous chemosis forms a ring around the cornea, the iris loses its color, assuming a cadaveric look, and the pupil becomes irregular in outline. The aqueous humor becomes cloudy, the anterior chamber diminishes in capacity and is soon invaded by epithelial detritus which forms hypopion. The latter is very mobile, fluid, with a pale yellowish green color. A sudden movement of the head mixes the hypopion with the aqueous humor, while by rest it quickly reforms. The cornea remains transparent. Opthalmoscopic examination is possible as long as the vitreous humor has not begun to suppurate. Retinal hemorrhage around the macula can be seen, also around the papilla. The hemorrhages are small, punctate, but numerous. The thickened retina lies in folds along the large vessels forming crests with a whitish reflection. Soon purulence of the iris occurs, the cornea becomes cloudy, its anterior surface loses its usual shiny look. At this time the formidable symptoms of phlegmon of the eye appear; intolerable pain in the globe and circumorbital region with glaucomatous tension.

Besides this form of panophthalmia there is another slower painless type, the so-called torpid form. In the type purulent from the onset the pain results from intraocular tension; in the torpid form the tension is absent because the vitreous humor has rather a tendency to retract. As an objective symptom there is a marked and rapid decline in vision. In this form the sight may be recovered, but never completely, because although the vitreous may become again transparent, it nevertheless contracts resulting in detachment of the retina so that light perception occurs only at the periphery, the ora serrata.

Metastatic panophthalmia should not be mistaken for any other form of ocular suppuration, and when a pus focus exists in the body it must be suspected. Phlebitis of the ophthalmic vein is differentiated from panophthalmia by the enormous exophthalmos—the most characteristic sign—and a more accentuated edema of the lids. Sometimes the phlebitis extends to the circumorbicular veins that can be felt like hard cords, and occasionally some purulent spots may be noted in the conjunctiva. A diagnosis will be made by finding a trifling furunculosis on the face or lips, or inflammation of the Meibomian veins may engender phlebitis of the ophthalmic vein which, when death does not occur from thrombosis of the cavernous sinus with cerebral abscess, ends in panophthalmia. The accentuated exophthalmos distinguishes phlegmon of the orbit, while tenonitis can be diagnosed by the difficulty in moving the eye, and this moreover rarely goes as far as suppuration.

The prognosis of metastatic panophthalmia is very serious and usually sight is lost, and even in the milder cases it is rare that any degree of visual acuity is preserved, though in extremely mild cases the vision may return to normal. The opinion is generally maintained that panophthalmia disorganizes the ciliary nerves to such an extent that it prevents the appearance of sympathetic accidents in the fellow eye. The prosthetic prognosis will be better in cases where exenteration, rather than enucleation, has been done, because the stump will be larger and in some cases will allow a certain mobility.

TREATMENT OF UTERINE INFECTION POST ABORTUM.

THE abuse of the curette in this condition makes it necessary to establish certain rules of procedure in which the curette may be indicated or contraindicated. Douay, who contributes an article on this subject in *Gynécologie et Obstétrique*, ii., 6, says that Vignes has recently advised against the use of the curette, save for the removal of placental fragments. Since the alternative must be curettage or hysterectomy it is well to ascertain if more latitude cannot be given for the lesser intervention. The old advice of Faure was to curette and watch for an indication to remove the uterus through the vagina, but to curette only on the belief in retained placental tissue. The maximum delay before hysterectomy is 48 hours. Douay, an old assistant of Faure, has seen the latter violate his own rule and abstain from both kinds of intervention—in one class of cases because there was a good chance of recovery by medical measures, and in the other because intervention could only hasten the end.

So far as rules can be laid down, Faure advised the sharp curette in the presence of slight infection for removal of placental débris. The slight infection, along with hemorrhage, was indeed one of the reasons for the intervention. Undertaken at a certain stage the operation was innocuous and brought prompt relief. The instrument in these cases could loosen the placental fragments without too serious advance into the mucosa. But if the infection had gotten beyond the limits of the mucosa the formation of a wide bleeding wound which laid open the vessels paved the way for infection. If one is called in to the case late, the state of the uterus is usually an index of the presence or absence of placental débris—a large, soft, globular organ with patent cervix showing retention. In such cases there is still the great advantage of evacuating the uterus; but if there is no evidence of retention the presence of symptoms of sepsis, as chills and fever, may or may not indicate a vaginal hysterectomy.

Douay would in doubtful cases always make preparations for hysterectomy and if, after examining the cavum, only a small amount of placental

débris was found would operate at once. But if there was a considerable amount which could be readily evacuated he advised delay, even to several days in some cases. Curettage of a severely infected uterus is a true operation and not a minor procedure. In such a case the dull must be substituted for the sharp curette. With this he would only detach the larger portions of placenta and then would irrigate with hot water (50° C.) and hydrogen peroxide. The curette is now used systematically—and finally, for no second attempt is ever justifiable. Another irrigation is practised and in very severe infection antiseptic gauze is left in the upper vagina, including the posterior cul-de-sac, for 24 hours to support the uterus and receive the secretions. If the abortion has occurred after the fourth month the sharp curette is not used, but a large blunt one, followed by intrauterine irrigation. A slight chill after curettage has no unfavorable prognostic significance. Later developments determine the question of after-treatment. A bacteriological examination may show that the offender is not the streptococcus, in which case medical measures may prove adequate. Hemoculture is of great service; if it is negative, one should hesitate about hysterectomy, while if positive the operation will probably not save the patient, although it is the only chance left for her. If it occurs before three months, infection *post abortum* is not a severe condition compared with the postpartum case.

Cruel Treatment of Drug Addicts.

THE New York City Board of Health adopted an amendment to the sanitary code a few days ago, permitting the incarceration of drug addicts, and immediately thereafter a police hunt for these poor creatures was started. The hunt was fairly successful, quite a bag of game being brought in. The victims were thrown into cells, and the usual result of sudden withdrawal was shown in the death of one man and the collapse of several others who had to be treated by ambulance surgeons. According to the newspaper reports Dr. Carleton Simon, special deputy police commissioner, denied that the death of one man and the collapse of the others were due to withdrawal of the drug, and is quoted as saying: "There is no record of any drug addict ever dying because of drug removal." It must be that Dr. Simon was misquoted for no man fit to occupy his position could possibly be so ignorant of the elementary facts of drug addiction. As a correspondent shows in a letter published in this issue of the MEDICAL RECORD, at least three acknowledged authorities on drug addiction, and he might have quoted others, make the unqualified assertion that death may and not infrequently does result from the sudden withdrawal of the drug. As, of course, Dr. Carleton Simon must be familiar with the literature of the subject, there can be no acceptable alternative to the belief that he was misquoted. But that being postulated, the fact that one prisoner died and others were in a serious state of collapse calls for explanation. Even admitting that 70 per cent. of drug addicts are criminals, which is another statement attributed, perhaps incorrectly, to Dr. Simon, the law does not permit their execution without trial, and whoever is responsible for this shocking inhumanity should be punished.

Fees.

QUITE a pother has been made in the newspapers over the announcement that the trustees of Johns Hopkins Hospital have made a rule governing the charges of surgeons and internists treating patients in the institution. The edict records that "The maximum fee that any surgeon ought to charge for an operation, no matter how wealthy the patient may be, is $1,000. The maximum charge that any physician ought to make for attending patients in a hospital is $35 a week." The dictum is in line with the increasing tendency toward lay control of medical practice, but it concerns only the physicians and surgeons at one particular hospital. The surgeons at the Peter Bent Brigham Hospital in Boston will not feel under any obligation to abide by this rule, neither will those at the Mayo Clinic in Rochester, Minn. Nor should it, nor will it, influence any other surgeon with self respect and a just appreciation of his own worth. Surgeons outside of the Johns Hopkins will continue to charge what they deem proper, whether fifty dollars or five thousand, and one thousand will not be their minimum, as it might be if the law restricted them to a maximum of this amount.

News of the Week.

Pellagra in the South.—The statement recently issued by Surgeon General Cumming, U. S. P. H. S., to the effect that a condition of semifamine exists in a large section of the "cotton belt" of the United States, and that there is thereby created great danger of an increase in pellagra, has been met with indignant denial by many health officers and others living in that part of the country. The Southern Commercial Congress called a public health conference to meet in Montgomery, Ala., Aug. 15. In the meantime, acting with the approval of President Harding, Surgeon General Cumming invited State health officers of thirteen Southern States to meet in Washington August 4 to consider the situation and to confirm or disprove the reports of a threatened pellagra epidemic in parts of the cotton belt. The Public Health Officers maintain that the data in their possession show that pellagra has increased as a result of economic conditions, and they insist that if a situation that may be much worse in 1922 is to be forestalled tenant farmers, factory workers, and others resident in the pellagra sections should be instructed as to what is necessary to prevent the disease.

Resolution of the New York Board of Health Regarding Drug Addiction.—At a meeting of the Board of Health of New York City, held July 25, 1921, the following amendment was added by resolution to the Sanitary Code:

Section 130. *Prohibited Acts Constituting a Public Menace.*—Any unauthorized possession, sale, distribution, prescribing, administration or dispensation of cocaine or opium or any of their derivatives, or cannabis indica, cannabis sativa, or any of

their derivatives, is hereby declared to be dangerous to the public health and a menace to the public welfare.

Section 131. *Prohibited Acts.*—It shall be unlawful for any person to possess, sell, distribute, administer, dispense or prescribe cocaine or opium or any of their derivatives, or cannabis indica, cannabis sativa, or any of their derivatives; provided, however, that nothing herein contained shall be deemed to prohibit the possession, selling, distributing, administering, dispensing or prescribing of any of the drugs or their derivatives as in this article hereinafter provided.

Section 132. *Authorized Acts of Trades and Professions.*—A manufacturer, wholesaler, apothecary, physician, dentist, veterinarian, private hospital, sanatorium or institution maintained or conducted in whole or in part for the treatment of disability or disease or inebriety or drug addiction, may purchase, receive, possess, sell, distribute, prescribe, administer or dispense cocaine or opium or their derivatives, or cannabis indica, cannabis sativa, or any of their derivatives, provided he shall have complied with all provisions as required by the Act of Congress of December seventeenth, nineteen hundred and fourteen, known as the Harrison Narcotic Law, as the same exists and may be amended.

Section 133. *Hypodermic Syringe.*—No person except a dealer in surgical instruments, apothecary, physician, dentist, veterinarian or nurse, attendant or interne of a hospital, sanatorium or institution in which persons are treated for disability or disease, shall at any time have or possess a hypodermic syringe or needle or any instrument or implement adapted for the use of cocaine or narcotic drugs by subcutaneus injections and which is possessed for that purpose unless such possession be authorized by the certificate of a physician issued within the period of one year prior thereto.

Section 134. *Exemptions.*—The provisions of this article restricting the possession of cocaine, opium or their derivatives, or cannabis indica, or cannabis sativa, shall not apply to common carriers or warehousemen or their employees engaged in lawful transportation or storage of such drugs, nor to public officers or employees while engaged in the performance of their official duties, nor to temporary incidental possession on the part of employees or agents of persons lawfully entitled to possession.

Section 135. *Commitment of Addicts; Procedure; Treatment; Discharge.*—The habitual use of cocaine, opium or their derivatives, except as administered, prescribed, or dispensed by a physician, is hereby declared to be dangerous to the public health and safety and in violation of this article. Upon the voluntary application of an addict, any Court or Magistrate, may, if satisfied of the truth thereof and that the person is suffering from such drug addiction, commit such person to a county or city hospital or institution maintained by the City of New York, or any correctional or charitable institution maintaining a hospital in which drug addiction is treated, maintained by the City, or any private hospital, sanatorium or institution authorized for the treatment of disease or inebriety. A Court or a Magistrate may likewise on voluntary application commit for treatment to any reformatory or correctional institution, maintaining a hospital or place where drug addiction may be treated, to which institution commitment could be made from the City of New York on conviction of a misdemeanor. Any court having jurisdiction of a defendant who is a prisoner in a criminal action or proceeding, if it appears that such defendant is an habitual user of any such drugs and is suffering as a result of such addiction, may, if it commit an addict making voluntary application, require the return to the Court of any such addict when such addict is cured or at a time stated in the order of commitment. Whenever the medical officer or superintendent or the head of such an institution shall certify to the committing Magistrate or Court that any person so committed has been sufficiently treated or give any other reason which is deemed by the Magistrate or Court to be adequate and sufficient, he may in accordance with the terms of commitment discharge the person so committed, or return such person to await further action of the Court, as above provided.

Section 136. *Fraud, Deceit, Et Cetera.*—Any fraud, deceit, misrepresentation, subterfuge, concealment of a material fact or the use of a false name or the giving of a false address in obtaining treatment in the course of which cocaine or opium or their derivatives shall be prescribed or dispensed or in obtaining any supply of such drugs shall constitute a violation of the provisions of this article and shall not be deemed a privileged communication. The wilful making of any false statement in any required prescription blank, order or record, shall constitute a violation of this article.

Section 137. *Penalties.*—A violation of any of the provisions of this article shall constitute a misdemeanor. The Department of Health shall by virtue of the authority conferred by the provisions of the Inferior Criminal Court Act of the City of New York as amended by Section 44, Chapter 531, of the Laws of 1915, except in a case where a commitment is made in the Magistrate's Court for treatment, request upon proceeding being had before a Magistrate that violations of this article be triable in the Court of Special Sessions, held by three Justices.

The previous sections dealing with habit forming drugs were annulled.

Poliomyelitis Shows Increase.—A special Bulletin of the New York State Health Department states that the number of cases of poliomyelitis reported to the State Health Department during the first twenty-seven days of July was twenty-five, a greater number than has been reported during any July since the epidemic of 1916, and an increase over the number of cases reported during the year. While the Department does not view present conditions with alarm, it has sent letters to health officers requesting them to be on the lookout for suspicious cases and offering the services of consulting diagnosticians in doubtful cases.

Drunkenness in England.—Drunkenness in England in 1920 increased 65 per cent. over 1919, but is still only a little over half the figures for 1913. The decrease in drunkenness began in the latter months of 1914 and continued during the war years and until the middle of 1918, when an increase was noticeable monthly, which continued through 1919. Encouraging signs are seen in the decrease which

began late in 1920. The highest figures are still far below the pre-war mark of 1913, which reached 188,000 convictions for drunkenness.

Red Cross Reports on Cancer Deaths.—The League of Red Cross Societies, which was asked to obtain all valuable statistics concerning the increase of cancer, has issued a report in which it states that in the four years from 1908 to 1912 cancer caused more than 1,500,000 deaths in the civilized countries. The report ventures the opinion that had people generally been better informed about the symptoms of cancer and been promptly treated at least 500,000 of these deaths might have been prevented. The country which had the highest cancer mortality between 1900 and 1919 was Switzerland with 125 per 100,000 inhabitants. Holland and England come next with about 100 deaths from cancer to every 100,000 population. Holland's cancer deaths are tending slightly to decrease. The United States comes after England with a steady tendency to increase. Italy comes last. The report of the League of Red Cross Societies pays generous tribute to the work of the American Society for the Control of Cancer, whose general conclusions on the subject of cancer it quotes.

Inadequate Care for Tuberculous Soldiers.—Dr. N. A. Pattison of New York, supervisor of the medical service of the National Tuberculosis Association, testifying recently before the Senate Committee on Soldiers' Relief, declared that the facilities for caring for ex-soldiers suffering from tuberculosis "are grossly inadequate." Dr. Pattison gave this opinion following a visit to fifty hospitals located in forty-four states. He points out that the Government to a large extent is utilizing old base hospitals constructed of flimsy material involving a terrific fire risk. He mentioned several hospitals which he said should be abandoned immediately. Complaints were lodged against certain hospitals which Surgeon General Cumming was called upon to investigate. Dr. Haven Emerson, assistant director of the War Risk Bureau, admitted failure on the part of the Government to provide proper inspection service for the hospitals, but insisted that insufficient appropriations were responsible.

Condition of Children of Pre-School Age in New York.—The *Weekly Bulletin* of the New York City Department of Health reports the results of a physical and mental examination of 1,061 prospective entrants of the New York public schools, examined in eight public schools of Manhattan during the month of June last. Of these 1,061 children, between the ages of five and six years, 33.3 per cent. were found normal and 66.7 per cent. showed physical defects. Of the children examined 72.6 per cent. had defective teeth. The other outstanding defects were hypertrophied tonsils, defective nasal breathing, and malnutrition. A higher percentage of these defects was found in this group of children of pre-school age than in children of school age. The study corroborates former experience as regards the need of intensive work among children of pre-school age, for the correction of remediable physical defects. It also emphasizes the fact that the public, as a whole, has not yet realized the importance and significance of the ill effect of physical defects at this age, and the importance of their remedy from the standpoint of health and schooling.

Appointments in the Bureau of Chemistry of the U. S. Department of Agriculture.—By an order of Secretary of Agriculture Wallace, Walter G. Campbell, assistant chief of the Bureau of Chemistry since 1916, is made acting chief to fill the place of Dr. Carl L. Alsberg, whose resignation became effective on July 15. Dr. W. W. Skinner, chief of the water and beverage laboratory of the bureau since 1908, is designated as assistant chief.

Dr. **Edmund L. Gross**, head of the American Hospital in Neuilly, France, has arrived in this country.

Dr. **W. C. Billings** of the United States Public Health Service has been appointed medical head of Ellis Island as director of medical inspection of immigrants to succeed Dr. J. W. Kerr, who has been transferred to the Surgeon General's office.

Obituary Notes.—Dr. CHRISTOPHER JAMES MUSGRAVE of New York City died at his home on July 28 at the age of fifty-six years. He was graduated from New York University Medical College in 1887. He was a member of the American Medical Association and formerly an instructor in the Post Graduate Medical College and Hospital.

Dr. CYRUS B. NEWTON of Stafford Springs, Conn., a graduate of Yale University School of Medicine in 1856, died in a local hospital on June 19, at the age of ninety years. He was a member of the American Medical Association, warden of the Connecticut State prison for a number of years, medical examiner for Tolland County in 1895, and a member of the medical board of Johnson Memorial Hospital.

Dr. WALTER RANDALL PIKE of St. George, Utah, died at his home on June 10, at the age of seventy-three years. He was graduated from the University of Vermont Medical College in 1877, was formerly superintendent of the State mental hospital, and in 1892 a member of the State Legislature.

Dr. JEHIEL W. CHAMBERLIN of St. Paul, Minn., died at his home on June 14, at the age of sixty-four years. He was graduated from Rush Medical College in 1882. He served as president of the Ramsey County Medical Society, the Minnesota Academy of Medicine, and the Minnesota Ophthalmological Society.

Dr. WILLIAM A. BELL of Colorado Springs, Col., a graduate of the University of Cambridge, England, died on June 7, at the age of eighty years. His name is closely linked with the early history and development of Colorado Springs. He was interested in the founding of the Denver and Rio Grande Railway system and was one of the founders of the Colorado Coal and Iron Company in 1879.

Dr. BELA J. WARD, a graduate of Albany Medical College in 1884, died at his home in Albany on June 28.

Dr. WARD E. HUNT of Little Falls, N. Y., died of diabetes in a Utica hospital on June 25, at the age of fifty-two. He was graduated from Albany Medical College in 1893, and was a former president of the Herkimer County Medical Society.

Dr. CHARLES O. SMITH of Atlanta, Ga., a graduate of Emory University School of Medicine, Atlanta, in 1892, died on June 30, at the age of fifty-six years.

Dr. JOHN T. ROBERTS of Beaumont, Texas, a graduate of the Southern Methodist University

Medical Department (Texas) in 1911, died on June 28, at the age of thirty-three years.

Dr. THOMAS T. EARLE of Greenville, S. C., a graduate of the George Washington Medical School in 1870, died at his home on June 29, at the age of seventy-six years.

Dr. HENRY J. DEHANN, a graduate of the Missouri Medical College, St. Louis, in 1884, died after a lingering illness on June 25, at the age of sixty-three years.

Dr. WILLIAM M. PARRY for many years a practitioner of medicine in Waynesburg, Pa., died after a long illness on June 25, at the age of seventy-eight years. He was a Civil War veteran and the oldest member of the Greene County Medical Society.

Dr. W. W. CULPEPPER of Athens, La., a graduate of Tulane University, and a Confederate veteran, died June 22, at the age of eighty-eight years. For a number of years he was college physician at Mt. Lebanon College.

Dr. JAMES E. GROFF died at Doylestown, Pa., on June 10 at the age of 65 years. He was graduated from Jefferson Medical College in the class of 1880. He was a member of the Bucks County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. HENRY BILLINGTON NIGHTINGALE died at Philadelphia on June 23 at the age of 66 years. He was graduated from Jefferson Medical College in the class of 1876.

Dr. ROBERT WESLEY JOHNSON of Assumption, Ill., a graduate of the Eclectic Medical College, Cincinnati, died on June 10, at the age of seventy-two years.

Correspondence.

THE SYMPOSIUM ON CALCIUM METABOLISM.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: — The symposium on calcium metabolism, which was staged at the New York Academy of Medicine (March 3, 1921), an abstract of which appears in the MEDICAL RECORD, July 2, 1921, p. 39, presents some interesting and instructive data which should prove intensely interesting to physicians and members of the medical profession. For example, Prof. Rodney H. True discussed in technical terms the results of laboratory investigations relating to the functon of calcium in plant nutrition, while Prof. H. C. Sherman presented data relating to the calcium requirements in animal nutrition, and in his remarks referred especially to the recognized calcium deficiency in American diets. The general discussion following these addresses was not less interesting than the contributions themselves; Dr. Hess, Dr. Wallace, and Dr. Tweddell advancing various suggestions and records bearing upon the unfortunate results attending such deficiency of the inorganic proximate principles, and especially the deteriorating effects upon human nutrition.

It is evident, however, from a careful study of the entire abstract, that none of these gentlemen who took an active part is thoroughly familiar with the records covering experimental investigations, though there is scarcely room for criticism because of the fact that the question is so large, so far reaching, and the investigators have conducted their studies in so many different directions. Such being the case it will not seem presumptuous in me to add some further references bearing upon animal and plant nutrition, and at the same time indicate how these investigations dovetail and harmonize with our modern theories relating to calcium metabolism; so, instead of a criticism, this communication is intended for the purpose of elaborating and completing the various disconnected facts, scientific and clinical, which have a direct bearing upon the treatment of disease. Thus, I find no reference in Prof. True's remarks to indicate that he has considered the influence, either direct or indirect, immediate or remote, of mass action; nor does he intimate that there is such a chemical transformation which gives mineral substances, in minute subdivision, properties similar to, although not identical with, the enzymes—the unorganized ferments, that is to say, mineral ferments. Prof. Sherman's remarks refer to various experimental investigations conducted by physiological chemists, and is thoroughly commendable; according to his studies it is his impression that one in fourteen of the American public is trying to live on a diet deficient in calcium, but he doubts if the deficiency can be made up from drinking water. Prof. Sherman does not think that it would be wise or expedient to add calcium in any form to the ordinary diet, although this has been done to a limited extent by a well-known baking company in the manufacture of bread; he thinks it would be preferable that we "should encourage the more liberal use of foods, such as milk and vegetables, containing other mineral salts, which possess an all-around well-balanced mineral content and are important for their vitamines as well."

Evidently Prof. Sherman has a leaning toward the vitamines, but this position is scarcely warranted in view of the results obtained by Daniels and Loughlin (*Journal of Biological Chemistry*, November, 1920), in their study of the deficiency of heat-treated milk. The records of their investigations show clearly that the fat-soluble and water-soluble vitamines are not destroyed even by long boiling, although the milk thus treated fails to support life in the albino rat. That was the result of employing evaporated milk either in its natural condition or diluted, while on the other hand, dried milk, served or fed in its original form, maintained nutrition and secured reproduction. As a result of further investigations it was found that the inorganic or colloidal particles of the calcium, which properly belonged in the evaporated or diluted milk, were lost by reason of their adherence to the container or falling to the bottom of the vessel used in feeding. Long heated milk, however, is deficient in calcium because the latter is rendered inert. Presumably, it is in the form of an irreversible colloid, and as such is not to be depended upon to enact the rôle of a mineral ferment.

Mass action is rather a difficult problem to understand, but a brief reference to the subject will serve to aid us in working out a substantial and practical physiological basis in the employment of food materials. Prof. True makes the following statement, as reported in your notice of the meet-

ing: "The question of the calcium-magnesium ratio which had long been a subject of discussion among those interested in plant physiology had received over-emphasis. They had found little evidence that the calcium-magnesium ratio was as important as

LESTER D.—Age 20 months, weight 36 lbs.

some investigators had thought it to be. So long as calcium was present its ratio to the quantity of magnesium was of little significance. When mixtures of three salts were used it was found that these were nearly complete solutions for plant growth, provided calcium was present, indicating that the function of calcium was predominant, and that if other salts were present and calcium absent the plant structure fell apart."

In this connection we have a very instructive illustration, in fact a demonstration, of the exceedingly complex conditions with which we have to deal in human life. Thus, the report of the United States Department of Agriculture, on the soil of Porto Rico, shows that it is composed largely of alumina and silica, and that the soil is persistently acid, so that liming is absolutely necessary. Two tons of lime per acre is necessary to neutralize the acid, but this alone will not produce a crop, and at the end of a season an examination of the soil shows absolutely no lime present—an indication that mass action has taken place in the soil. In order to grow a crop upon that soil, it is necessary to add four tons of lime more to the acre, that is, in addition to the two tons required to neutralize the acid.

It frequently happens that physicians, and I am no exception, observe results attending medical treatment which are astonishing, to say the least, but I doubt that these notable effects can be established as permanent without proper attention to the dietary. The clinical evidences bearing upon mass action and mineral ferments is overwhelmingly in favor of colloidal medicaments, because, for the most part, medicines in order to be effective, must be converted into this form. The following cases are submitted tentatively to emphasize the remarks of Prof. True, and besides, his observations will relieve me in part, at least, of the charge of medical transcendentalism.

The first case is that of Lester D., age 21 months, weight 36 lbs. The first picture in the text shows the child at age of 20 months. Treatment in this case beginning at 21 months consisted in regulating the dietary and giving $2\frac{1}{2}$ grains of carbonate of calcium from oyster shell, three times a day for the period of one month. Improvement set in at once, but owing to the marked success which I had been meeting in the case of enuresis in children when giving the equivalent of one half grain colloidal calcium, this was the dose for the succeeding three months—thus, the treatment covered a period of four months. At the expiration of the four months, the dose of colloidal calcium was increased to the equivalent of two grains three times daily, and at the end of six months the second picture was taken, which shows remarkable improvement. The weight at this time was only one pound more than at 21 months, but the child had gained one inch in height.

Little comment is required in this case, except to say that the child was nursed until 11 months of age, at which time he was weaned and fed upon a well-known and popular baby food until he came under observation, and it was during this latter period that the bow legs developed, showing that there was some fault with the diet. Still, this baby food required the addition of cow's milk, and it seems there was no reason why the diet should have failed to produce normal nutrition. Apparently, all that was needed was the colloidal calcium, which acted as a mineral ferment and promoted, or stimulated, mass action in the inorganic proximate principles.

Another case is that of Ann, 7 years of age, a "backward" child. The mother said Ann was dumb, and she looked it. She could not, or would not, talk; she objected to going to school and either could not or would

LESTER D.—Age 27 months, weight 37 lbs., height 37 inches.

not learn. There were seven children in the family, the oldest 11 years, and although the parents were healthy and robust, and all the other children apparently were in normal condition, they had given up hopes of being able to make anything of Ann—and besides, they were in poor financial circumstances and

there was no question about the dietary deficiency. Another feature, and the principal one for which I was consulted, was bed-wetting—this had been persistent for several years and had resisted the most earnest solicitation of several physicians. Treatment consisted in giving the equivalent of two grains colloidal calcium after meals, the dietary to be properly regulated; milk for breakfast was insisted upon, no fruit such as apples or oranges, allowed after the midday meal, and no water to drink was permitted to be given after the evening meal. As a result of this regime, bed-wetting was stopped immediately, and three weeks later the child got 100 in spelling at school. She improved in every way and in the course of a few months her mother said she was the brightest child in the whole family.

Another case worthy of mention is an Argonne gas victim. The history of the case runs about as follows:

B. D. M., age 28, weight 160, now a student, was gassed in the Argonne advance, and has been under treatment ever since he returned from France, under the direction of the medical board which made a liberal debility allowance, although the medical attendants to whom he was sent from time to time, insisted that he was a malingerer. He complained of constant headache, so severe that he was unable to sleep, although he tells me that the sinuses, including the antrum, have been irrigated at least forty times during the past year and a half. This patient came under observation May 25 ult., and returned June 2, at which time he reported that his headache had entirely disappeared, that he was unable to get a sufficient amount of sleep, said he had slept nearly all day Decoration day; said he was feeling fine and that he was now able to concentrate his mind on his studies and expected to make rapid progress. Treatment in this case consisted in the administration of colloidal calcium, the equivalent of two grains after meals, and at bed-hour, as the basic or dominant treatment, the collateral treatment being 1 17 grain potassium bichromate in the form of two tablet triturates, to be taken before meals and at bed-hour.

I cannot close this communication without a brief reference to the function of calcium in animal nutrition, as developed by W. P. Wheeler, First Assistant (Animal Industry), embraced in Bulletin 46, New York Agricultural Experiment Station, December, 1919. The experimental observations were conducted with fowls (chickens) usually in lots of six, also with ducks, and the inorganic principles studied were limited to calcium, strontium, and magnesium. Omitting reference to the dietary deficiency among ducks, and the comparable effects of strontium, I will attempt to epitomize the results of these investigations which covered a considerable period of time, and embraced many interesting and instructive tests in the course of the investigation. Briefly stated, the results are as follows: When two lots of chickens were fed the usual dietary and one of these lots received calcium in addition, this second lot laid three or four times as many eggs as the former. When the chickens were limited to a dietary carrying a deficiency in the lime content, it was found that the lime in the egg-shells was greater than in the food. And finally when the chickens were fed on a diet containing a deficiency of lime and an excess of magnesium, the results were extremely unsatisfactory, as the following extract shows: "In the matter of influence on egg production, the results, on the whole, plainly favored the rations with the large proportion of calcium. Under the unusual rations free laying could not be expected, but three and four times as many eggs were obtained from hens fed the added calcium as from other lots. Fewer eggs were obtained from the hens fed added magnesium salts than from the hens fed strontium salts. With the younger hens, from which readier egg production would normally be expected, laying started earlier and continued longer with the lot fed calcium salts."

A pertinent and *suggestive* report, showing the injurious effects of calcium deficiency upon reproduction, is presented by Drs. Reynolds and Macomber, of Boston, Mass. (*Jour. A. M. A.*, July 16 1921, p. 171). Briefly stated, the record is as follows: "The wife was a large, well-nourished woman in ordinarily good health, but reported herself as lacking in energy and constantly tired. . . ." During the seven years of married life one child was delivered at full term at the expiration of ten months, but died during operative extraction; then followed five early miscarriages in six years, when a survey showed she had been living on a diet deficient in calcium. This was corrected by the medicinal administration of calcium, the diet being arranged to include foods rich in calcium—with the result stated: "She went into her seventh pregnancy shortly afterward and without any other treatment was delivered at term of a healthy child."

JOHN AULDE, M.D.

1024 WALNUT STREET,
PHILADELPHIA.

NOBLESSE OBLIGE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—To the question of the proper amount of surgical and medical fees there is one very simple answer, and this every man of character applies to himself in his doings with others.

No man has a right to lower his well earned reputation by doing what does not befit it. To overcharge is, also, simply a lowering of a great and noble calling. Woe sooner or later comes to the man who condescends to do for mere lucre what should be done for humanity. Such action sadly neutralizes before the public much that he has previously done to ennoble his profession. The men whom we most admire never charge exorbitant fees. They could do it and be paid, but they think of their peers in surgery and medicine and will not.

Again and finally, "noblesse oblige."

BEVERLEY ROBINSON, M.D.

NEW YORK.

THE FATAL RESULTS OF THE SUDDEN WITHDRAWAL OF OPIATES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Officials connected with the narcotic squad of this city are quoted in the press as making certain statements in extenuation of the sudden death of Otto Thompson, an opiate addict, who was found dead in a police station after arrest as a drug addict. One of these statements is that "drug cure records show no instance of a man dying because of drug removal." According to other reports his death was attributed to the heat. The fact seems to be, however, that the man was deprived of his opiate drug and died.

The medical literature on addiction to opiates gives so many instances of death resulting from the removal of the opiate that the acceptance of such a

possibility ought to be axiomatic with anybody at all familiar with the subject. Practically every writer of any importance on this subject refers to it. Merely to quote from three of the best known writers on the subject of narcotics and addiction (italics mine):

Dr. Alexander Lambert, in Osler's "System of Medicine," page 215, writes:

When morphine is cut off abruptly there is great danger of collapse. This may supervene on the second or third day and the patient shows increased weakness, appears pinched and haggard, while the pulse becomes small and then disappears. Or he may show a sudden high pulse tension, feebleness of the heart action and suddenly fall pulseless to the floor. Sometimes the fatal collapse may occur without warning while the patient is quietly talking or sitting in bed. Still another form of collapse may occur; the face becomes deep red, the eyes shine brightly, the pulse falls to forty and the patient loses consciousness after a feeling of intense agony. These collapses may last for fifteen or twenty minutes; they may recur three or four times in the twenty-four hours, and the patient may recover or *he may die in any of them unless morphia be given.* Fortunately these attacks are rare when the drug is withdrawn gradually, but *they are fairly common when this is done abruptly.*

Dr. Ernest S. Bishop, in his book, "The Narcotic Drug Problem," page 35, writes:

In observing opiate addicts over a length of time no one can escape the recognition of a chain of constantly present physical manifestations, inevitably following the non-administration of the drug of addiction. . . . In a general way they may be said to begin with a vague uneasiness and restlessness and sense of depression; followed by yawning, sneezing, excessive mucous secretion, sweating, nausea, uncontrolled vomiting and purging, twitching and jerking, intense cramps and pains, abdominal distress, *marked circulatory and cardiac insufficiency and irregularity,* pulse going from extremes of slowness to extremes of rapidity with loss of tone, faces drawn and haggard, pallor deepening to greyness, exhaustion, collapse, and *in some cases death.*

Dr. George E. Pettey, in his book, "Narcotic Drug Diseases and Allied Ailments," page 41, says:

The abrupt withdrawal of an opiate from patients addicted to its use without first preparing the patient's system for such withdrawal *is not only dangerous to life but is barbarous.* This course is not now pursued in any reputable institution for treatment, but it is often practised in our insane hospitals and jails. Persons who are addicted to narcotic drugs are arrested, thrown into a cell, without any provisions whatever to supply them with the drug, and within twenty-four to forty-eight hours *the victim is taken from his cell a corpse,* having sunk into complete collapse. He was already *in extremis* when arrested, and being thrown into a cell where he is helpless and unprotected he soon sinks into collapse *and death closes the scene.*

This whole muddled narcotic drug situation has developed in the last two years because the laity and the officials have not been properly instructed by those whose business it is to know the facts and educate concerning them.

JOHN P. DAVIN, M.D.

NEW YORK.

STILL OUT OF STEP WITH JIM.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—May I express through your columns my thanks to Dr. J. Milton Mabbott for his letter in your current issue, July 30, in which he so kindly and ably, though perhaps unconsciously, supports and gives confirmation to the material in my letter, published in your issue of July 23, concerning Dr. Alfred C. Prentice and entitled "All Out of Step with Jim."

ERNEST S. BISHOP, M.D.

OUR LONDON LETTER

(From Our Own Correspondent.)

LONDON, July 4, 1921.

Health Congress.—On June 20 last a Congress concerned with health matters under the auspices of the Royal Sanitary Institute of Great Britain was opened in Folkestone and continued for three days. Among the many subjects of interest discussed was that of alcohol. Dr. Courtenay C. Weeks quoted the National Insurance Commissioners as saying that there was lost annually through sickness and disability among insured people the equivalent of fourteen million weeks' work. It was further pointed out that in our asylums we had 125,000 lunatics and 150,000 feeble-minded persons, and the chief medical officer of the Ministry said that if the deficiency in the national life was to be met the first thing they had to deal with was alcohol.

In the section devoted to industrial hygiene an excellent presidential address was made by Viscount Burnham, who said that in the Victorian era it would have been considered an interference with Divine Providence as well as with individual liberty to have attempted anything in the direction of industrial hygiene. The Manchester School of Economists would have thought of this as mollycoddling, or what would be termed nowadays spoon-feeding. It was not want of humanity, but difference of view that caused them to take this line of policy. On the other hand, it was possible too great advance was being made in the other direction, and certainly due safeguards were required to prevent the national character from being enervated and even emasculated by too much supervision and interference. In America welfare work, if imposed by authority in the works, factories and mills, was resented as being paternalism, and in what was done in connection with industrial hygiene in Great Britain, it was essential that there should not be the spirit of paternalism, but the spirit of co-partnership. Unless there was a concordat between employers and employed it would be found that the great difficulty lay not in the material facts, though they might be stubborn enough, but in the veiled hostility, or at best indifference of the working people to their own welfare. It was essential that there should be a free and frank alliance, not only in aim but in practice, between employers and employed. Unless there was that cooperation of energy and goodwill the progress of social reform would be slow.

Sir Leslie Mackenzie, in his presidential address to the Sanitary Science and Preventive Medicine Section, said the new objective in preventive medicine was the production of fitness. This was one primary lesson of the war. There was no more illuminating study in the whole range of public health than the special investigation made during the war on industrial fatigue, bringing out just how the home of labor, types of food, character of the work, and the general conditions of the

factory showed themselves in the form of increased or diminished output as the case might be. The drift of the past thirty years had been from the study of environment to the study of individuals, and in medicine generally the drift had been from the study of the end products called disease to the incipient physiological deviations that need never become pathological.

Dr. D. R. Wilson, secretary of the Industrial Fatigue Research Board, summarized the results of the board's investigations on the effects of environment on output. In heavy work involving exposure to high temperatures, production, he said, underwent a consistent seasonal variation, being, with few exceptions, greater in winter than in summer, and the opposite effect was suggested in light work, such as silk weaving. Good ventilation was found to neutralize seasonal variations, and was reflected in the evenness of output throughout the year. In silk weaving it was estimated that even good artificial light caused a reduction of 10 per cent. compared with daylight.

Mr. G. L. Martyn Lobb, in dealing with the hospital as the primary health center in relation to a health service, referred to the motto of the New York State Department of Health that "Public health is purchasable," and went on to say that this was precisely so and there was the rub. Given unlimited money, an adequate health service would be a comparatively easy affair, but today money was anything but unlimited. It would seem that the great renaissance of medicine which we were witnessing could hardly have occurred at a more inopportune moment. The hospitals were complaining that they could not bear their present burdens, still less dare they add to them; and municipal authorities and the public, and the ratepayers, while applauding the abstract idea of primary health centers, dismissed it as a fantastic mirage, and cried, "Not one penny from us." The practitioners viewed the scheme as an insidious attempt of socialistic dreamers to rob them of the little they yet might earn. With regard to the hospitals he maintained that better organization would relieve much of the pressure of crowded premises and waiting lists. He hoped that the day of a sliding scale of payment for patients to a hospital was not far distant. Dr. Wheatley, medical officer of health for Shropshire, said he looked forward to a district nursing service trained in public health as a means of having a great number of cases now treated in hospitals dealt with at home. Another abuse was that too many treatments were being given in hospitals which could just as well be carried out in the patients' homes, or primary center, or convalescent home. It was time that a sort of "Doomsday Book" of England's convalescent accommodation was compiled, and that to every hospital, according to its size, a fraction of the available convalescent bed accommodation should be assured. Poor-law infirmaries were largely empty and if the stigma of pauperism were removed from the name their doors might be thrown open to the hospitals for convalescent patients.

Dangers of Anthrax From Infected Shaving Brushes.—As the result of a further investigation the Home Office Departmental Committee on Anthrax report that it has been clearly demonstrated that the process devised for the disinfection of wool is efficient as a method of disinfection of horsehair and that it can be satisfactorily applied without causing manufacturing difficulties. Certain modifications are necessary in the case of tail hair, but these are simply due to manufacturing necessities, and not to defects in the process. The committee are therefore unanimous in advising that this process is suitable for adoption as a method for the compulsory disinfection of horsehair. They have considered whether they should make any further specific recommendations, but see no reason for modifying the carefully considered proposals contained in the report on anthrax, which are equally applicable to wool and horsehair. Questions of detail ought to be dealt with by the authority which the report recommends should be set up with powers and facilities for enforcing disinfection of wool and hair. The report says as follows: "The fact has, however, been brought to our notice that large quantities of drawn hair, *i.e.* partly manufactured hair, are now being imported from China, and further, that consignments of shaving brushes made from infected hair are arriving in this country. The preparation of horsehair in China has now become established, and the trade in hair partly manufactured in that country is likely to increase at the expense of the raw hair trade. The satisfactory disinfection of such prepared hair and of shaving brushes is impracticable, while the danger to consumers is very great. Two courses only are possible, namely, (1) total prohibition of the import into this country of any manufactured or partly manufactured hair, and of goods composed or partly composed of foreign horse or goat hair; or (2) the establishment, in the countries from which such goods are imported, of disinfecting stations under the control of a central authority invested with the power to enforce disinfection of the raw hair before manufacture.

Malaria in the British Garrison of India.—In the report of the Sanitary Commissioner with the Government of India for 1920, issued recently, it is stated, that in spite of the prevalence of influenza, malaria retained its position as the chief cause of sickness and inefficiency among British troops in India in 1918. The admissions numbered 23,687, equal to 26.13 per cent. of the total admissions for all causes, and were in a ratio of 269.2 per 1,000 of total strength, as compared with 227.9 in 1917, and 117.2 in the pre-war Quinquennium 1910-14. It is pointed out, however, that the total admissions for malaria have probably been increased during each year of the war by the inclusion of relapse cases, whose infections were contracted overseas, and whose statistics should more correctly be debited against the Expeditionary Forces. Various drainage works were carried out, and it is stated that the "comparative absence of fresh infection during the latter half of the year is promising," in spite of the increased rainfall.

Bequest to the Royal Society of Medicine.—The late Sir Felix Semon bequeathed the whole of his laryngological library, except copies of his own writings, to the Royal Society of Medicine.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 21, 1921, clxxxv, 3.

1. The Public Health Activities of William T. Sedgwick. Eugene R. Kelly.
2. The Public Health Work of William H. Sedgwick. President A. L. Lowell.
3. Prolapse of the Prostate Gland. George M. Garland.
4. A Questionnaire on Sacro-Iliac Joint Lesions. H. W. Marshall.

4. A Questionnaire on Sacroiliac Joint Lesions.—H. W. Marshall believes the time has come to sift the large amount of literature and clarify our ideas on certain subjects. One of these subjects is sacroiliac joint lesions. He has, therefore, collected a fairly comprehensive outline of ideas relating to this subject, ranging from reliable facts to plausible theories, and for convenient reference has arranged them in the form of a questionnaire, consisting of 80 questions. Copies of this were sent to a list of 350 selected physicians in the hope that they might assist in checking off such items as each could agree to personally, and thus aid in simplifying the present knowledge in reference to sacroiliac lesions. The replies furnish an interesting example of prevailing medical opinion and to what extent present orthopedic views are held by other departments of medicine. Emphasis is laid on the importance of understanding the physiological properties of the ligamentous and fibroid tissues of the sacroiliac and other joints and the opinion ventured that many treatments are being badly managed, and that more harm than benefit results from the medical care of back troubles, not infrequently because physicians reject unfamiliar ideas as unwarrantable theories. Backs, in consequence, may be supported too much, exercised too much, manipulated too vigorously, vascularizations neglected, and so on, and yet patients continue to recover, in spite of such treatment. Obscure vascular conditions and the way joints may be influenced through the blood are items about which the majority of physicians have rightly expressed doubts, although more might with advantage accept them as plausible theories. Eighty-two replies to the 80 questions are analyzed. No single item was unanimously agreed upon, though the majority of all opinions were agreed upon the majority of items. After reviewing all the ideas and opinions expressed, the writer thinks it easier to picture what determines the precise treatment any selected patient may receive. Treatments are determined, he finds, by clinical judgments carefully or hurriedly made, based on complete or incomplete understandings of underlying scientific facts and modified by clinical facilities at hand. He thinks it appears plain that any lightly conceived whim, perhaps erroneous, can decide what shall happen to the patient, despite all scientific safeguards.

New York Medical Journal.

July, 1921, cxiv, 2.

1. Modern Commentaries on Hippocrates. Jonathan Wright.
2. Lung Mapping by the Injection of Bismuth Mixtures in the Living. Henry Lowndes Lynah.
3. Proofs of the Constitutional Nature of Cancer. L. Duncan Bulkley.
4. Neuralgias of the Superior and Inferior Maxillary Branches of the Fifth Nerve Caused by Dental Pulp Nodules. N. Philip Norman and Howard M. Johnston.
5. The Influence of the Prostate on the Health of the Man Past Middle Life. H. G. Bugbee.
6. Prologic Life Extension. T. Warsaw Williams.
7. Treating Syphilities. Leo L. Michel and Herman Goodman.
8. The Schellberg Treatment for Chronic Colonic Infections. William H. Galland.
9. A Coordination or Reestablishment Clinic in Hospitals and Dispensaries. J. Madison Taylor.
10. An Unusual Hypophyseal Syndrome. E. D. Friedman.
11. The Etiology and Elimination of Tuberculosis. G. Lenox Curtis.

3. Proofs of the Constitutional Nature of Cancer.—L. Duncan Bulkley points out that during the past one hundred years Abernethy, Walshe, Sir Astley Cooper, Sir James Paget, Dr. Willard Parker, Dr. Forbes Ross, Robert Bell, and others have expressed the belief that cancer is a constitutional disease. All the evidence in support of this belief has been disregarded by the medical profession at large, and surgery is regarded as the only hope for cancer, in spite of the demonstration that under its rule the mortality from cancer has risen steadily, since 1900 nearly 30 per cent. The reasons for the lamentable condition in which carcinosis as a disease stands today, in regard to its treatment and ultimate results, are not difficult to discover. They are: 1. The glamour of surgery and latterly of *x*-rays and radium, and the craze for immediate and spectacular results. 2. The claims of the surgeons as to the success of operation, and the failure to record and report end results, after the lapse of years. 3. The results of laboratory and research work, wrongly supporting surgeons as to the local nature of carcinosis, and advocating the desirability of the immediate removal of the results or products of it, now called cancer. 4. Ignorance on the part of the general medical profession as to the true facts concerning cancer. 5. The many fake cancer cures that have been foisted on innocent sufferers, together with the many failures of remedies and measures which have been advocated by the regular medical profession. The facts which point unerringly to the proof of the constitutional nature of cancer are presented in tabular form:

I. Laboratory Findings	Negative	Cancer is not parasitic. Cancer is not contagious or infectious. No cause for cancer has been found.
	Positive	Cancer cells are but altered normal cells. Feeding experiments show a possible control of cancer growth.
II. Statistical Evidence		Contrast of death rate since 1900 between cancer and tuberculosis. Steady increase of cancer deaths under active surgery, *x*-rays and radium.
III. Biochemical Evidence		Blood changes in early and late cancer. Metabolic changes in the system before and after the development of the local cancerous lesion.
IV. Clinical Evidence		Opinion of many celebrated surgeons during the last one hundred years to the present time. Spontaneous cures of cancer well authenticated. Dozens of hundreds of attested cases of benefit or cure of cancer by other than local measures, in this and other countries.

Most of the items in this chart are thoroughly known and accepted. Looked at in its entirety, the total evidence of the constitutional nature of cancer is fairly convincing.

4. Neuralgias of the Superior and Inferior Maxillary Branches of the Fifth Nerve Caused by Dental Pulp Nodules.—N. Philip Norman and Howard M. Johnston state that when diagnostic technique has been exhausted in the attempt to ferret out the cause of a trigeminal neuralgia, it is well to turn one's attention to the teeth, in order to exclude the presence of calcified pulp nodules. Such nodules may be present in apparently perfectly healthy teeth and can only be detected by careful radiographic examination of all the teeth. There is no definite relation between the presence of pulp nodules and the production of symptoms. At times such nodules may be present and do no harm. Having determined the affected tooth or teeth that is causing the pain, devitalization of the affected pulp nodules is the only treatment after the local and constitutional manifestations have failed. Two cases of severe trifacial neuralgia cured by devitalization and removal of a pulp nodule are reported. So far as the writers can find out, two such cases have never been reported before. The authors ask for the cooperation of dentists and neurologists throughout the country in gathering information in reference to the production of trifacial neuralgia by pulp nodules.

Journal of the American Medical Association.

July 23, 1921, lxxvii, 1

1. Interrelationship of Function of the Thyroid Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body. Henry S. Plummer.
2. The Measurement and Standards of Basal Metabolism. Francis G. Benedict.
3. Fundamental Ideas Regarding Basal Metabolism. Graham Lusk.
4. The Basal Metabolism Rate in Hyperthyroidism. Walter M. Boothby.

5. The Omission of Drainage Following Cholecystectomy. J. R. Buchbinder.
6. Paralysis in Children Due to the Bite of Wood-Ticks. P. D. McCornack.
7. Needed Measures for the Prevention of Deafness During Early Life. Harold M. Hays.
8. Social Alleviations of Adventitious Deafness. Annetta W. Peck.
9. Some Personal Experiences with Cases of Myasthenia Gravis. Isador H. Cohat.
10. Jejunostomy: A Treatment of Acute Ileus and a Preventive of Postoperative Ileus. A. I. McKinnon.
11. Whole Blood Transfusion and Citrated Blood Transfusion: Possible Differentiation of Cases. Bertram M. Bernheim.
12. The Relation Between the Child and the Hospital Social Service. Henry Dwight Chapin.
13. The Psychic Factor in Exophthalmic Goiter. Israel Bram.

1. Interrelationships of the Function of the Thyroid Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body.—Dr. Henry S. Plummer. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1076.)

2. The Measurement and Standards of Basal Metabolism.—Francis G. Benedict. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1077.)

3. Fundamental Ideas Regarding Basal Metabolism.—Graham Lusk. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1077.)

4. The Basal Metabolism Rate in Hyperthyroidism.—Walter M. Boothby. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1076.)

6. Paralysis in Children Due to Bite of Wood-Ticks.—P. D. McCornack. (See MEDICAL RECORD, June 25, 1921, cc, 1, p. 35.)

7. Needed Measures for the Prevention of Deafness in Early Life.—Harold M. Hays asserts that too much attention has been paid to the acute otologic conditions of childhood and too little attention has been paid to the chronic otologic conditions or, at least, to the causative factors which bring about deafness in later life. Most writers who have studied the subject carefully state that the majority of cases of acquired deafness are the result of neglect of the ears after measles, scarlet fever, and meningitis. The ears of the children are well taken care of during the acute stage of the disease, but frequently there is a residual process left or there is a continuation of the catarrhal process which forms part of the disease. Every parent who takes from the hospital a child who has suffered from one of these contagious diseases should be advised to consult an ear specialist at once, and, if there is the slightest impairment of hearing, every care should be taken to bring it to normal as soon as possible. There is sufficient data on hand in our histories of progressively deafened patients to realize that something more should be done for these cases than is do[illegible] present. Parents, teachers, and physicians should be educated as to the factors which give rise to deafness. Routine examination of children's ears in school must, in time, become as important as the examination of their eyes and teeth, and clinics must be established in the schools themselves, so that, under competent aurists, the treatment can be expedited. If we glance over the causative factors of deafness in adult life, we find that invariably there is a causative factor in childhood. Some of these problems can be dealt with very simply in childhood, but, if neglected, become most difficult problems after the child has reached the age of puberty.

11. Whole Blood Transfusion and Citrated Blood Transfusion.—Bertram M. Bernheim believes that the time has come when we should compare different methods of blood transfusion and possibly, in the application of methods, make a differentiation of cases. Inasmuch as we may expect a reaction in from 20 to 40 per cent. of all citrate transfusions, an attempt should be made to sift those cases which would seem to run a fatal risk if a reaction occurred, and give them the benefit of the more refined whole blood transfusion in which the percentage of reactions is hardly so much as 5 per cent. There are two groups of cases which, in the writer's experience, should not be given the citrated blood, namely: 1. Those in which there has been a hemorrhage of such intensity that the extreme limits of bleeding have been reached, and the patient is in such a state of shock that everything in the nature of additional shock must at all hazards be avoided. 2. Those states of anemia, either primary or secondary, in which the blood depletion has progressed to such limits that the patient is almost dead. As time progresses further differentiation will probably be made. Bernheim does not wish to be understood as belittling the value of citrate transfusion, but thinks it necessary to recognize that there are definite limitations to this method and that failure to observe these limitations has caused unnecessary loss of life. It is unfortunate that the giving of whole blood requires a far higher degree of surgical skill than does the giving of citrated blood; therefore, it seems that this method must always remain in the hands of the surgeon. There should be in every community at least one man who is competent to carry out the whole blood method, and physicians should learn to differentiate their cases so as to take advantage of this one man's skill.

13. The Psychic Factor in Exophthalmic Goiter.—Israel Bram contends that the syndrome to which we apply the term exophthalmic goiter is not goiter, and the sooner this affection is removed from the classification of goiter, the sooner will a rationalization of therapeusis be effected. While non-toxic goiter and toxic adenoma are local conditions yielding satisfactorily to thyroidectomy, this cannot be said of exophthalmic goiter, the etiology, and especially the symptomatology, of which is as widespread as the body itself. Every organ and its function, every tissue, every cell of the patient is involved; and when thyroid swelling exists, it is not the cause of but incident to or a link in the chain of events constituting the syndrome. Hence it is that in patients whose thyroids are not productive of marked pressure symptoms, whose vital organs are not too badly damaged, who are not insane, and in whom satisfactory cooperation is obtainable, the experienced individualizing internist obtains an excellent statistical showing. With the removal of any discoverable infectious foci, a properly outlined regimen of rest, diet, drugs, and other measures, and a practical psychotherapy pervading the whole, there is a correction of physical and mental vicious circles and a restoration of emotional and endocrine balance; and this, without added shock, without scars, with almost no recurrences nor mortality rate.

The Lancet.

July 2, 1921, cxcl, 5105

1. Hunterian Lecture on Injuries to the Diaphragm. With Special Reference to Abdomino-Thoracic Wounds. C. W. Gordon Bryan.
2. The Feces in Alimentary Disorders. Robert Coope.
3. An Unusual Type of Arrhythmia in Mitral and Aortic Disease. With Extensive Myocardial Degeneration. Maurice Davidson and H. C. Butterfield.
4. Lymphadenoma and Tuberculosis. L. Fox.
5. Clinical Units: Their Purpose and Achievements. C. M. Wilson.
6. A Study of the Nutrition and Economic Conditions of Working-Class Families in Glasgow. Annabel M. T. Tully.

2. The Feces in Alimentary Disorders.—Robert Coope insists that the examination of feces must be integrated with the clinical findings, usually with a thorough examination of the urine, sometimes also of the blood. Not infrequently it provides data which the clinician finds very valuable in making his diagnosis. If foodstuffs occur in the feces in any notable amount, there is something abnormal, and this abnormality may be due to one of three things, viz.: (a) failure of digestion somewhere; (b) failure of absorption, or (c) hurrying on of the food so that there is not time for proper digestion or absorption. The abnormal findings can be divided into two categories: (a) absence of normal constituents; (b) presence of abnormal constituents. In the first category comes stercobilin. If stercobilin is absent one may safely draw the deduction that bile is not reaching the intestine. There is, unfortunately, no accurate quantitative method for estimation of stercobilin; however, when it is present by using a uniform technique, a rough idea may be obtained as to whether there is much less than normal In the second category are certain food residues—blood, soluble albumin, and mucus. For detecting soluble albumin the mercury perchloride test is used. Blood must be looked for on a controlled diet, and the writer generally uses the Weber guaiacum test. If trouble is suspected in the large intestine, it is often useful to

wash out with normal saline a short time after passing a stool, and examine the contents of the wash-out chemically both for blood and for soluble albumin, and, after centrifugalizing, examine the deposit microscopically. The significance of some abnormal findings in the feces is discussed.

4. Lymphadenoma and Tuberculosis.—I. Fox observes that many cases have been described in which tubercle bacilli have been found in the lesions of Hodgkin's disease. Generally these cases have shown locally a definite tuberculous lesion, clearly distinguishable from the lymphadenomatous process and often also from the appearance given by tuberculosis in organs not affected by lymphadenoma. In the case reported no gross tuberculous lesion was found postmortem, the only macroscopic changes being those of Hodgkin's disease of abdominal type. In the affected glands and spleen tubercle bacilli were found in fairly large numbers, and there was also in the spleen a focus of tuberculous type, but not very characteristic, which showed some resemblance to lymphadenoma. The vascular condition present might have been due to either disease. If this case were described as one of Hodgkin's disease, then, according to current theory, the tuberculosis was a secondary infection. Tuberculosis terminates many cachectic conditions, but does not, as a rule, select the tissue which is the chief site of the primary disease. In this case, since the abdominal glands of an adult were affected, the selection was more apparent than it would have been in a case of cervical or mediastinal lymphadenoma with tuberculosis. The obvious tuberculosis found postmortem in cases of Hodgkin's disease may have more significance than appears. One cannot but believe in this case that if the man's blood examination had not been so acute, he must have died before long of generalized tuberculosis. If he had the abdominal glands and spleen would hardly have been regarded as the original stronghold of the tubercle bacilli. It seems just possible that in deciding against a connection between the tubercle bacillus and lymphadenoma too much emphasis has been placed on negative results of inoculation experiments. But even if we admit that a true lymphadenoma, not caused by the tubercle bacilli, exists, it may well be that the term at present is applied to more than one disease, perhaps including a primary tuberculosis.

British Medical Journal.

July 2, 1921, 3157.

1. The Principle of Repeated Medication for Curing Infections. Ronald Ross.
2. On Chronic Nasopharyngeal Infection, Chronic Toxemia, and Distressed Heart in Children. C. Paget Lapage.
3. Removal of Stones from the Pelvic Portion of the Ureter. W. H. Battle.
4. Results of Institutional Treatment in Surgical Tuberculosis. E. D. Telford.
5. Sight Efficiency in the General Population. J. Kirk.
6. A Case of Placenta Prævia Centralis with Spontaneous Delivery of the Child. Alexander C. Blair.

2. On Chronic Nasopharyngeal Infection, Chronic Toxemia, and Distressed Heart in Children.—C. Paget Lapage calls attention to the following facts: 1. That chronic infection of the nasopharynx serves as one of the most important foci from which organisms may generate toxins which cause a chronic lowered state of health in the child. 2. That nasopharyngeal infection may be due to different kinds of organisms, the influenza bacillus being an especially potent factor and often acting as the initial infecting agent, though it may not remain in the nasopharynx. 3. That this toxemia often gives rise to heart lesions, and that, though these heart lesions may be valvular, they are often of quite a different nature from valvular lesions—that is, they are more in the nature of nervous irritation than of inflammatory troubles affecting the heart. That these special forms of heart trouble need methods of diagnosis which are not usually employed, while they also need different treatment from that usually prescribed. Before diagnosing toxemia following nasopharyngeal infection other conditions and toxemias must be carefully excluded. The symptoms of breathlessness, pallor, and chronic lassitude may be common to both infective and noninfective cases. These same symptoms may be produced by bad hygienic conditions, underfeeding, lack of sleep, and mental stress. A few days' rest in bed, when the condition is due to these causes, results in great improvement and serves to differentiate these cases from those due to infection. In the infective cases, removal of obstruction, if it be present, attention to the nasopharyngeal toilet, and proper physical exercise and drill have proved of great benefit. In other words, some cases of irritable heart disease in children should be treated by exercise and not by rest. The *x*-ray is often useful in differentiating the dilated from the nondilated heart and in determining whether rest or exercise is the appropriate treatment.

4. Results of Institutional Treatment in Surgical Tuberculosis.—E. D. Telford presents a report of the results obtained by him in the treatment of children crippled by tuberculosis at the Manchester Residential Schools for Crippled Children over the period of 1905-1918. An examination of the after-history of 159 cases discharged from the school not less than three years ago shows that 37 cases have died, two of accident. The figures show that of 100 children between the ages of five and sixteen years, treated under good conditions for tuberculosis of the spine and lower extremities, largely on conservative lines, 68 will be cured and able to attend an ordinary school or follow a useful employment; 10 will receive no permanent benefit, and 22 will die of the disease or its sequelæ. The very grave nature of tuberculosis of the spine is shown by the figures; of 70 patients with this form of tuberculosis 26 are dead. The mortality is much less for disease of the hip; nine out of 52. The knee shows only two deaths out of 31 cases. The development of abscess is always of grave omen. A comparison of these figures with those of institutions farther south makes it apparent that the farther north one goes the more virulent does surgical tuberculosis become. The average time needed for the treatment of these cases is considerably longer than is generally supposed. For example, in the writer's cases of surgical tuberculosis of the spine and of the lower extremities the average duration of in-patient treatment has been three years and two months.

Indianapolis Medical Journal.

June, 1921, xxiv, 6.

1. Metabolism Associated with Volvulus of the Sigmoid. Scott R. Edwards.
2. An Important Step in the Technique of Cholecystectomy. Murry N. Hadley.
3. Diabetes Mellitus. E. T. Woodyatt.
4. Conclusions Concerning the Use of Radium. C. J. Broeman.

2. An Important Step in the Technique of Cholecystectomy.—Murry N. Hadley stresses the point that the greatest single danger in cholecystectomy in the uncomplicated interval case is hemorrhage. This hemorrhage may occur from two sources—from the slipping of the ligature of the cystic artery, and from the traumatized inferior surface of the lobe of the liver from which the gallbladder has been detached. This latter source constitutes the greatest danger. A secure ligature can be placed on the cystic artery with every confidence that it will remain and prevent hemorrhage. Hemorrhage from the denuded under-surface of the liver can neither be prevented nor controlled by ligature. This hemorrhage is a venous ooze from the raw surface of the liver coming from injured biliary veins. It may not occur at the time of operation, the gallbladder bed appearing dry immediately following removal. The only way to insure the prevention of this kind of hemorrhage is to prevent actual injury to the liver substance. To accomplish this, one must remove the gallbladder in such a way that the liver is not traumatized. This can be done by making the incision which encircles the gallbladder attachments through its peritoneal and muscular coats down to the mucosa. The line of dissection should aim to leave as much of the gallbladder wall attached to the liver as possible. As the blood supply of the gallbladder wall comes from the cystic artery, ligature of this artery will control all hemorrhage if the line of dissection is made as above described. The structure of the liver is not entered and hence no hemorrhage will occur from its surface.

Book Reviews.

TEETH AND HEALTH: HOW TO LENGTHEN LIFE AND INCREASE HAPPINESS BY PROPER CARE. By THOMAS J. RYAN, D.D.S., and EDWIN F. BOWERS, M.D. New York and London: G. P. Putnam's Sons; the Knickerbocker Press, 1921.

A MIGHTY interesting subject is this, written in a snappy, up-to-date style which holds the attention of the reader and before he realizes it he is well into the middle of the book. The combination of authors assures this interest, for Doctor Bowers has written quite extensively on preventive medicine, especially for the laity, until he has literally drummed health and its advantages into the ears of a heedless world. Doctor Ryan, in no uncertain terms, has given sufficient knowledge of teeth and their relation to health and disease to more than startle Doctor Bowers' already prepared public.

One might be tempted to say that while this book is the last word in popular medicine, it has one of the glaring faults of so many books of today. It is too full of knowledge which is not sufficiently worked out in detail. Just as one becomes interested in a particular thought, or argument, Whisk! Presto! The big black headline of a new paragraph containing another point or argument is presented and one's mind has to perform a circus tumble to keep up with the rapid-firing change of topics.

After having read the book, the feeling of having been rushed through the subject-matter of dentistry, *Streptococcus viridans* and the frightful harm it can do, mouth washes, chewing gum, crooked teeth, twisted brains, the real meaning of teeth, etc., is full upon the reader. A quick-drawn breath, a pause for air, the book is put down, and if the reader does not rush off to the nearest dentist, wild-eyed, with all the primitive in him (or her) demanding truth, then it will not be because the authors have not done their best to impress upon him the importance of his dental health and the dire results of not possessing thirty-two immaculate teeth. The book is practical, fairly scientific and enjoyable, but like most things in life needs a big dose of commonsense to be taken along with the reading.

DER GYNÄKOLOGISCHE OPERATIONSKURSUS. Mit besonderer Berücksichtigung der Operations—Anatomie, der Operations—Pathologie, der Operations—Bakteriologie und der Fehlerquellen in sechzehn Vollesungen. Von Professor Dr. WILHELM LIEPMANN, Privatdozent für Gebürtshilfe und Gynäkologie an der Friedrich Wilhelms-Universitat zu Berlin. Dritte, neudurchgesehene Auflage. Berlin: August Hirschwald, 1920.

THE first and second editions of this atlas appeared in 1911-12 and the appearance of the third was necessarily delayed by the war. The excessive costs of bookmaking made it necessary to omit many new illustrations. Nevertheless, the number of the latter reaches 409, the majority in more than one color. The large vascular trunks are commonly represented in red and blue, muscular tissue in pink, bone and connective tissue in yellow, etc. The number of pages of text is increased from 456 to 488. The author apologizes because the highly calendered paper of the earlier editions is replaced by the dull finish product of the postbellum period.

UEBER DIE ENTWICKLUNG UND DEN AUSBAU DER SUPRASYMPHYSÄREN SCHNITTENTBINDUNG AN DER UNIVERSITÄTS-FRAUENKLINIK, TUBINGEN. Von Dr. EMIL VOGT, Oberartz der Klinik. Berlin: S. Karger, 1921.

THIS brochure covers both the classical and the abdominal cervical or extraperitoneal cesarean sections. The following comparison is found at the close of the book: the author has collated 778 cases of extraperitoneal section from 10 clinics in which material 17 mothers and 11 children were lost. This is compared with the same number of intraperitoneal sections from a great variety of sources in which the figures were very slightly lower, although practically identical. But in the future it is apparent that the intraperitoneal cervical section will displace the extraperitoneal method, and will also wholly dispense with the classical cesarean section.

DIE THERAPIE DER PLACENTA PRAEVIA. Von Professor Dr. F. HITSCHMANN. Berlin: S. Karger, 1921.

THIS brochure of 174 pages comprises sections on the mortality of child-bed fever, the doctrines of Krönig and Sellheim concerning placenta previa, and the author's personal research into the course of the afterbirth period, the causes of hemorrhage in placenta previa, and combined version, metreurysis and cesarean section in the management of the condition. He has assembled nearly 6000 cases of placenta previa in the aim of determining the cause of fatal hemorrhage. Of this number 236 bled to death—about 4 per cent. In one-half of these the blood came chiefly from the placenta, but in 34 per cent. its source was rupture of the cervix (or uterus), while in small fractions hemorrhage was due to atony of the uterus or adherent placenta. The management must therefore depend on the correct diagnosis of the source of the hemorrhage.

THE WASSERMANN TEST. By CHARLES F. CRAIG, M.D., M.A., F.A.C.S., Lieutenant Colonel, Medical Corps, United States Army; Professor of Bacteriology, of Parasitology and Preventive Medicine, and Director of Laboratories, Army Medical School, Washington, D. C. Formerly Curator, Army Medical Museum, and Commanding Officer, Yale Army Laboratory School. Second edition, revised and enlarged. Illustrated with colored plates, and sixty-one tables. Price, $4.25. St. Louis: C. V. Mosby Company, 1921.

IN the main this volume deals with the Wassermann test, the essential feature of which consists in the use of the antihuman amboceptor system presumably made necessary in Army laboratory work at such posts where the supply of antisheep amboceptor would be unobtainable.

Although the volume deals largely with a discussion of the Craig system for conducting the complement fixation test in syphilis, other standard methods are included, such as the Hygienic Laboratory modification (antisheep amboceptor), Noguchi's modification, Kolmer's modification and others. A few pages are devoted to the study of the effect of low temperatures in incubating the complement antigen and patient's blood serum, a procedure that receives much attention in the hands of modern investigators.

In addition to an authoritative discussion of the Wassermann test the serology of the cerebrospinal fluid and its characteristic changes in disease are also discussed. A carefully selected bibliography is included.

LES CARDIO-RÉNAUX. Etude Théorique et Pratique par le Docteur O. JOSUÉ et le Docteur MAURICE PARTURIER. Monographies de Cardiologie Clinique publiée sous la direction du Dr. O. JOSUÉ. Paris: E. Le François, 1921.

THE first chapter of this small volume is devoted to the socalled spurious cardiorenal subject who suffers primarily from asystolia, the renal lesions being those of stasis only. These subjects like the true cardiorenal present oliguria, hydremia, azotemia, albuminuria, edema, etc. This condition may also end in uremia. The true cardiorenal subject has primary renal retention with secondary cardiac involvement. There are several syndromes in which the cardiac or renal symptoms may predominate. Chapter III is devoted to physical diagnosis and tests of renal permeability, etc., while Chapter IV deals with the general principles and detailed application of treatment.

MOTHER AND CHILD. By EDWARD P. DAVIS, A.M., M.D. Professor of Obstetrics in the Jefferson Medical College, etc. Fourth Edition, Revised. Philadelphia: J. B. Lippincott Company, 1921.

THE first edition of this work appeared in 1902 and the third in 1911. Nearly a decade, therefore, has elapsed between the present and last editions. The author states that the book has been brought up to date and numerous additions made to the text, including facts of recent interest concerning the care of the mother and the latest advances in infant feeding. The book, however, is really an abridgment of the much more pretentious volume published originally by the author and Keating in 1902, which contained 472 pages as compared with the 278 pages of the present volume.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW JERSEY.

One Hundred and Fifty-fifth Annual Meeting.
Held at Atlantic City, June 14-16, 1921.

DR. PHILANDER A. HARRIS OF PATERSON, PRESIDENT, IN THE CHAIR.

First Day—Tuesday, June 14.

The Late Results of Gastroenterostomy for Chronic Ulcers and Acute Perforating Ulcers.—DR. EUGENE H. POOL of New York City read an oration in surgery with this title. The paper was an attempt to investigate the merits and demerits of this procedure in a total of 75 cases, 8 per cent. of which were in the vicinity of the pylorus. The proportion of gastric to duodenal ulcers could not be accurately stated. Posterior gastroenterostomy was performed in all but one of the cases. In 30 cases, something more than gastroenterostomy was done. Five of patients died. An effort was made to estimate the late functional results in the other 70 patients, but only 54 cases were traceable. These were followed for periods varying from six months to six years. In 40 of the 54 cases followed, the ulcer had been parapyloric. Of these cases, 82 per cent. were apparently successful, and 18 per cent. were failures. Forty, or 70 per cent., of the 54 patients whose cases were followed were well at the last report, and complained of no untoward symptoms. In 11 cases, the results were poor. The speaker placed stress on the necessity for keeping the cases under supervision after the operation. In regard to acute perforations, he stated that little mortality followed operation within six hours; but that after that period, the mortality would increase. Operation as late as twenty hours after an acute perforation gave a mortality of 60 per cent. He thought that perforations could be avoided to a considerable extent by timely treatment of chronic ulcers. In closing perforations, the sutures should be placed so as to avoid obstruction of the pylorus. He stated that two out of three patients would do well after closure of the perforation only; but that a definitely indicated late gastroenterostomy in these cases was better than an unnecessary prophylactic gastroenterostomy in the beginning. With more care in the operative procedure and proper regulation of these cases, he thought that better results would be obtained. Although the series was small and the cases had been followed for indefinite periods, the author considered that some significance might be attached to the analysis of these results. While it was unknown at what period after operation freedom from symptoms might be taken to indicate permanent relief, he said that in no case did a recurrence of the symptoms begin later than fifteen months after the operation.

A Survey of Modern Medicine; Newer Methods in Diagnosis and Therapy.—DR. MARTIN J. SYNNOTT of Montclair read this paper as the Oration in Medicine. In answer to the question sometimes asked, whether, with all the new agencies, human life had been greatly lengthened, he stated that in his opinion it had been. He based this opinion upon the statistics of a reliable life insurance company. In a group of sixteen million insured wage earners, the death-rate in 1920 was nine per cent. less than in 1919, and 25 per cent. less than in 1911. There had been a reduction of two-fifths in the death-rate from tuberculosis in nine years, which meant a considerable addition to the life span of the working population of the United States and Canada. According to vital statistics, the average lifetime in the United States in 1896 was 22.7 years, and had risen gradually to 38 years in 1910. When the economic and living conditions among the poor and the industrial groups of the population became sufficiently improved, the speaker thought that much greater progress would be possible. This had been demonstrated at Framingham, Mass., where the campaign of education and nursing conducted by the Community Health Center had produced a marked decline in disease incidence. With greater knowledge in preventing and controlling various epidemics, infections and accidents, and with a greater knowledge of the cause and treatment of metabolic disorders, he believed that they might look forward to a new era of health and efficiency. Preventive medicine, he said, must begin in childhood. Physicians must learn the principles of proper infant feeding and the application of child hygiene. Preventive medicine and surgery had already accomplished much, but would, he thought, accomplish much more in the near future. There must be effective coordination between the internists and the specialists. The dentist and the oral surgeon must keep abreast of modern progress, and there should be a close understanding between them and the medical man.

Carcinoma of the Rectum.—DR. GEORGE J. SOMMER of Trenton, in presenting this subject, confined himself to the symptomatology and diagnosis of the cases in their early stages. He considered cancer of the rectum and pelvic colon curable by surgical means, if recognized early, and said that lack of diagnosis depended on insufficient investigation and examination, and upon poor interpretation of the history. The use of the rectal touch and the proctoscope, supplemented by the *x*-ray and the search for occult blood in the stools, would, he believed, greatly help one to make an early diagnosis, and thus reduce the lamentable results now obtained in this class of cases.

DR. HENRY B. COSTILL of Trenton thought that a campaign of education would be necessary before these cases could be seen early enough for operation to be of any value. Even the particularly good mortality that Dr. Sommer had reported, the speaker considered rather discouraging. He called attention to some of the early symptoms that were often overlooked, the physician believing them due to hemorrhoids, such as a little indefinite pain along the sacrum, a little mucus in the stools at times, possibly a little blood stain, and sometimes a little free blood. He felt no doubt, after many years of observation, that a tendency to cancer was very often hereditary.

DR. GORDON K. DICKINSON of Jersey City called attention to another symptom, gastralgia at the time of evacuation or just before, disappearing shortly afterward, and said that this symptom might be present for months before the patient showed any other. He thought that it was best to call cases of piles rectal carcinoma until they were proved not to be such. After colostomy, dieting and other preliminary care, he considered no surgical procedure more satisfactory than to push a tube into the anus, suture it there and wait.

The Nursing Problem in New Jersey.—DR. GORDON K. DICKINSON of Jersey City presented a short paper on this subject, in which he stated that he had suggested that the Association of Nurses approach the hospital in the same way as was done by the American Medical Association. The nurses being sisters in medicine, he thought that the medical profession should join with them for their mutual benefit. He said that the medical profession had been derelict more than once in failing to note what the public needed and to give it to them. Thus arose the various "pathies." He thought it would be well to suggest to the nurses that there was a public need of nurses for the sick of the middle class, that the trend toward salaried positions was too great, and that the idealism of the early martyrs of the nursing profession was not the ideal of every nurse at present. If this condition were to continue, and some way were not found to increase the number of women entering the training schools, he was of the opinion that the nursing profession would be extinct in another generation or sooner, or that the legislature might rudely intervene.

DR. ALEXANDER MCALLISTER of Camden stated that only the daughters of well-to-do people got a college education and they were not keen on going out to do nursing. He did not think that the medical profession could afford to let things go on until it was made impossible altogether for ordinary healthy, sensible, ambitious girl to train because her family had not had the means to provide her with a high school or college education.

DR. JOHN C. MCCOY of Paterson had changed his

viewpoint in recent years concerning the matter. He had believed in the higher education of nurses, but he now thought that there was a great demand for women such as they had previously obtained from the training school. He believed that the time was quite near at hand when two classes of women would be trained for nursing, one capable of filling the various positions offered them in the outside world, and the other to do the work of daily nursing. He said that he differed with Dr. Dickinson on one point, because he had found in his own part of the state that not even those who could well afford to pay for it could get proper nursing service in many cases.

Dr. DICKINSON of Jersey City said that he had meant to explain that the nurses immediately get on the defensive if you direct them; and he felt that it was more politic for the present and immediate future to put the whole responsibility on them. He thought that they should tell the nurses to get busy and solve this problem, and that if they did not do so right away, the doctors would solve it for them.

A Review of the History of Medicine.—Dr. PHILANDER A. HARRIS of Paterson presented this paper as the President's Address, in which he considered the various cults in chronological order, from the most ancient times to the preseit day, beginning with Hippocrites and ending with the osteopath and the chiropractor. He then considered specialism as it exists in the regular medical profession, there being thirty or more specialties. He thought that there should be but one school of medicine, whose members should be at liberty to use any agency, however obtained, and, if they so desired, in the matter employed by any of the healing cults.

The Electrocardiograph and Its Clinical Applications.—Dr. HARVEY M. EWING of Newark said that the electrocardiograph would diagnose the irregularities of rhythm, some of which could not be diagnosed otherwise; various types and degrees of heart block; and myocardial disease, in a constantly increasing number of cases. He considered the instrument of great value in checking therapy, especially when digitalis was being used. He stated that the instrument would not show valvular disease nor the functional capacity of the heart; but that it would show tachycardias, the preponderance of one or the other ventricle, and irregularities of systole. He stated that the instrument consisted in a very delicate string galvanometer and a recording apparatus. The galvanometer was composed of an electromagnate between the poles of which was suspended a very fine fiber of conducting material. Through this string passes the electric current from the heart; and, according to the old law of physics relating to the conductor in a magnetic field, a string will be deviated in one or the other direction, the extent and character of the deviation depending practically upon the extent of the current from the heart, its direction of flow and its duration. The movements of the string are projected by a light through a series of lenses upon a moving sensitized film, which photographs the resulting curve.

Dr. LOUIS R. BLANK of Newark stated that McKenzie had demonstrated a simultaneous contraction of the ventricle and auricle to be one of the most important signs of impending death. This was solely a muscular contraction, and had nothing to do with the bundle of His. Another thing to which the speaker called attention was a lymphatic pulse, showing a weakness and dilatation of the auricle.

Experience in Reconstructive Bone and Joint Surgery.—Dr. ROBERT E. SOULE of Newark, in this paper, took up osteomyelitis; Pott's disease; osteoarthritis of the spine, hip and knee; bone grafting in fractures; treatment of flat-foot; permanent correction of club-foot; and operative correction of deformities of the long bones. He said that in osteomyelitis, one should not think only of the immediate result, but also of what the ultimate outcome was to be. The treatment of the shaft should go hand in hand with that of the acute infection. He stated that regeneration was not to be expected in pure tuberculosis. For this to occur, there must be a mixed infection.

Dr. BASSIN of Poughkeepsie, N. Y., said he had found that the pin graft was very excellent, but that the joints were very painful unless there was complete arthrodesis. An arthrodesis could be done in children, but not in adults. In cases of paraplegia, Dr. Bassin always did a lengthening of the tendons. In flat-foot, he had been taught that there was always a luxation of the astragalus; and that therefore the deformity could be corrected without an open operation. He was inclined to believe that too much reliance could not be placed upon a bone transplant or bone peg. Unless the patient was in very good health, there would be a tendency to subsequent infection and osteomyelitis.

Dr. H. D. CORBUSIER of Plainfield said that a great many cases of bone graft considered successes really were not. He thought that the reason was that they had not waited long enough after the healing had taken place before putting in the graft. He thought that a bone graft should not be attempted in less than six months unless the wound had healed by primary union. By means of physiotherapy, the speaker stated, a person could be gotten to work much sooner. Dr. Corbusier had seen cases of spasticity in which early tenotomy would have been very beneficial. In regard to putting a bone pin in the astragalostaphoid joint, he had thought that it was not the thing to do so in many of these cases. In a young person, he did not think it was necessary, although it gave a little better arch.

Dr. SOULE said that he had had a case in which there was pain for three years after the operation, but that the vast majority of the patients had gotten along very well. He said that there were some devices that could be used to guide the foot and keep it from a pronated position.

Dr. F. W. PINNEO of Newark said that it was clear that one could expect the bone to grow in its new site and to have static and dynamic recovery. He thought that if they could awake in the soldiers an interest in their reconstruction occupation it would be a valuable therapeutic aid.

Dr. G. H. SEXSMITH of Bayonne mentioned the treatment of hip joint disease in the Lorenz clinic, and said that the plaster casts were applied with an immense amount of cotton giving the child a chance to wear the case for two years without its causing pressure. He asked Dr. Soule to state what he thought about the relative merits of the use of the plaster cast and that of the brace, with a raised shoe on the other side. Dr. Sexsmith said that he would say that the bone graft should not be put in for six months after healing in ordinary infection, and not until a year afterward in tuberculous infection.

Dr. SUTPHEN of Newark thought that Dr. Soule had neglected to mention the fact that one frequently found a fair number of people who did not have the so-called osteogenetic power to carry out the supposed result of the bone graft.

Dr. SOULE said that one did sometimes run across cases that seemed to have a lack of activity in bone generation. He recalled only two cases in which he did not get final union. One was in the spine and he attributed the bad result to employing old kangaroo tendon. In the other case he attributed it to allowing weight bearing too soon. Dr. Soule considered fixation the preferable method if it could be maintained for a long enough time to control the situation. The relaxed foot, he said, was the condition which this pin arthrodesis really applied. It would lead on to more deformity if not so treated.

Second Day—Wednesday, June 15.

Address of the Third Vice-President.—Dr. WELLS P. EAGLETON of Newark thought that doctors should realize that in certain diseases, personal manipulation of the patient is a valuable therapeutic measure. He believed that this not only gave the patient the impression that they were actually doing something for him, but that the personal attention and manipulation actually did do something for him, scientifically and psychologically. He thought that medical men were too careless about trivial matters. They should be more definite in their directions to their patients. For instance, if they told the patient to take exercise, he might simply take a walk the next day and then stop. He thought they had often gone astray in their diag-

nosis because of this lack of attention to details. Because a patient has scarlet fever, a self-limited disease, they should not neglect trying to relieve the sore throat and the headache. The medical profession should realize that they must become an important part of the body politic. If the physician was not a public citizen, the average mediocre man would have lost the uplifting influence of the more intelligent part of the community. It was their duty to instruct the politicians in all matters pertaining to public health. It was their duty to supply the nation with the expert knowledge that it should have on health matters. There should be a Secretary of Public Health in the Cabinet of the President of the United States. In Congress and in every Legislature, a certain proportion of the members should be physicians. If the Republic was to continue, every educated man would have to make himself a factor in the political arena.

Surgical Treatment of Burns with Special Reference to the Acetic Acid Treatment.—Drs. GEORGE M. DORRANCE and LOWRAIN E. MCCRAE of Philadelphia presented this paper, which was read by Dr. Dorrance. He said that in the acetic acid treatment, they were attempting to overcome the pathological changes that occurred in burns. They considered the results obtained by this method of treatment superior to those from others for the reason that it more nearly fulfilled the requirements. Under the ordinary treatment of burns, he stated, one would notice that on the third or fourth day there was a gradual rise in temperature and an increase in pulse-rate. At the same time, the slough would become generalized and encrusted throughout the injured area. Underneath the crust, a chemical change was taking place, due to the formation of toxalbumins, the absorption of which was productive of a rise in temperature and toxic symptoms. To overcome this, they used one-half of one per cent. acetic acid in water. They had found that the acetic acid absorbed the crusts and the underlying material from around the edges, but was unable to penetrate the crust. To prevent the absorption of the toxalbumins and to allow the acetic acid to penetrate, they made multiple crisscross incisions with a knife or wet-cup blade, and immediately applied continuous wet dressings of one-half of one per cent. acetic acid. Each day thereafter, it was possible to remove small amounts of slough with forceps and scissors; or they would float away of themselves in the daily bath of bicarbonate of soda that was given the patient. By this method, the length of treatment of the burn was perceptibly lessened. They had not encountered the complication of tetanus since using this method, but they did not consider this any reason for not giving tetanus antitoxin.

Dr. E. S. CORSON of Bridgeton suggested the use of the positive pole of the galvanic current in the treatment of keloid. A four per cent. solution of theocinamin with salt solution in glycerin had had a good effect on bad contractures on the back of the hand.

Dr. H. I. GOLDSTEIN of Camden remarked that the most important consideration in severe burns was to save the life of the patient. The fact that many of these patients died of severe acidosis, he considered of the greatest importance. He asked whether Dr. Dorrance had found acidosis diminished by this method of treatment. He thought that if they could find out what caused the formation of keloid in the negro, in preference to the white person, it might lead to their finding some better method of prevention.

Dr FRANK DEVLIN of Newark did not agree with Dr. Dorrance regarding the percentage of takes in skin-grafts. He thought that a great deal depended on the tone of the skin and the treatment prior to the application of the skin, as well as on the method employed.

Dr. W. J. CHANDLER of South Orange said that the negro was more subject, also, to fibroid tumor than the white person. He wondered whether there might not be some histological connection between keloid and fibroid tumor.

Dr. BASSIN of Poughkeepsie said that in treating burns about the neck or abdomen in children, he thought the Bradford frame or some other old-fashioned frame was better than the Balkan frame. Burns about the neck should be treated like a wry neck.

Dr. CHANDLER said that skin tumors, or cancers, were extremely rare in the negro race.

Dr. DORRANCE said that he had used four per cent theocinamin, but he did not apply it with the electrical method. He injected it under the skin, and then massaged it in. The results from its use were not very good. He had found acidosis common, but had not had much trouble from this source since using the Murphy drip. He gave the patients large amounts of water internally, and a daily bath in bicarbonate of soda solution.

Hay Fever and Its Treatment with Glycerinated Pollen Antigen.—Dr. R. A. CLOCK of Pearl River, N. Y., stated that tests had shown that the majority of persons who were sensitive to one pollen were also sensitive to other pollens of the same biological group; so that an extract of one pollen or any combination of pollens of one group could usually be employed to test or treat persons who were sensitive to pollens belonging to that same group. To produce uniform results, the pollen extract used must be constantly of uniform potency. Pollen proteins, when extracted in physiological salt solution or in dilute alcohol, would become denatured and lose most of their specific antigen properties in three or four weeks. Such extracts, therefore, were uncertain in their action as desensitizing agents, unless used when freshly prepared. Pollen antigen prepared by extracting the dried pollen in 66⅔ per cent. glycerole and 33⅓ per cent. citrated sodium-chloride solution, formed a stable preparation, not losing its antigen properties after having been stored in the ice-box for twenty-two months. A chemical analysis for antigen content, he did not consider a reliable method for determining the antigen power of pollen extracts, because it did not differentiate between the antigenicity of active protein and that which was inert or denatured. Glycerolated pollen antigen was standardized in pollen serum of the complement fixation method, which accurately determined the amount antigenically active pollen protein, and thus insured accurate dosage. Dr. Clock further stated that not only did the glycerolated pollen antigen possess the antigenic principles of freshly prepared aqueous or alcoholic extracts of pollen, but it also exceeded such preparations in that respect. The antigen substances of pollen were more completely extracted by the glycerolated chloride method than by any other yet described. The dosage consisted of fifteen doses of a gradually increasing number of pollen units. When treatment with this accurate dosage was started six weeks before the hay fever season, the patient was usually rendered refractory to large amounts of pollen during the pollinating season. According to an analysis of 1972 clinical reports from physicians in all sections of the United States who had used the glycerolated pollen antigen method during five consecutive years, it showed a protection or relief from symptoms in 84 per cent. of the cases, with a remarkable uniformity of favorable results each year in every locality. These favorable results were indicated by complete absence of hay fever; mild hay fever symptoms lasting only a few days, in those patients not completely protected; the fact that the attack was shortened by treatment during the hay-fever season, and the symptoms made milder; asthmatic symptoms being prevented or rendered milder and less troublesome; and the possibility of patients remaining in their homes and at their usual work during the hay-fever season for the first time in years. In view of these favorable results, the author thought it fair to state that the method of giving prophylactic injections of the glycerolated pollen antigen early in the season offered the best means of any method thus far advanced for the preventive treatment of hay fever. It would no longer be necessary to forsake business during the summer months and retire outside the zone of the offending pollinating plants, which was formerly the only rational therapeutic measure, and one that was expensive and time-consuming. With the glycerolated pollen antigen treatment, however, the majority of hay-fever sufferers were very successfully desensitized, and could continue to transact their business in their accustomed surroundings. He said that the value of this treatment had been definitely established.

Dr. W. B. JOHNSON of Paterson asked where the antigen referred to could be secured. He thought it desirable to know this, because, by using four different kinds of antigen, the whole field could be covered.

Dr. CHARLES J. CRAYTHORN of Trenton said that his daughter was suffering from hay fever, and that he had tried everything that he had ever heard of in the hope of benefiting her, but that every method of treatment had proved a complete failure. He also had a physician friend whose wife had the same trouble, and none of these serums or antitoxins had done her any good. One firm had prepared a special one for his daughter, but that also was a failure. He said he would be glad to try Dr. Clock's method.

Dr. H. I. GOLDSTEIN of Camden spoke of an instance in which so-called hay fever had been produced by the very free use of face powder made from rice. The perspiration in the summer induced her to use it more freely at that time, with the result that it caused a hypersensitiveness to it. In order to discuss such a broad subject intelligently, he thought one would have to consider asthma and various anaphylactic states, which time would not permit.

Dr. E. S. CORSON of Bridgeton stated that the various preparations of extracts of pollen by the leading houses in the United States had given him satisfactory results. He had had a number of patients who had been subject to hay-fever attacks annually for a number of years, and who had been relieved by these preparations.

Dr. YATES of Paterson stated that he had been a victim of the disease for thirty years. The attacks had varied in length and intensity, but had never been absent altogether. His mother had had the same trouble. He had tried a great many methods of treatment and a great many resorts. His attacks had been worse in the last few years, following influenza. He had had to spend the whole of the preceding summer in the White Mountains, and he told of the conversations on the subject of hay fever that he had had with different sufferers from it that he had met at Bethlehem; many of them were doctors from all parts of the country. He had attended a convention of a society for the study of hay fever, founded by Benjamin Franklin. This society, after all its study, had never been able to determine the cause of the condition. His conclusion, after talking with hundreds of people, listening to many discussions, and reading practically everything written on the subject, was that there were a certain number of persons that would not respond to treatment, no matter what was done.

Dr. CLOCK said that it was not necessary to use four antigens. Four were made, in which different products were used, depending on the section of the country. Ninety per cent. of the people in the East could be treated with one of two extracts: extract of timothy, if sensitive to grass pollen, for the socalled spring hay fever; or extract of ragweed pollen, if of the fall type.

The Importance of Careful Diastolic Blood Pressure Observations in Cardiac and Cardiorenal Disease.—Dr. CLARENCE L. ANDREWS of Atlantic City said that in reviewing most of the records of the past one would be struck by the great discrepancy between the various readings that had been found. He thought that this was due to one of three things: a difference in clinical material used, a difference in the apparatus employed to get the data, or a difference in the interpretation of the results found. On account of this great discrepancy between the blood-pressure readings in different clinics, he had made a study of these cases to see whether he could find wherein the cause of the difference lay. As the result of this study, he had concluded that the early discrepancies in blood-pressure readings had been due to the method used, that of taking only the systolic pressure. He said that the cause of hypertension was not definitely known, but that the evidence seemed to point toward the diastolic pressure as being of diagnostic value, suggesting in what degree the body was eliminating. When found to vary from the normal in a case, he believed that it demanded of the doctor an explanation, even though the systolic pressure was apparently normal. Hypertension cases found in women about the time of the menopause usually tended to right themselves, and need not give one very grave concern. There was an apparent relation between the diastolic pressure and retention of toxic products in the body. In one of his cases this condition did not respond to ordinary methods of elimination, but responded quickly to alkaline treatment. In another case the blood pressure could not be lowered by ordinary means. Such a condition, he thought, should give a grave prognosis, in spite of the absence of symptoms. Another patient had a normal systolic pressure for the age of the patient, but with a diastolic pressure that was checked up by the blood-chemistry findings and showed beginning protein retention. This case cleared up by the use of methods of elimination. This picture should suggest an abnormal condition and a demand for the doctor to look into the cause further. A fifth patient showed how a case, under cardiac strain, might be prognosticated by watching the relationship of the diastolic and the systolic pressure; and also how easily one could be misled, if he took the systolic pressure alone.

Dr. PHILIP MARVEL of Atlantic City thought that there had been more importance placed on the mere reading of the units of hyper- and hypotension than the subject deserved. Hypertension, like fever, he said, was a manifestation of a disease. One should go back of the manifestation and try to find means to conquer the disease. Dr. MARVEL divided socalled hypertension into three divisions: that due to atheroma, that due to endarteritis, and that due to arteriosclerosis. The former two groups could be dismissed, because treatment could have little effect on the changes due to them. In dealing with the last, arteriosclerosis, one should bear in mind that it was a complex condition, involving not only the artery and the myocardium, but also physical changes in the glandular activities of the body. If the arteriosclerosis was engrafted upon an infectious disease, caused by a streptococcus, the physician must have in his mind the arterial and glandular changes incident to that disease. He said that in a normal individual the stimulation of the muscular activity required in raising the position from the horizontal to the perpendicular was manifest in the heart stimulation and activity, the systolic pressure rising, and the diastolic slowly declining; whereas the reverse took place in a pathological condition of the heart. This should teach us that the blood pressure is only the measurement of the resistance in the cardiovascular cycle, plus the amount of force that the ventricle throws into the blood-stream.

Dr. LOUIS N. BLANK of Newark referred to the oscillating systolic blood pressure, which he distinguished from the fluctuating pressure met with in every individual, irrespective of pathological changes. He meant that there were various waves that could be felt when the patient remained in the same position. This oscillating systolic pressure usually produced a high pulse pressure. He then referred to the high blood pressure often found in the menopause, and said that very often the physician, on that account, thought that the patient was going to have an attack of apoplexy. If there was no pathological condition in any of the organs, skatol, in the gastrointestinal tract, might be responsible for the high blood pressure. This was merely a functional disturbance.

Dr. H. I. GOLDSTEIN of Camden stated that affections of the circulatory and renal system were definitely on the increase. In order to recognize and value the pathological indications of blood-pressure variations, he said that it was necessary to know thoroughly the causes for changes in blood pressure during health. It was important to make repeated blood-pressure examinations under most favorable and varied conditions before reaching a decision. Diastolic and systolic blood pressures were affected unequally by posture, exertion, etc. The diastolic pressure tended to vary less than the systolic under most of the conditions that increased tension. The arrhythmias made blood-pressure readings, especially the diastolic, difficult.

Dr. JOHN M. GRAY of Newark thought that the prognosis depended very largely upon whether or not the hypertension was associated with kidney lesions.

Dr. ANDREWS said that although men often said that it was useless to take the blood pressure, because it presented so many variations, he personally thought

that it was as useful as any information that one could obtain. A great variation in the pressure at different readings indicated myocarditis. In regard to skatol, he said that there was a relationship between the amino-acid group and the blood nitrogen urea; and he believed that there was a relationship between these and the diastolic pressure. He thought that it did not matter how the systolic went up and down, if the diastolic could be gotten to stay still. He agreed with Dr. Gray about the effect of renal lesions.

Clinical Pathology of the Thyroid Gland.—Dr. JOHN P. REILLY of Elizabeth, in this paper, stated that chemistry played the principal rôle in determining the active principle of the toxic secretion, with its various manifestations, as exhibited in the subjects, giving a better understanding of the goiter syndrome, and pointing out the safe and danger scale in its course of treatment. This newer knowledge he considered valuable, especially in the class of cases heretofore too puzzling to permit of diagnosis; namely, the thyrotoxicosis of the adenoma type. He thought that the clinical pathology of the thyroid gland was now in a fairly acceptable form.

Dr. JOHN F. HAGERTY of Newark thought that goiter was a much more common ailment than was generally understood. He did not consider the diagnosis of thyroid poisoning easy, and said that many patients who complained of tiring easily, indisposition to work, lack of energy, lack of interest, and palpitation of the heart on slight exertion, were often suffering from hyperthyroidism. This was not recognized, because there was no appreciable tumor in the neck. Large colloid tumors were usually not toxic. In the severely toxic cases the gland did not enlarge because the poison was absorbed as rapidly as it was produced. Unless the condition was diagnosed early, he said, it would have advanced so far that it could not be helped. No better treatment for toxic goiter was known than the surgical. Rest in bed was the best alleviating measure. These patients the speaker considered to be in a state of unstable equilibrium, and he said that the slightest shock would topple them over and cause death. They should be treated with the greatest care. They wasted rapidly, because of the increased metabolism; so they should receive large quantities of carbohydrates. They should not be operated on, unless they could be brought into proper condition to stand the procedure. The basic metabolism records had, he thought, come nearer to furnishing precise data as to when to operate and how far the operation should go than anything else.

Dr. J. W. GRAY of Newark said that the basic metabolism test was so complicated that it was not possible for the majority of workers to make it. He mentioned that preliminary reports had been given on a new complement-fixation test for picking up the protein products in the blood. This test was simple, and would prove to be as valuable as the basic metabolism test.

Dr. H. I. GOLDSTEIN of Camden emphasized weakness as a lead toward the diagnosis of a hyperthyroid condition; and also loss of weight and toxemia. After ruling out tuberculosis, these should lead toward the diagnosis of hyperthyroidism, even without goiter. He considered Sippy's test valuable, and said that a marked blanching of the conjunctiva following it meant a disturbance of the endocrines of the thyroid. In many of these obscure cases, none of the tests could be depended upon.

The Election of Officers resulted as follows: *President*, Henry B. Costill, Trenton; *First Vice-President*, James Hunter, Jr., Westville; *Second Vice-President*, Wells P. Eagleton, Newark; *Third Vice-President*, Alexander McAllister, Camden; *Recording Secretary*, William J. Chandler, South Orange; *Corresponding Secretary*, Harry A. Stout, Wenonah; *Treasurer*, Archibald Mercer, Newark.

Neurodermotropic Syphilis.—Barthelemy and Bruant report a remarkable case in which the two types of syphilis were remarkably combined in one subject. After developing tabes with blindness he showed many years later gummata of the palate with extensive ulceration and still later cerebral apoplexy. The duration of the disease had now been 30 years with Wassermann still positive.—*La Presse Médicale.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

TUBERCULOSIS AND HOW TO COMBAT IT. By FRANCIS M. POTTENGER, M.D. 273 pages. Price, $2.00. Published by C. V. Mosby Company, St. Louis.

PEKING UNION MEDICAL COLLEGE ANNUAL ANNOUNCEMENT 1921-1922. 86 pages with illustrations.

THE STATE HOSPITAL QUARTERLY. Volume vi, May, 1921. No. 3. 440 pages. Price, 50 cts. Published by the New York State Hospital Commission, Albany.

PHYSICAL DIAGNOSIS. By W. D. ROSE, M.D. 736 pages with 309 illustrations. Price, $8.50. Published by C. V. Mosby Company, St. Louis.

TEXT-BOOK OF TRACHEO-BRONCHOSCOPY. By Dr. M. MANN. 297 pages with illustrations. Price, $9.00. Published by William Wood & Company, New York.

HYPERTHYROIDISM. Vol. i, No. 1, Harrower's Monographs on the Internal Secretions. Edited by HENRY R. HARROWER, M.D., F.R.S.M. (Lond.). Price, $1.50. Published by The Harrower Laboratory, Glendale, California

PRACTICE OF MEDICINE. By Dr. H. DAYTON. 328 pages. Price, $2.25. Published by Lea & Febiger, Philadelphia.

THE EVOLUTION OF DISEASE. By Prof. J. DANYSZ. 194 pages. Price, $2.50. Published by Lea & Febiger, Philadelphia.

FUNDAMENTALS OF BACTERIOLOGY. By Dr. C. B. MORREY. 320 pages with 171 engravings and 6 plates. Price, $3.25. Published by Lea & Febiger, Philadelphia.

MOUTH HYGIENE. By Dr. ALFRED C. FONES. 334 pages with 218 illustrations and 8 plates. Price, $5.00. Published by Lea & Febiger, Philadelphia.

INFECTIONS OF THE HAND. By Dr. A. B. KANAVEL. 500 pages with 185 engravings. Price, $5.50. Published by Lea & Febiger, Philadelphia.

ROENTGEN INTERPRETATION. By Drs. HOLMES AND RUGGLES. 228 pages with 184 engravings. Price, $3.25. Published by Lea & Febiger, Philadelphia.

NUTRITION AND CLINICAL DIETETICS By. Drs. CARTER, HOWE, and MASON. 703 pages. Price, $7.50. Published by Lea & Febiger, Philadelphia.

DISEASES OF THE SKIN. By Dr. O. S. ORMSBEY. 1166 pages with 445 engravings and 4 plates. Price, $10.00. Published by Lea & Febiger, Philadelphia.

AIDS TO ELECTRO-THERAPEUTICS. By J. M. REDDING. 196 pages with illustrations. Price, $1.75. Published by William Wood & Company, New York.

PATHOLOGISCH-ANATOMISCHES PRAKTIKUM. By Prof. RICHARD OESTREICH. 316 pages. Price, 54 marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

TASCHENBUCH DER DIAGNOSTIK UND THERAPIE DER LUNGENTUBERKULOSE. By Prof. H. GERHARTZ. 296 pages with 67 illustrations and 16 plates. Price, 72 marks. Published by Urban & Schwarzenberg, Berlin.

THE ALIEN TREATMENT OF DIABETES. By Dr. L. W. HILL and R. S. ECKMAN. 140 pages. Price, $1.75. Published by W. M. Leonard, Boston.

LEÇON INAUGURALE, L'ESPRIT DE LA MÉDECINE FRANÇAISE. By M. LOUIS RENON. 38 pages. Published by L. Maretheux, Paris.

MILCHDRÜSEN BEI DER BEVÖLKERUNG IN FINNLAND. By KAJAVA, SCHRODERUS, WALLENIUS, and WICHMAN. 108 pages with plates. Price, 20FMK. Published by Aktiengesellschaft Sana, Helsingfors.

THE SURGICAL CLINICS OF NORTH AMERICA. Vol i, No. 2. 587 pages with illustrations. Price, $12.00 per year. Published by W. B. Saunders Company, Philadelphia.

NERVÖSE ANGSTZUSTÄNDE UND IHRE BEHANDLUNG. By Dr. W. STEKEL. 672 pages. Price, 78 marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

DIE PROPHYLAXE UND THERAPIE DER ENTEROPTOSE. By Prof. L. KNAPP. 118 pages. Price, 42 marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

Miscellany.

From Portal to Laveran.—The first president of the *Academie de Médecine de Paris* was Portal, elected in 1820; and on the centennial anniversary Laveran is the incumbent in the chair. Of the several papers of historical nature read at the celebration that of Chauffard is of interest. When the Academy was first organized medical France was under the influence of three eminent men. Pinel, at the close of the eighteenth century, had published his nosology. Broussais, in 1816, had promulgated his peculiar views of pathology, which were grievously antagonized by the results of the coming science of pathological anatomy. Laennec had just come to the front with his physical diagnoses checked up by autopsies. Bouillaud, the disciple of Broussais, strove to keep up the latter's prestige before the Academy, while Louis, the successor of Laennec, endeavored to make good the thesis of the autonomy of abdominal typhus Pathological anatomy developed a body of men known as "organicists," who attributed disease to alterations in individual organs and laid great emphasis on physical exploration. Piorry devised a new nosology with all-Greek terminology. Among his innovations were the words toxemia and septicemia. Up to the era of Villemin the various departments of clinical medicine were well represented. Orfila was the great authority on forensic medicine, psychiatry was fortunate in the possession of Esquirol and his school, Ricord and his disciples played the same rôle in connection with syphilography, etc., etc. The vast work of Pasteur is familiar to all.

Of interest is the old work done in inoculating animals with syphilis and the attempts of Auzias-Turenne, in 1852, to cure syphilis by immunization. Not all the eminent medical men aired their life work before the Academy, two of the most eminent outsiders being Duchenne de Boulogne and Charcot, founders of modern neurology. In 1887 Cornil proposed to boil all drinking water when typhoid was prevalent, but the Academy did not officially advise this practice until several years later. The fecal origin of typhoid fever was first discussed in England in 1877, so that nearly a score of years passed before the gap between theory and practice was bridged. The problem of alcoholism has been before the Academy since 1850, and in 1870 Hardy showed its evil influence in erysipelas and pneumonia, and Verneuil in accidents, while the elder Chauffard made the same announcement for tuberculosis. Finally Magnan stated that alcohol opens the door of insane asylums, and Lancereaux studied absinthism and alcoholic cirrhosis.

In 1859 Piorry laid down the wisdom of certain therapeutic resources, such as the use of superalimentation and earthy salts, respiratory gymnastics and bandaging cavities in tuberculosis. The great work of Fournier on the parasyphilitic affections was threshed out at the Academy.

In regard to the germ theory the author resurrects the work of a country doctor, Jean Hameau, who, in 1843, read before the Academy a paper on what he termed "living virus." This substance is contagious, has an incubation period, and can regenerate itself. Quotations from his paper showed the remarkable anticipations of Pasteur's discoveries, the phraseology being often strikingly like modern expressions. The central figure of the century of Academy activities is clearly Pasteur, who dwarfs all others and who has inspired so much of the subsequent advances.

Davilla Rugosa, a Little Known Brazilian Medicinal Plant.—Batta, of the University of Liège, describes this plant in the *Archives médicales Belges* for January, 1921, lxxiv., 1. Some of its leaves were supplied to him by colleagues of Sao Paulo. In order to identify the species he states that originally it was known as the *Davilla Braziliana* and named for Davilla, the Peruvian botanist, who died in 1805. The plant was first used as a local application, its leaves being boiled to the point of softening as an application to inflamed surfaces. If conveniences for boiling were lacking a poultice was made from the cold, macerated leaves. Today the leaves, a watery extract of the same and sometimes a tincture are employed. The plant appears to exert an analgesic and vasoconstrictive action on inflamed surfaces, as in orchitis, hemorrhoids, varices, etc. It is said to be far superior in this regard to belladonna leaves, hamamelis, etc. It may be used in an ointment with lanoline and is exhibited internally in the form of a solid extract and pills. Applied to the mucosæ or abraded skin the remedy is analgesic. Given internally there is no apparent physiological action, in doses up to two grams daily. As is apparent from the native accounts of the use of this substance, it is purely an empirical resource. The author subjected the leaves to a pharmacological study. He found no evidence of an alkaloidal active principle, but there is a considerable percentage of tannic acid. It contains no hydrocyanic acid and has no reducing properties. The amount of ash in one sample was as high as 20 per cent., while the tannin in two specimens was over 7 per cent. The plant may be likened medicinally to catechu.

The Earliest Cataract Extraction in Finland.—Nordmann discusses this question of priority in the *Finska Läkaresällskapethsandlingar* for January-February, 1921, lxiii., 1-2. Incidentally the periodical press in Finland goes back 150 years and the anniversary was recently celebrated. About two years after this debut of periodical literature there was placed on record an account of a cataract operation performed in the town of Abo. The title of the publication was "Tidningar utgifne af et Sällskap i Abo," date Jan. 23, 1772. The title of the article was the general one of "News From Abo." The subject with the cataract was the Reverend Dr. Samuel Pryss, aged sixty-six. The cataract first appeared four years before in one eye, while three years later the sight of the other eye became involved. The operation was performed Oct. 1, 1771, by Carl Deneke, in the presence of two physicians, Haartman and Bergman, of whom the former held the title of professor. The operation was recognized at the time as the first of the kind to be performed in Finland. Deneke was a regimental surgeon and had received his medical education in Sweden, Germany, France, and England. He was a native of Stralsund. There is no description of the operation itself, but a full account of the postoperative course. The identity of the man who placed the case on record cannot be fixed.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 7. Whole No. 2649. | New York, August 13, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

WHAT MEDICINE OWES TO ITALY.*

By JAMES J. WALSH, M.D., Ph.D.,

NEW YORK.

GENTLEMEN: I think that most of you here probably know that I am an ardent Italophile. I am taking whatever part I can in the celebration this year of the six hundredth anniversary of the death of Dante because I think that he was probably the greatest man that ever lived. His being an Italian was the most natural thing in the world because most of the greatest men of modern history were born in Italy. For years I have been trying to write a book with the title "What Civilization Owes to Italy." I am not sure when it will be printed because in the present state of the printing trade every publisher is shy of big books and how ever could a man write a small book on that subject. After having gathered the material for that volume I am quite convinced that when one has collected the debt that civilization owes to Italy there is so little left to owe to any other nation, at least comparatively speaking, that it is scarcely worth while talking about. My only reason for saying that is that I have spent a good deal of time for years trying to make out the bill. No one knows better than I do that I did not get all the items in, but I gathered up so many of them that I have a very definite idea founded on rather exact data as to how much the debt of the rest of the world to Italy actually is. Now I am not going to tell you that story tonight; I am only going to try to tell you a very small part of it, the debt the world owes to Italy for medicine, but let me make a background of a few of the outstanding debit accounts in Italian history.

Of course everyone recognizes that in art Italy's contribution to civilization is so large as to be quite incommensurable. Practically all the greatest painters are Italian. Only twice in the history of modern civilization has the primacy in painting passed from Italy to other countries. During the seventeenth century for a time scarcely longer than a generation, when Velasquez and Murillo were doing their work in Madrid and Rembrandt and Rubens theirs in the Netherlands, Italian painters, though some of them were really great artists, were of second rank. During the political troubles of the nineteenth century French painters, most of whom, however, had studied in Italy, took the lead for a time, though it must be confessed in a period that had very little of great art in it. In sculpture even much more than in painting Italy is a leader. What names have other countries to place beside those of Donatello, the Pisanis, Ghiberti of the Baptistery Doors, the Della Robbias, Leonardo da Vinci, and Michelangelo, not to mention others in the domain of sculpture.

What is true in painting and sculpture is just as well exemplified in architecture and the arts and crafts. Civilization's debt for these is well nigh incalculable. In architecture we owe the Byzantine not to Byzantium but to Italy. The finest example of it is St. Mark's in Venice. Gothic architecture, that is the use of the broken arch in great monumental buildings, is said to have been first tried in Italy. The Crusaders saw it in Sicily and brought it home with them after the Crusades and then developed it wonderfully in their great cathedrals in the northern countries where in the winter time they needed so much light and therefore demanded the high buildings with the large windows. Renaissance architecture which has so deeply influenced the modern time is all Italian. Spanish architecture was largely influenced from Italy. French Renaissance architecture, so-called, drew most of its ideas from Italy. Not a few of the châteaux on the Loire were built by Italian architects, notably Fra Giocondo. Our handsomest building in New York, built in the twentieth century, is the *New York Times* building, which, of course, is nothing but Giotto's tower set down on Broadway in 1904. Look at the beauty of the New York Public Library some time and realize how much of it is due to Italian influence both within and without.

Auction sales in recent years have served to show us a little of what we owe to Italy for beautiful arts and crafts. Mr. Pierpont Morgan paid $60,000 for the Cope of Ascoli, though the jewels had been removed from it, because his experts told him that it was the most beautiful piece of needlework in the world. It was made seven centuries ago in a little convent in north central Italy. Go to Anderson's some time or the American Art Galleries when a sale of Italian Renaissance furniture is on and see what prices these antiques command. In metal work the Italian artists were far ahead, their statuettes and bronzes now command prices that are fairly staggering. I remember being at a sale where a censer, that is a thurifer as used in religious services, was being sold. The auctioneer said that unless $55,000 was offered for it it would not be sold. It was less than eighteen inches high. Just a piece of bronze made by a student of Leonardo da Vinci and not Leonardo himself. I ex-

*An address delivered before the joint meeting of the Italian Physicians Association of America, the Italian Medical Society of New York City, and the Italian Medical Society of Brooklyn, at a dinner given at the Hotel Pennsylvania, on the evening of June 4, 1921.

pected to see that thurifer set back, but no, someone bid $60,000 and then sixty-five and then seventy, I do not know how much higher it went, but something near $80,000. The papers the next day said that it was knocked down for that sum. I should hate to have it knocked down on me for any such sum. What I wondered at was that they called it knocking it down, and yet there is no doubt at all that the buyer considered it worth it. One of Raphael's pictures, the Cowper Madonna, 18 x 24, a little bit larger than a pocket handkerchief, commanded three quarters of a million in a sale some years ago in London. Evidently a little of the debt to Italy is being collected.

What is true in the arts is just as true in literature with perhaps a little less significance. To an Italian, Francis of Assisi, we owe what is known as the "Hymn of the Creatures" which Matthew Arnold proclaimed the great beginning of modern vernacular literature. Francis of Assisi was really one of the earliest of the Trovatori or Troubadours, his love being for the divine rather than for the human. Dante, who came at the end of the thirteenth century, I always think of as, as I have just said, the greatest human being that ever lived. That seems a great deal to say and if I were the only one who said it I should feel dreadfully lonely, but something like 10,000 books have been written about Dante and some 20,000 more or less important articles. The Dante library at Cornell has a catalogue in two large octavo volumes, six hundred pages altogether, of nothing but titles of books and articles about Dante printed in double columns so as not to take up too much room. Ariosto probably influenced the poets of Europe more deeply than any other poet, except the classics, have ever done. Ariosto's "Jerusalem Delivered" was the most read poem in Europe for two centuries. Before the Italians made their own vernacular literature they had made a great literature in Latin. To them we owe the great rhymed Latin hymns. The "Dies Iræ" is perhaps, as Professor Saintsbury of Edinburgh said, the greatest wedding of sense and sound that has ever been made. Only Dante and Shakespeare have ever equalled it, no one has ever excelled it. The Stabat Mater, St. Thomas Aquinas' great hymns, and St. Ambrose's great contributions to hymnology must all be set down to the credit of the Italians. They invented the modern novel and the modern short story and Macchiavelli is the greatest historian of modern times in spite of the fact that his first name, Niccolo, is said to be the origin of our English "Old Nick," for the devil.

What country in Europe can show anything like so large a debt on the part of world literature as this of Italy? In music, however, the debt is even larger. Italy invented the opera, both serious and comic, and her musicians have given us the greatest operas. For a while in the later nineteenth and earlier centuries, Italy's primacy in music seemed disputed, but surely not seriously. Even at the present moment, when all music is in a decline, the Italian composers have written the popular music for the world. Think of what our programmes at the opera would be without Rossini and Verdi and Bellini and their Italian musical compatriots! Think of all that Donizetti has done in lighter vein. All our theater comes from Italy, the horse-shoe shape with its boxes, movable scenery on the stage, the frame which makes the stage scene a picture, and all the rest of the architecture. On the other hand all our ecclesiastical music is Italian. We have the Ambrosian hymns, the Gregorian music, the plain chant that is now being revived, and all of Palestrina's magnificent contributions to church music. Besides we owe the finest violins ever made to the Italians and the construction of the pianoforte in the form in which it is and the development of the harp, to say nothing, alas, of the hand organ, for, unfortunately to them, we owe also the first "canned" music. We trust the musical judgment of the Italians more than that of any other people. The Scala at Milan still continues to be the world's highest court of appeal in musical judgment as regards both voice and musical composition.

It may perhaps be thought that in the arts Italy was so far in the lead of the rest of the world that naturally her accomplishments were very great, and undoubtedly greater than those of other people. Perhaps some might be inclined to think that in the childhood of the race we took to art and Italy was the pioneer of modern times; but now that mankind has grown up we have taken to science and of course in that Italy lags far behind the rest of the world. I suppose that there are some people who would actually be ready to say something like that. We are so little accustomed to associate Italy with science because until comparatively recent years we have known almost nothing about the history of science, we are therefore inclined to conclude that since we knew nothing about it, there must be nothing to know. The history of science, however, sets Italy up in the greatest place in that department too. I know that the names of the great founders in modern science are not Italian, but then who knows the history of their education and environment? Copernicus, the father of modern astronomy, was a Pole, but he wrote his great book on the revolutions of the celestial bodies after he had studied for many years down in Italy; indeed, the first draft of it was made down there, and he dedicated it to the Pope with permission. The greatest disciple of Copernicus, and the man who more than any other helped to bring in the Copernican system, is Galileo, the Italian whose name deserves to come just after that of Copernicus in the history of astronomy. Vesalius, the father of anatomy, and by that same token of the morphological sciences in biology, was not Italian, but a Belgian, but after making his medical studies at Louvain he looked around for graduate work, could not find it in Paris, though he tried, so he went down to Italy and stayed there for twenty-five years and wrote his great textbooks down there. Though he was a foreigner they made him professor of anatomy and encouraged his work in every way. Harvey, the father of modern physiology, through his description of the circulation of the blood, had been a student in Padua and makes his asknowledgments to his Italian masters at the beginning of his work. His English biographer says "there can be little doubt that the seed then sown fell into suitable soil and that to Fabricius (Padua) we owe the awakening of the spirit of inquiry and observation which ended only with Harvey's life but which in its course enriched the world of knowledge and

of thought "with one of its grandest generalizations" (Bowie). Indeed, there is more than a question whether Harvey did not obtain the complete idea of the circulation of the blood while studying in Italy, for the pulmonary circulation had been described by Realdo Columbo and the general circulation by Cesalpino, but that does not lessen Harvey's merit, for he made the demonstration and formulated the teaching which made the world accept the idea.

How many other names besides Fabricius, Columbo, and Cesalpino are famous in the teaching of medicine in Italy anyone who knows the modern development of the history of medicine will readily realize. Malpighi deservedly has his name attached to more structures in the human body than any other and is rightly called the father of histology. Morgagni was greeted by Virchow as the father of modern pathology. The Englishman, Richardson, said of his book, "The Seats and Causes of Disease," to this day no medical scholar can help being delighted and instructed by the study of this wonderful book. To move into it from a body of current medical literature is like passing from the periodical flux of current general literature to the perusal of a Shakespearean drama, the "Pilgrim's Progress" or "Paradise Lost." We shall have something to say of other distinguished contributors to the medicine and surgery of the world and that is quite literally what they were in the second part of this paper when I come to talk more particularly of medicine and surgery.

In education Italy has been the schoolmaster of the world for advanced teaching for seven of the last eight centuries. Whenever anybody from the beginning of the twelfth down to the end of the eighteenth century wanted to get a better education than he could get at home in any country in Europe practically always he went down to Italy to secure it. This was always true for art and sculpture, but also for scholarship of all kinds and above all for science. All the great founders of modern science have studied in Italy, above all in mathematics, in astronomy, in medicine, and in surgery, and her schools have always been famous in philosophy. At the beginning of the nineteenth century, when Napoleon gave a fresh impulse to French genius for a half a century, France was the home of graduate teaching. After 1879 Germany became the home of graduate teaching, and now the question is, where will advance students go; and we are bidding for them here in America. Before the nineteenth century people went to Italy. Gerald, the Welshman, in the twelfth, Joycelyn of Brakelond in the thirteenth, Chaucer in the fourteenth, Grocyn in the fifteenth; all from distant England, ever so much farther away from Italy than the Pacific coast is now, went to Italy to study. Lanfranc, the first great teacher of surgery at the University of Paris, and his namesake, the Archbishop of Canterbury, as well as his successor at Canterbury, Anselm, were all Italians carrying Italian thought and influence to the West. Guy de Chauliac, often called the father of French surgery, studied down in Italy. It would not be difficult to make this list a long catalogue. During the Renaissance time everybody that could went down to Italy from France, Spain, England, Germany, and such names as Reuchlin, Erasmus, Regiomontanus, Cardinal Nicholas of Cusa, are only examples of Italian students. After the Renaissance no one was considered to be educated in Europe unless he has made the Grand Tour and above all spent a considerable time down in Italy. The magnificent editions made by the early Italian printers of the great books of the world are the best demonstration of the profundity and accuracy of their scholarship.

Above all we in the modern time at a distance from Italy and in a period when we are not very much interested in art or at least not productively interested in it, may be inclined to think of Italians as lacking in profundity of intellect and as never having made serious contributions to world philosophy. Only a very little knowledge of the history of philosophic thought is necessary, however, to correct any such false notions. The great Latin fathers of the Church, Augustine, Jerome, Ambrose, Gregory, are typical examples of Italian genius. Anselm of Canterbury has deeply influenced great thinkers now for nearly a thousand years. Aquinas is considered by many, among them the great Cardinal Mercier of Louvain in our day, as the profoundest thinker of modern times. It is curiously interesting to realize that he was a great poet as well as a great philosopher, an almost unprecedented combination, and some of his Latin hymns are among the greatest ever written. Dante thought so much of him that his poems are fairly saturated with Aquinas, so that it has been said if by any chance the writings of Aquinas should be lost the great principles of them at least could be supplied from Dante's "Divine Comedy." In more modern times such men as Jerome Cardan, Telesio, Giordano Bruno, and Campanella are great figures in the history of philosophy. The work of Telesio "marks the fundamental revolution in scientific thought by which we pass over from the ancient to the modern methods." He lived a century before Bacon, who confesses his obligations to Telesio, whom he frankly hails as "the first experimental observer of nature." Campanella and Bruno are better known because they were persecuted, and Bruno and not Spinoza should have been called "the god intoxicated man." More than any other, he is the founder of that Pantheism which tinctures so much philosophic thinking in our time. Campanella has been called "the audacious Titan of the modern age."

It would be surprising indeed if the nation that thus deeply influenced every phase of human thinking and intellectual development should have failed alone in the application of thought to human problems in medicine and surgery. Almost needless to say it did not. If the debt that civilization owes to Italy is so great as to be almost incalculable, the debt that mankind owes to Italy for medicine and surgery is, if possible, almost higher. It began way back in the later Middle Ages with the foundation of the medical school at Salerno around which there came into existence the University of Salerno, the first university of modern times. It would be easy to think that we could dismiss the Italian medicine of that early day with the thought that after all people knew so little about medical science at that time and were so prone to accept all sorts of impossible ideas for no better reason than that they were strange and sensational and were so in-

tent on all sorts of superstitions, medical and religious, that their medical teaching would be of no significance. Only that we have certain textbooks from the University of Salerno nothing could possibly make us believe that these men reached the solution of a great many modern problems in anticipation of us. Anyone who knows the famous *Regimen Sanitatis*, the manual of health issued by the faculty of the medical school of Salerno in the thirteenth century, is aware that down at Salerno they anticipated all the modern notions with regard to the value of air, exercise, regulation of the diet, rest, and water internally and externally, some seven centuries ago. The textbook of the Four Masters in surgery is another startling demonstration of the power of these early Italian workers in medicine and surgery to anticipate what we are likely to think of as ideas reserved for discovery in our time. They describe operations of all kinds, including trephining, and insist on the absolute necessity of cleanliness, especially on days when they were to do a trepanation.

The North Italian surgeons followed up the Four Masters and even went beyond them. They opened up all the cavities of the body, skull and thorax and abdomen, sewed up wounds of the intestine, even did not hesitate to remove portions of it, used metal tubes to keep the severed intestines from leaking, and employed the trachea of animals as absorbable aids to intestinal anastomosis. Such serious operating could not be done without antisepsis and anesthesia, but they had both. Their teaching with regard to antisepsis and the getting of union by first intention is particularly interesting. Professor Clifford Allbutt, Regius Professor of Medicine at the University of Cambridge, corresponding to Professor Osler's place at the University of Oxford, said: "They washed the wounds with wine, scrupulously removing every foreign particle; then they brought the edges together, not allowing wine nor anything else to remain within—dry adhesive surfaces were their desire."

Theodoric comes nearest to us of all these old surgeons. The surgeon who in 1266 wrote: "For it is not necessary, as Roger and Roland have written, as many of their disciples teach, and as all *modern* surgeons profess, that pus should be generated in wounds. No error can be greater than this. Such a practice is indeed to hinder nature, to prolong the disease, and to prevent the conglutination and consolidation of the wound" was more than half a millennium ahead of his time. The italics in the word modern are mine, but might well have been used by some early advocate of antisepsis or even by Lord Lister himself. Just six centuries almost to the year would separate the two declarations, yet they would be just as true at one time as at another. When we learn that Theodoric was proud of the beautiful cicatrices which he obtained without the use of any ointment (*pulcherrimas cicatrices sine unguento aliquo inducebat*), then further, that he impugned the use of poultices and of oils on wounds, while powders were too drying and besides had a tendency to prevent drainage, and the literal meaning to the Latin words *saniem incarcerare* is to "incarcerate sanious material," it is easy to understand that the claim that antiseptic surgery was anticipated six centuries ago is no exaggeration and no farfetched explanation with modern ideas in mind of certain clever modes of dressing hit upon accidentally by medieval surgeons.

It is extremely interesting to read the discussions of these old surgeons with regard to such subjects as cancer and lupus, hydrocephalus, epulis, polyps, ranulæ, and the like. They anticipated our modern laryngology and rhinology which are rightly considered to be very recent developments due more to American enterprise than to anything else, with startling definiteness and details. The description of removing the tonsils reads very much like that in a modern compendium of laryngology. Perhaps the greatest medical and surgical development of these medieval Italian surgeons was the use of mercury in the therapeutics of syphilis. This is probably the greatest therapeutic discovery ever made. It has endured for over six centuries and in spite of the most recent developments is still considered extremely valuable. Many times ever since, as in our own time, arsenic has been lauded as a substitute for mercury, but after a time its use has gone out and mercury has endured. We shall have to wait and see whether mercury or arsenic is to remain as the sheet anchor, for after all salvarsan is still on trial as regards enduring effects. It is interesting to realize what these old Italian surgeons did for the nursing of patients, for they recognized the value of trained care and they erected some very beautiful hospitals. Indeed, some of the Italian hospitals of the fourteenth, fifteenth and sixteenth centuries are among the most beautiful ever built. The Hospital of the Innocents at Florence for foundlings (the Italians used no such crude name for the little patients), and the *Ospedale Maggiore* at Milan, one of whose wings was designed by Brunelleschi, are striking examples of what these Italians did for hospitals.

Anyone who thinks that such good work in surgery stopped at the end of the Middle Ages and that Italy has done little or no good work since does not know the history of medicine as it has developed in recent years. Fallopius, Vigo, Argelata, Savonarola, and others made magnificent contributions to bone surgery. They insisted on the reduction of the dislocation along the same path through which it took place, described fracture of the inner table of the skull with the outer unbroken, and depression without fracture in children as well as many other supposedly modern details. These early Renaissance Italian surgeons brought severed tendons together, corrected deformities designed corsets and apparatuses for orthopedic purposes, invented gold and silver tubes to be used after tracheotomy. Cabral declared wounds of the heart not necessarily fatal, Fioravanti reported a case of splenectomy with recovery. Berenger detailed some cases of *extirpatio uteri* for prolapse, and above all they did magnificent work in plastic surgery. They made new noses by shifting face flaps and also from the arm. Some of their names became infamous throughout Europe for daring to interfere with Providence in this way. When gunpowder came to be used they did some magnificent work on the treatment of bullet wounds. A series of experiments were made by Italians on this subject in the most thoroughly scientific temper. They demonstrated beyond all doubt that bullets did not

sear or burn tissues nor poison them. Biondo, a great Italian physician, described the treatment of wounds simply with warm water and without messy applications. He says that many surgical patients are not killed by their disease, but by starvation and the unfortunate applications made to their wounds. He declared that perhaps "it is preferable to die in accordance with accepted methods than to live empirically." Evidently the whole of asepsis was anticipated, but the world was not ready for it for another five hundred years.

In medicine the physicians of the time were at least as great as the surgeons. They were not the foolish believers in drugs as they are usually supposed to be, but thoroughly rational therapeutists. Mercuralis wrote the famous book which has gone through so many editions in many countries, "De Arte Gymnastica," in which he treats of all the manipulations and exercises by which curative results may be secured. He anticipated fully osteopathy and chiropraxis, but he did not limit his therapeutics to these external means. He was the greatest consultant physician of his time, taught at Padua, afterwards at Bologna, then at Pisa, and finally went to Rome as the physician to the Pope. In the next century Santorio greatly enlarged diagnostics in medicine by instruments. He was the first to make use of the thermometer and hydrometer, invented a sphygmometer, or, as he called it, a *pulsilogium* or pulse measure. He invented the trocar and cannula and used this for tracheotomy. He suggested a similar instrument for abdominal puncture. He made a bed bath for patients too weak to be lifted out. He counseled baths for patients suffering from hectic fever. He invented a bed with six different positions so that patients might be put at ease, their bed clothing changed, their meals given to them easily, besides contriving an arrangement for lifting the patient for transfer to another bed. Anyone who thinks that any of the modern inventors of surgical and medical beds have anything on Santorio ought to see some of the pictures that we have. He arranged a scale on which a man sat within an enclosed cell so that his metabolism might be measured, his food carefully estimated, and his excretions noted. This was most ingenious and yet wonderfully simple. You may see a picture of it in Garrison's History of Medicine.

All down the centuries since the Renaissance time the Italians have been leaders in surgery until the nineteenth century and even then they did not lag far behind, although there was so much political disturbance in the peninsula. The German, Gurlt, in his great history of surgery, devotes from three to five pages to each of nearly a score of Italian surgeons of the eighteenth century. Almost needless to say no one would be given this amount of space by the distinguished historian of surgery unless he had accomplished work that amply justified the distinction. The works of many of these men went into second and even to third editions and were known all over the medical world, for all physicians read Latin at that time and the usual course was written in Latin, and the Italians were the acknowledged leaders in the world's surgery of that time. In the nineteenth century Bassini, whose wonderfully well planned operation for the radical cure of hernia came to be known and practised all over the world, and Durante, who was one of the pioneers in the important department of the surgery of the central nervous system, carried on the tradition of great Italian surgery very worthily. In our time the Italians have remade—almost literally created the surgery of the heart. The stiletto rather than the revolver was the favorite weapon of the Italian bravo, and the surgeons at the Italian hospitals took advantage of this to study and treat wounds of the heart, until now it has come to be recognized that they are probably not so serious as wounds of the liver.

In the theory of medicine certainly the Italian authors are marvelous in their anticipation of details often thought modern. Benivieni, a simple practising physician at Florence, laid the foundation of pathological anatomy. Berengar first observed the appendix, Aranzi devoted special attention to tumors, Eustachius did much in pathology as well as physiology, Columbo, besides the pulmonary circulation, made a number of pathological observations, Fracastorio anticipated contagion, comparing it with fermentation; he invented the word syphilis and shares with Leonardo da Vinci the honor of being the first geologist to see fossils in their true light. The names of those who took up the doctrine of contagion makes a rather long list. Singer in London has shown how many of the Italians took up this task of developing the doctrine of contagion. Lancisi clearly grasped the relationship between gnats and malarial fever and Vallisnieri attributed the diseases of men and beasts to vermicules, thus anticipating modern bacteriology.

The Italian clinicians were wonderful observers. Vierordt, himself a distinguished contributor to the subject of heart disease, has named more than a dozen of men among the Italians of the seventeenth and eighteenth centuries who made important contributions to our knowledge of the heart in the last three or four centuries. Albertini and Valsalva in the eighteenth century outlined the rest and hunger cure for aneurysm. Lancisi and Morgagni traced aneurysms and other heart troubles to lues. The Italians described particularly nervous conditions of the heart. Santorio classified seventy-three kinds of pulse. Lancisi and Morgagni's work restored the balance of common sense and kept trivial details from being made too significant.

Galileo first hit on the idea of using his pulse beats to time the pendulum swing. From this developed pulse counting and temperature estimation. The Italians have taught us more about the intestinal parasites of man than anyone, and it was they who emphasized the great principle *omne vivum ex vivo*. Spontaneous generation continued to be believed, but not in Italy. The Italians were particularly forehanded in recognizing contagion and preventing it. They thought tuberculosis contagious and insisted on burning everything that had been touched by the consumptive, at a time when other nations were quite sure that it was hereditary and that the Italians were fools. In the modern time they have done much to prevent malaria and study its various forms and develop the knowledge of it. They were the first to have pharmacy gardens in connection with their medical schools

and hospitals and the botanical garden became a regular feature of the University life. They had them long before other places and were the exemplars in this matter. Very probably the best book over written on the prolongation of life and which contains most of the ideas to be found in many of the volumes on health preservation in modern times is Cornaro's little volume on a sober life, for that is what he called it, or how to live to be a hundred years. Cornaro found himself at the age of forty drifting into premature old age and threatened by the approach of death. He learned how to live and when he was past eighty wrote his book telling others how to do it, issuing the last edition of it when he was over a hundred years of age. The book has been published in all the important languages many times and has probably gone through more editions than any other book, except the famous "Regimen Sanitatis" of Salerno, the first book of popular medicine issued in modern times.

In the last two centuries Italians' names have rightly become associated with important contributions to medicine. Banti's disease is called after its Italian discoverer in deserved recognition of the fact that here was the finding of a special symptom complex after the most acute clinical observation, the varying parts of which had never been put together before. Often when diseases are called by the names of men of other nationalities the original discoverer was an Italian. Exophthalmic goiter is called Graves' or Basedow's disease, but long before the Irish physician called attention to heart palpitation with goiter and nearly fifty years before Basedow described the third symptom, the prominence of the eyeballs, the Roman physician Flajani had described the disease, and if any name should be associated with it it ought to be his. We have heard much of sleeping sickness in recent years, but Dr. Garrison, in his "History of Medicine," tells us that Castellani was the first to see trypanosomes in the spinal fluid and blood of five cases of African sleeping sickness. Italians have done much for trypanosomiasis generally. Negri's bodies in hydrophobia and Guarnieri's studies of *Cytoryctes variolæ*, possibly connecting protozoa with smallpox, as well as the independent work of Italians on spirochetes in African relapsing fever are all proofs of the pioneer quality of Italian medical power of observation. We have heard much of occupation diseases in recent years and the "safety-first" movement, but Ramazzini was the first to write a book on the subject and the Italians have worked out the subject of occupation diseases better than any others.

The most striking evidence as to the achievements of Italians in medicine is to be found in the number of structures named after Italians who discovered them. Here are a few of them, though I know that I by no means exhaust the list. There is the pons Varolii in the brain, the fissure of Rolando, the Vidian canal in the skull (named after Guido Guidi, Vidius in Latin), the duct of Botallo, a fetal structure in the neighborhood of the heart, the Eustachian tube, the Fallopian tube and the aqueduct of Fallopius, the organ of Corti in the ear and the rods of Corti in the retina, the Malpighian bodies in the spleen, the Malphighian corpuscles in the kidneys, and the rete Malpighi in the skin, Scarpa's triangle and the fascia and foramina called after him; and while Steno's duct is named after a Dane he made most of his studies down in Italy and acknowledged how much he owed to Italian opportunities for all that he did in anatomy. But this is only the beginning of the story as yet. There are in the larynx the cartilages of Santorini as well as emissary veins of the skull and the *musculus risorius*—the laughing muscle of the face named after him, and we have the ducts of Rivini, Ruffini's nerve endings in the skin, the spaces of Fontana, the sinus of Morgagni, the sinus of Valsalva as well as the functional connection between the throat and the ear, demonstrated by Valsalva's experiment and named after him, the process of Ingrassias, the band of Giacomini and the band of Gennari, the corpuscles of Pacini, the crescents of Gianuzzi, the Pacchionian bodies; there is the nerve of Lancisi, Golgi's processes of brain nerves and the organs of Golgi, the Casserian perforating nerve named after the great Italian surgeon, the foramen of Thebesio, the acqueductus Cotugni, through which the nasopalatine nerve described by Cotugno runs. Galvanism, named after Galvani, was discovered in the midst of medical experiments and Voltaic electricity deserves a mention here because it was discovered in connection with experiments and studies stimulated by Galvani's work.

There are other structures that bear the names of men of other nationalities that were really discovered by Italians. The sutural bones in the skull known as Wormian bones after Claus Worm, had already been seen, described, and even pictured by Eustachius. The duct of Wharton, so-called, had been described fully by Achillini. Piccolomini recognized the special character of the pancreas, and Eustachius described the capsule of Glisson, though this came to be named after an English anatomist who described it much later. Eustachius also described the renal tubules though these had been seen by Fallopius before and came to be named after Bellini. The duct of Wirsung was discovered in Vesalius' dissecting room by his prosector, George Wirsung. Scultetus and Spigelius, after whom the reverse mode of bandaging is named and the Spigelian lobe of the liver, were both students of Padus. I have attributed the discovery of the circulation of the blood to the Italians without wishing to impair Harvey's merit in the least and anyone who may think that that is due to over enthusiasm for the Italians should read Professor Foster's lectures on the history of physiology as they were delivered before a series of universities in this country. He did not hesitate to say "We must therefore admit that Caesalpinus had not only clearly grasped the pulmonary circulation, but had also laid hold of the systemic circulation; he recognized that the flow of blood from the tissues took place by the arteries and by the arteries alone, and that the return of the blood from the tissues took place by the veins and not by the arteries."

Is it any wonder that I should claim for the Italians a corresponding place in the history of medicine that the peninsula has admittedly in art and the arts? Yet I have told but a little of the story; the whole of it would fill volumes and has actually done so.

110 West Seventy-fourth Street.

HISTORY OF ALCOHOL AS A SUBSTANCE FOR HUMAN CONSUMPTION.*

By JOHN C. HEMMETER, M.D.,

BALTIMORE, MD.

PROFESSOR IN THE UNIVERSITY OF MARYLAND.

THE word "alcohol" comes from two Arabic terms, al, which is the article, corresponding to "the," and *kahal*, meaning a finely divided powder.

Originally, alcohol was the term applied to any finely divided body, but later became applied to the spirit of wine, after it had been brought to its greatest purification. Kopp, in his Geschichte d. Chemie, 1847, IV Part. p. 271, narrates that with the Arabians and also Spaniards, the word alcohol means antimonium sulphate—and not the C_2H_6O, but that the volatile part of wine was rendered freer from H_2O by placing it in contact with tartrates (Wein Steinsalz) and all salts are called "alcali" —thence was derived the term *spiritus alcalisatus* —which was corrupted into *spiritus alcolisatus*, and this word went over into *alcool spiritus vini*.

The ancients had no intimate knowledge of alcohol as such, although they consumed wine and beer. Their distillation apparatuses were too imperfect. The distillation apparatus was first introduced by the Alexandrians.

In 950 the Arabic physician, Rhazes, described a method of preparing alcohol, but does not mention its combustibility. In 1440 Giovanni Mick-Savonarola pubilshed a method of testing brandy for the amount of C_2H_6O. In 1784 Lavoisier demonstrated the composition of C_2H_6O. In 1784, Carl Wilk Scheele showed that when C_2H_6O and organic acids form ether, this ether can reversely be converted into the acid and C_2H_6O used. In 1796, absolute alcohol was made by Tobias Lowitz with dehydrated (freshly heated) calcium carbonate.

Adherents of alcoholic beverages frequently maintain that the use of alcohol like that of all other stimulants is due to a deep-seated necessity of the human race. Alfred Grotjahn, in the thirteenth volume of the Library of Social Sciences (Bibliothek der Socialwissenschaften), which appeared in 1898, makes the assertion that the desire for alcoholic beverages has for all time been so general with all peoples that the same must be regarded as a common human heritage. Older authors speak in the same strain. Even Pappenheim asserts in his work, "Sanitätspolizei," that alcoholic beverages seem to have been evolved to meet an ever-present requirement of the human race. We can only hope to do away with inebriety and the stronger alcoholic mixtures.

In contravention to this, Baer states in his standard work: "The human race surely has existed countless ages without using these artificial remedies. Many races exist to-day or have lived recently who developed no feeling of instinctive necessity for these things until they became cognizant of them."

I have made it my business to show that the whole alcoholic question is the product of a very slow process of evolution from a very modest beginning to its present proportions, from a slight inclination to its subsequent abuse.

*Read at the annual meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

From prehistoric times to which the historic period compares as a small fraction of time, no clue has come down to us in regard to the use of alcohol. Man could only consume that which nature voluntarily offered him. Very gradually did he develop his customs and his tastes through learning to adapt the forces of nature to his purposes.

As glorious as this victory of consciousness over subconsciousness really was, it brought with it many customs and habits which, being in opposition to the laws of nature, superinduced sickness, misery, and crime. As the prime offender we have the consumption of alcoholic beverages. Their first appearance is enshrouded in mystery. The first mixtures of sweet wines and other fermented beverages with much water had doubtless an agreeable effect, as well as the ensuing mild paralysis, which revealed itself as a heat sensation and a stressing of the emotional propensities of the individual.

Tolstoi maintains that the chief objective of alcohol consumption is the paralysis of the conscience. If these primitive people had been aware that the aforesaid phenomena of paralysis were in fact symptoms of poisoning, and had had some knowledge of the concomitant and after effects of same, they would have been still more cautious than they really were with their discovery. Thousands of years after the first production of wine it was used in small quantities, highly diluted, in conjunction with meals. Among the Israelites, who were the first to produce wine, drunkenness was not known to any extent.

The Israelites preserved their wines in skins and jugs. The German, French, English, Italian, Latin, and Greek words for wine are derived from the Hebrew "yain." Wine was used with meals and for devotional purposes. There was no abuse, and hence Moses saw no necessity to formulate regulations in regard to its consumption. The Semitic peoples, more particularly the Phoenicians, introduced wine to all the Mediterranean nations, of which we shall refer especially to Egypt and to Greece. To be sure, the Egyptians had concocted a drink from barley and bitter herbs and the Greeks had done the same through the fermentation of dates, figs, apples, and honey, but wine rapidly supplanted these.

It is necessary to emphasize that such a thing as drinking apart from meals, and also the existence of inns, was out of the question. The Greeks were the first to use wine not as an adjunct to meals, but at entertainments devoted to sensual enjoyment. They consumed wine greatly diluted with water, while listening to the music of the flute and kithara, while nude female slaves danced and sweet smelling odors permeated the halls. Rough, boisterous conduct at these affairs was regarded as beneath contempt, barbaric. There was no drinking in the open or at political gatherings, gymnasiums, or baths.

Greek emigrants introduced the manufacture of wine into Sicily and Italy. Wine rapidly supplanted the fermented brews of barley and honey of the Romans. It thrived everywhere on the peninsula, was diluted with sea-water and consumed at meals. At first drinking by women and young men was discountenanced; but very gradually, near the end of the imperial period, women took up drinking.

The feeling was about the same as is now that regarding smoking by women.

When intemperance had become a fact, particularly with the well-to-do classes, the first measure against the use of wine was called into existence by Domitian (87-96 A.D.). Domitian forbade the development of new vineyards and ordered the demolition of one-half of those in existence. This regulation remained in force 200 years. It was annulled by the Emperor Probus (276-282 A.D.).

Rome's historians and moralists do not make any references to alcoholic abuses of the middle and lower strata of society. We can assume, therefore, that in the case of the ancient peoples, there was really no alcoholic question. This first sprung into existence when the Romans came in contact with the barbarians. Just as happens to-day, when a highly civilized people introduces a narcotic to a savage people, the foreign nations, such as the Scythians, Thracians, Macedonians, Gauls, and the Germanic tribes adopted wine with avidity, drinking it unadulterated. Nearly all terms pertaining to the raising and making of wine may be recognized as Latin derivatives.

Although the Teutons, like the Egyptians, Greeks, and Romans, had a mildly intoxicating drink, derived from honey and called meeth, it is, nevertheless, very improbable, at any rate not demonstrable, that they produced the same in large quantities, as the art of husbandry was not developed to any extent with them.

With reference to the frequently cited passage in Tacitus' "De More Germanorum" 22, 23, that Teutonic armies suffered defeats owing to widespread drunkenness, let it be said that these occurrences were not, as is frequently assumed, the result of an inherited trait, but a phenomenon corresponding exactly to the effect of spirituous liquors on American and African indigenous tribes.

Some Teutonic tribes evidently recognized the great danger of the new drink (for which see Cæsar's "De Bello Gallico" Liber 4, Chap. 2), where the Suevi are reported to have instituted measures prohibiting the importation of wine.

After the fall of the empire the barbaric custom of drinking unadulterated wine to the point of intoxication, spread through Europe. Such was the state of affairs during the time of the racial migrations. Christianity might have been an effective check to the growing alcoholism, but unfortunately, several centuries had elapsed since Christ had first offered his doctrines to the world. In His time the drink habit was of such insignificance that there was just as little reason with Him as had been the case with Moses, to agitate against it. With the third religious founder, Mohammed, things were different. In his time the drink habit had reached such proportions that he started the greatest anti-alcohol movement known up to that time, and succeeding in eradicating wine growing in all conquered regions.

A peculiar accident would have it that Mohammedans, that is, Arabian physicians, succeeded in the eighth century in distilling brandy from wine, which discovery was to be devoted to healing purposes. They called the new product *al kohol*, that is, "fine extract." It was a very unfortunate incident, insofar as it encouraged to an enormous extent, the abuse of alcohol. Later on, Occidental alchemists took possession of the newly acquired knowledge. After repeated distillations, that is, rectification, a more concentrated spirituous liquor was obtained until finally Basilius Valentinus, a Benedictine monk, succeeded in producing an almost pure alcohol. The belief spread that this wonderful thing, "spiritus vini," was an all cure remedy for diseases and also a preventive agent against epidemics, such as the pest.

Michael Schrick. in the year 1482, at Ulm, offered this precept in his work, entitled "The Burnt-out Waters," published at said time and place: "Whoever drinks one-half spoonful of burnt wine every morning, will never become sick." The price of this "burnt wine," however, was so high at that time that only the well-to-do classes could carry out the suggestion.

In the meantime, wine culture developed northward up to the limits set by the climate itself, that is Central Germany. In North Germany, after the Teutons had developed their knowledge of agriculture, there was produced an alcoholic stimulant from barley, which was called in Anglo-Saxon "bere." This was also done in northern Gaul.

In the twelfth century, John the First of Flanders and Brabant, known as Jan Primus, became such a patron of the brewer's art at Bruges, that he evolves later into Gambrinus, the legendary patron saint of the brewing industry. In the fifteenth century, the art of brewing made a marked advance when it acquired knowledge of the malting process, succeeding in making a much more palatable and stable beer than was known before, particularly in Einsbeck, Naumburg, Hamburg, and Brunswick.

With growing wealth and consequent luxury, debauchery and intemperance became always worse, so that Emperor Maximilian the First at various diets from 1495 to 1512, took a most decided stand against the drinking habits of the well-to-do classes. About 1600 the first temperance society was founded. The members of this society had to agree not to drink more than fourteen goblets of wine a day.

A new advance in the technique of making spirituous liquors made the latter accessible to the lower social classes. It was the manufacture of brandy directly from corn. This discovery made in the sixteenth century was spread everywhere, into the smallest hamlets, by the soldiers during the Thirty Years' War.

Duke Ernst August, in 1691, expresses his great regret in an edict that spirituous liquors which were really intended for purposes of healing had become an instrument of debauchery, and that even in the places where they could be bought, drinking rooms existed in which such debaucheries were carried on.

The wrong assumption that spirituous liquors gave strength and health wa slargely responsible for the diffusion of the custom. In Hungary in 1550 miners regularly received apportionments of alcoholic stimulants to increase their efficiency. Soon after this, the beginning of the drink tip, or "trinkgeld," as it is called, makes its appearance, supplanting the bath tip. In the fifteenth century every village in Germany and Austria had its pub-

lic bathhouse from which was developed later the barber shop. Apprentices and servants received on Saturdays and on the days preceding holidays, the bath tip. In the course of time the opinion became current that pest and syphilis, which had been imported from France, were transmitted in the bath rooms. Spirituous liquors were regarded as preventives of these dread diseases, and thus the drink tip replaced the bath tip.

As the manufacture of spirituous liquors became cheaper and cheaper, the demand for them increased and in consequence the injurious effects became worse. Perhaps it was necessary to have the whole matter reach such enormous dimensions as to make the necessity for calling a halt seem more imperative.

In reply to such writers who care to assert that the drinking habit is really the result of an inherent instinct, I shall refer them to this assertion from Darwin's pen, to the effect that since an acquired habit becomes hereditary, the similarity between an acquired habit and an instinctive trait is so great that the one is not susceptible to differentiation from the other.

To the impartial observer who can follow the development with an unbiased eye, it would appear that this gradually expanded habit was not instinct at all. I believe that all drinking customs to the contrary notwithstanding, the opinion which the great Dutch savant Donders expressed in the year 1853, in his work entitled "Foodstuffs," still holds good, to wit, "If from to-day on not a drop of spirituous liquor is consumed, the instinct will become after a few generations dormant, if not entirely eradicated."

914 North Charles Street.

THE PHARMACOLOGY OF ALCOHOL AND ITS INFLUENCE ON METABOLISM.*

By JACOB DINER, M.D.,

New York.

"What wonders does not Wine! It discloses secrets; ratifies and confirms our hopes; thrusts the coward forth to battle; eases the anxious mind of its burden; instructs in arts. Whom has not a cheerful glass made eloquent! Whom not quite free and easy from pinching poverty!" Thus spoke Horace. When we speak of alcohol we are understood to refer particularly to the so-called grain alcohol, C_2H_5OH. Yet would we fail in our undertaking if no reference, though passing, were made to other alcohols which are included in the series of this type of hydrocarbon compounds and which, according to Baer, show a toxicity progressing with the n — value of the compound. Thus he finds:

Alcohol	Formula	Toxicity
Methyl	CH_3OH	0.8
Ethyl	C_2H_5OH	1.0
Propyl	C_3H_7OH	2.0
Butyl	C_4H_9OH	3.0
Amyl	$C_5H_{11}OH$	4.0

Or, taking the later figures of Macht, and of Morgan and Cooper, and Kamm, we find the following:

Alcohol	Macht Toxicity to Cats	Morgan and Cooper Germicidal Power	Kamm Toxicity to Paramecia	Albumin Coagulating Power
Methyl	0.8	0.95	0.8	0.9
Ethyl	1.0	1.0	1.0	1.0
n-Propyl	2.5	2.5	1.9	2.0
n-Butyl	16.6	8.0	4.5	5.0

*Read at the annual meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

However I will limit myself, in the further discussion of this subject, to ethyl alcohol only.

Forms.—Alcohol is official in the United States Pharmacopoeia in three forms: Alcohol, 92.3 per cent. by weight of C_2H_5OH. Alcohol dehydratum, 99 per cent. by weight. Alcohol dilutum, 41-42 per cent. of weight.

To these may be added the various forms of galenical preparations which contain alcohol either as menstrum, solvent or preservative, such as the elixirs, spirits, tinctures, fluid extracts, etc.

The substances from which alcohol is obtained are too numerous to mention. Suffice it to say that almost any carbohydrate, under proper conditions of treatment — fermentation — will yield alcohol. The non-official forms of alcohol (some of these are official in other countries) are:

A. Whiskey. This is obtained by the distillation of the mash of fermented grain, with an alcohol content of from 46 to 55 per cent. (vol.).

B. Brandy (also known as Cognac). A distillate from fermented juice of grapes, with an alcohol content approximately the same as that of whiskey.

C. Wines. (*a*) White and red wine—according to whether the skin is excluded or included—are non-distilled beverages, the product of fermentation of grape juice, with alcohol content of 10 to 15 per cent. (*b*) Sherry and port, similar origin to above, with alcohol percentage of from 15 to 25 per cent.

D. Ciders. Fermented liquors obtained from fruit other than grapes. Alcohol percentage, 5 to 10 per cent.

E. Malt liquors, containing, in addition to alcohol (2 to 6 per cent.), more or less sugar, CO_2, and hops.

F. Fermented milk, known as kumyss, about 3 per cent. alcohol.

Among the less known alcoholic beverages may be mentioned:

G. Small beer, 1.5 per cent.; brown stout, 6.5 per cent.; bitter and strong ale, 10 per cent.; Chica, or Indian corn beer, a drink of South America; Bouza, or millet beer, also known as murna—used by Crimean Tartars; Quarf, or rye beer, a Russian drink; ava, cava, or arva, prepared from the root of long pepper; formerly used in the South-sea Islands, all along the Pacific Ocean, Tahiti, Sandwich Islands, and Fiji Islands.

A great deal has been said and written with reference to the constitution of the substances that give wine its flavor. This matter is involved in considerable obscurity and the greatest differences of opinion obtain. According to older writers and investigators there is one aromatic substance present in all wines; this substance is known as œnanthic ether, $C_2H_5C_7H_{13}O_2$. Other aromatic substances present in wine are: ethyl acetate (acetic ether), $C_2H_5C_2H_3O_2$, developed in wine by age and frequently added for the purpose of adulteration to simulate age in wine and to improve the "bouquet." Butyric ether, or rather the esters thereof, ($C_2H_5C_4H_7O_2$), and caprylic ether ($C_2H_5C_8H_{15}O_2$), both of which have a fragrance resembling pineapple, are also employed for similar purposes. A variation of the bouquet may also be produced artificially by any of the following ethers: caproic, pellargonic, capric, proprionic, amylic, and many others.

Plants, such as rose leaves, lime and elder flowers,

leaves of the meadow sweets, peel of the quince pear, blossoms of wild vines, sage leaves, violet roots, and many others are also used to increase the bouquet of different wines.

According to more modern investigators the different bouquets are dependent upon the differences in the yeasts infesting the grapes. So, for instance, the inoculation of a barley infusion with a wine yeast give the fermented liquid the peculiar flavor of that particular wine.

Generally speaking, we may say that the chief and only difference in the different alcoholic liquors is in the substances from which the mash is made.

Liqueurs, cordials, and bitters, running in alcoholic content from vermouth (17 per cent.) to absinthe and benedictine (55 per cent.), are made by mixing fragrant herbs with alcohol or wine and either macerating or distilling.

Mode of Administration.—Alcohol has been administered practically, in every manner known to medicine, excepting perhaps the intravenous method.

Pharmacology.—Inasmuch as provision has been made in our symposium for detailed discussion of the effect of alcohol on the individual organs and tissues, I will but briefly touch upon its pharmacological action.

The Cell.—Upon the individual cell it acts as a protoplasmic poison, interfering with the oxidation of the tissues and leading to fatty degeneration. It is also said to diminish the resistance to acute and specific diseases, to lessen phagocytosis, and to interfere with the development of immunity.

Central Nervous System.—While alcohol has been considered a stimulant to this system, modern investigation necessarily leads us to a contrary conclusion. We must concede to the brain the functions of control and inhibition. When, under the influence of alcohol a depression of the higher centers is produced, it can readily be understood that the incoordinate, nonconcentrated, and therefore planlessly exaggerated reactions of the more resistant deeper nerve centers (basal ganglia) will become more pronounced and more prominent. The popular saying "that alcohol loosens the tongue," in my opinion summarizes this in a very concise manner. The phenomena quoted from Horace at the beginning of my paper are clearly the manifestations of a loss of inhibition rather than of cerebral stimulation. The ready flow of unbridled speech, the boisterous, often offensive laughter, readily changed to crying, the sudden bursts of temper or even violence cannot be interpreted otherwise.

On the other hand it has been demonstrated that small amounts of alcohol will increase motor efficiency to a considerable extent. This again has been held by some (Kraepelin and others) to be direct evidence of a stimulating effect, while the opponents (Lombard, Meyer and Gottlieb, and others) bring this forward as an additional proof of inhibition of the higher centers. Schmiederberg sides with the latter group and maintains positively that "Alcohol is not a stimulant but a depressant"; that, "in the mental areas the finer degrees of observation, judgment, and reflection are the first to disappear."

Nerves.—Götch, in Schäfer's Physiology, quotes experiments of Piotrowsky on the effect of alcohol on the excitability and conductivity of nerves: Alcoholic vapor caused an initial increase in the local excitability and, to a less extent, in conductivity. This soon changed, the conductivity becoming rapidly impaired before the local excitability diminished; on the cessation of alcoholic vapor, the normal conductivity and excitability were reinstated, the latter returning quicker than the former. The reaction time was also increased by alcohol.

Respiration.—A distinct "stimulating" effect on the respiration can be credited to alcohol, probably directly due to stimulation of the respiratory center. The volume of the respiration and, as a result thereof, the quantity of exchanged air are increased; the respiratory increase from alcohol is noticeable even during sleep.

Circulation.—If one or two ounces of brandy (about 50 per cent. alcohol), well diluted, be slowly swallowed the pulse is slightly quickened; there may be a temporary constriction of the splanchnic vessels and a slight rise in blood pressure. All this is probably due to the irritating action upon the nerves of the stomach. After absorption it has a paretic effect on the vasomotor system with a resulting drop in blood pressure. The effect is general but is especially marked in the nerves and vessels of skin and muscles, causing a rush of blood to the surface. The vessels lose their thermo-accommodation power and consequently there is a large cooling surface which allows of a rapid lowering of temperature, other conditions being favorable. Because of its direct action as a protoplasmic poison on the muscular fibers of the vessels and its paretic effect on the vasomotor nervous system it has a dilating effect on arterioles and arteries, and a similar, though less marked, effect on the heart itself. This causes a lowering of blood pressure, diminution of systolic output from the heart, and the cardiac energy is wasted, pumping blood into relaxed vessels. The large bounding pulse, with comparatively shorter systole, which gives a deceptive appearance of vigor and force to the circulation, is due to the large wave in the dilated vessels. The venous and diastolic pressure within the heart are temporarily increased. According to Dixon in small quantities and in concentrated form alcohol quickens the pulse, constricts the deeper vessels, increases the blood pressure, especially when the heart action is feeble, and is therefore of great service in fainting. In too large doses he considers it as a distinct depressant to the heart.

Metabolism.—Many and conflicting views have been advanced regarding its value as a food, and its influence on metabolism. Neubauer has observed that in severe diabetes mellitus it may be used to check the output of acetone. Atwater and Benedict have shown that the efficiency of alcohol in the protection of body fat is as marked as that of fats and carbohydrates, and somewhat less than its protein saving and protecting power. Experiments have shown that alcohol, prior to its combustion in the body, exerts a notable influence upon the metabolic processes of the liver, and possibly in other organs, whereby a marked effect is produced upon the output of uric acid.

When taken with purin-containing foodstuffs it exerts a direct influence upon the metabolism of those compounds which give rise to exogenous uric

acid, increasing largely the amount of uric acid excreted. It therefore cannot be rated as a true non-nitrogenous food in the sense in which fats and carbohydrates are foods.

Experimental: Heart.—After ascertaining the normal rate of the pulse on 62 students the class was divided into three groups: To group 1, no alcohol was administered; to group 2, 4 c.c. of alcohol was given; to group 3, 15 c.c. of alcohol was given. In each case the alcohol was administered in 120 c.c. of water, group 1 receiving 120 c.c. of water alone, so that none of the students were aware what medication, if any, was administered. Group 3 showed an increase in the rate of the pulse averaging 12.5 beats per minute. Group 2 showed a decrease of the rate averaging 8 beats. Group 1 showed no variation. The effect was noticed within 15 minutes after administration of the drug and lasted for 20 minutes after the first effect was noticed.

Cerebrum.—The same procedure was followed as above, at a subsequent session. The same quantity was administered. Before beginning the experiment three simple mathematical examples were dictated to the students. One example was a simple addition of figures, one a division and the third a multiplication.

At a given signal the students began their work and were again stopped at a signal. Ninety-eight per cent. of the students finished all the tasks and 87 per cent. of those finishing were correct. After a short wait the alcohol and, to group 1 the water without alcohol, was administered. Ten minutes after administration the signal was given to begin work, three examples exactly similar in every way to those previously given were undertaken and the work stopped as before, within the same time limit. All of the men receiving the alcohol had finished the work in the time allotted. Ninety-seven per cent. of those having received the water were finished. Of those receiving the alcohol the results were as follows:

Group 2. (4 c.c.), 78 per cent. were correct.

Group 3 (15 c.c.), 62 per cent. were correct.

Conclusions: Alcohol caused a quicker response but at the expense of accuracy.

Metabolism.—Four patients with diabetes mellitus were daily examined as to percentage of blood sugar. One showed acetone in the urine and all had an increased blood sugar content. After administration of 4 c.c. alcohol for 8 days the percentage of blood sugar decreased in all patients, the diet remaining the same. The blood sugar (Lewis & Benedict method) ran from 0.135 to 0.413 before alcohol was administered and sank to 0.135-0.168 respectively.

	Before.	At end of exp.
Case 1	0.182	0.135
Case 2	0.413	0.159
Case 3	0.357	0.168
Case 4	0.284	0.162

Whatever the evidence of the laboratory may be, however, we must bear in mind that in the final accounting we have to consider this as a drug and its action in pathological and not under normal conditions. And here the final word belongs to the man who makes his observation at the bedside.

May I therefore quote, as my concluding sentiment, from one of the keenest observers and clinicians, our late Abraham Jacobi, "I do not care to classify alcohol anywhere. I do not contest observations and experiments on either healthy or diseased men and on animals. . . . One of the most profitable laboratories, however, is the hospital and the private bedside." . . . And there he found alcohol a valuable remedy.

Great clinicians are more circumspect than loud. Hippocrates says more frequently than any of his successors, "It seems to me."

BIBLIOGRAPHY.

Barr, Sir James: *Brit. Med. Journal*, vii, 1, 1905.

Dixon, W. E.: British Therapeutical Society, *Brit. Med. Journal*, iii, 11, 1905.

Feuchtwanger, Lewis: Fermented Liquors. A treatise on brewing, distilling, etc.

Jacobi, Abraham: Alcohol Medication, *Am. Med.*, ix, 1913.

Kamm, Oliver: A. Ph. A., vol. x, ii, 2, 1921.

Leoser, Chas. McK.: Fermented drinks. From a report of the commission of the U. S. to the Paris Exposition, Washington Government Printing Press, 1890.

Macht, J.: *J. Pharmacology*, 166, ix, 1920.

Meyer, Hans, and Gottlieb, R.: Experimental Pharmacology.

Morgan and Cooper: Eighth Int. Cong. Appl. Chem., viii, d. p. 245, 1912.

Norton, Chas.: Modern Manual for Rectifiers.

Osler, Sir William: Modern Medicine.

Prescoff, Albert B.: Chem. Examination of Alcoholic Liquors.

Sollman, Torald: A Text-book of Pharmacology.

Tolman, L., and Riley, J. M.: A Study of American Beers and Ales, U. S. Dept. Agr. Bull. No. 493.

Trauseau, E. F., and Stoddard, C. F.: Some Modern Facts about Alcoholic Drinks

Twitchell, Geo. B.: Therapeutic Use of Alcohol, *N. Y. Med. Jour.*, v, 22, 1909.

THE EFFECT OF ALCOHOL ON THE GASTROINTESTINAL TRACT.*

BY WILLIAM J. MALLORY, A.M., M.D.,

WASHINGTON, D. C.

ASSOCIATE IN MEDICINE, GEORGE WASHINGTON UNIVERSITY MEDICAL SCHOOL.

IN the discussion of any subject it will be noted that erroneous ideas are due to two principal causes: first, the ignorance of facts, and second, ignorance of the relation of facts to the problem under consideration. Error arising out of gross ignorance is usually comparatively innocent and harmless, as compared with that brought about as a result of a misinterpretation or misuse of known facts.

This, I believe, is especially true in the domain of medicine, and more particularly in experimental physiology, pharmacology, and therapeutics. We see experiments made upon herbivora and the deductions applied to omnivora; observations on the normal applied to the abnormal, and vice versa. The voluminous data on the physiological and pathological effects of alcohol on the human organism are no exception to this general statement, but an excellent example. This is so notorious that the discussion of the subject provokes a smile, if not ridicule.

The mention of alcohol brings up ideas concerning its industrial, economic, social, political,

*Read before the American Therapeutic Association / its annual meeting, June 3, 1921. (See page 300.)

and sometimes its physiological relations, and last and least of all, its therapeutic application; and in the discussion the ideas become so mixed that the truth on any one point is usually obscured or missed altogether. It is, therefore, especially necessary that one should be very explicit in stating what aspect of the subject is to be discussed and in what domain the deductions are to be applied.

The title, "The Effect of Alcohol on the Gastrointestinal Tract," should convey the following definite ideas: 1, Therapeutic preparation; 2, therapeutic doses; 3, administered in disease; 4, diagnosed by a physician.

This should exclude many data and many ideas which have no bearing on the aspect of the question under discussion, but it does not always do so, for we see advocated the proposition that alcohol should be excluded from the pharmacopeia, and the reasons given such that, if valid, they would be equally applicable to such drugs as mercury, bromide, belladonna, and opium; for mercury in large doses is an irritant to the gastrointestinal tract, kidneys, liver, and central nervous system; bromide impairs mental accuracy and physical efficiency; belladonna in large doses will produce an active, talkative delirium, and opium is a habit-forming narcotic.

Although some of the physiological experiments have been made with pure alcohol diluted with water, it is needless to state that it is practically never used internally for therapeutic purposes in this form, but as wines, beer, brandy, whiskey, liqueurs, and cordials, and as a solvent for various drugs.

Taking up the effects on the digestive tract in the order in which they are produced, we have first the sensory effects. Here at the very beginning we are face to face with the specific application of a fact of fundamental importance and general application, namely, that it is impossible to discuss therapeutics intelligently without referring to physiology, for it is through sight, smell, taste, and physical contact that alcoholic preparations produce their sensory effects on the digestive tract which must be summed up under the term appetite.[1] Now, appetite and hunger are not, as many suppose, different degrees of the same sensation. They are fundamentally different; that is, they differ in quality, for hunger is essentially an epigastric sensation of varying degrees of discomfort or pain, definitely associated with the characteristic hunger contractions of the stomach, while appetite for food is a much more intricate complex, an emotion.

While a certain sensation complex from the viscera and an approximately normal state of central correlation constitute a necessary background for the development of appetite, the condition itself is essentially a complex psychic state, or emotion, aroused by the action of sensory stimuli having pleasant memory associations with past experience.

To describe the steps by which a sparkling glass or foaming mug stimulates the appetite would be pedantic. The increased flow of saliva and the swallowing movements induced by visual memory alone speak convincingly. The stimulation of the olfactory nerves by the aroma acts in a similar manner, no less effective.

The taste of pure alcohol, or the same diluted with water, is not especially appetizing, but the alcoholic beverages containing aromatic substances from the grapes, ethers, esters, etc., or the malt drinks act through the end organs of taste to increase appetite.

The physiologist Carlson states:[2] "The writer is neither a total abstainer nor a habitual user of alcoholic beverages. But it is his experience that a glass of beer taken at meal time seems to awaken or increase appetite. The effect is rather immediate and therefore not due solely to the absorption of the alcohol. Pavlov has recorded an instance from his own experience where a drink of wine seemed to initiate the sensation of hunger the very minute the wine reached the stomach."

In addition to the above mentioned action of such beverages through sight, smell, taste, and directly on the gastric mucosa, there is another important method of action.

Hunger may be present with all its qualms, and accessory phenomena of lassitude, weakness, nervous irritability, and vasomotor instability without appetite for food. Unpleasant emotions, anxiety, depression, or mental fatigue usually inhibit the appetite even when hunger and need of food are present. Under such conditions a moderate dose of alcohol when absorbed acts on the higher psychic centers in such a manner that inhibition is relaxed, the emotions released, and there is a pleasant physical and mental relaxation with a feeling of ease and comfort during which inhibited appetite returns. Overdosage may destroy appetite just as overeating of the most harmless food will produce a feeling of revulsion, and even digestive disturbance or disease.

On the secretory function alcohol causes a temporary increase in the outflow from the glands, but no permanent increase in production.[3] It is therefore a negligible factor in its action on the secretion. After absorption, even from the rectum, it increases gastric secretion.

On the ferments, minute quantities, not over 2 per cent., slightly accelerate the action under experimental conditions. Larger amounts, of from 5 to 10 per cent., slightly retard proteolytic action.

Foods are unaffected in the stomach, with the exception of proteins, which are coagulated or precipitated if in solution, which is a preliminary step in digestion.

In the preparation of foods, especially eggs, milk, and sauces, it increases their palatability and digestibility and adds to their nutrient value.

Alcohol and alcoholic solutions are absorbed from the stomach more rapidly and to a greater degree than any other substances.[4] The rate of absorption depends very greatly upon the amount and character of other substances present in the stomach. For example, milk is the most effective foodstuff for delaying the absorption of alcohol into the blood, and this is almost equally effective whether mixed with the alcohol at the time of drinking, or drunk two hours before the alcohol. Fats inhibit its absorption, especially when in strong solution. Other foods have very slight effect in this respect.

The relative amounts of alcohol absorbed from the stomach and the intestine naturally vary very greatly with such conditions as the character and amount of foods in the stomach and the rapidity of evacuation. This is, however, a matter of little practical importance since the drainage in each case is to the liver.

On the motor function of the stomach it acts as a carminative, that is, it arrests or modifies excessive contractions, without inhibiting normal motility. As a result of his most accurate experiments on the motor functions of the stomach, Carlson states:[2] "Tests were made with sour and sweet wines, brandy, beer and pure alcohol diluted with water. * * * In view of the fact [already stated, that alcoholic drinks promote appetite] we expected to find that these alcoholic beverages increased the tonus and the contractions of the empty stomach, since it is the tonus and the contractions of the empty stomach that give rise to the hunger sensation. To our surprise the results proved to be the very opposite. Wine, beer, brandy, and pure alcohol (diluted) introduced directly into the stomach inhibit the hunger contractions and the tonus of the empty stomach instead of increasing them. * * * In other words, alcoholic beverages when introduced directly into the empty stomach in quantities and concentrations that directly affect the tonus and the contractions of the stomach cause inhibition, and inhibition only. * * * The duration of the alcohol inhibition varies directly with the quantity and concentration of the beverage introduced into the stomach. Thus, 50 to 100 c.c. of 10 per cent. alcohol may inhibit the hunger contractions for 1 to 2 hours; or, if introduced during a period of relative quiescence, it delays correspondingly the onset of the next hunger period. Inhibition for 30 to 60 minutes is caused by 200 c.c. of beer. The sour wines on the whole cause greater inhibition than the sweet wines, probably through their acids. * * * If alcoholic beverages in the stomach caused as marked inhibition of the stomach movements in digestion as they do in the stomach movements in hunger, even moderate drinking with meals would lead to acute indigestion. As this is not the case, it is evident that alcoholic beverages affect the mechanism of these two types of movement differently."

The unpleasant emotional states of anxiety, depression, or mental fatigue which inhibit appetite have been shown by both experiment and clinical experience to impair gastric motility. Under such conditions alcohol absorbed acts upon the higher nerve centers, producing inhibition, relaxation, and mental ease, with resulting improvement in the gastric condition and restoration of normal motor function.

From the facts presented and their relation to human physiology, it is a reasonable deduction that alcoholic beverages have certain practical application in the treatment of diseases in which it is desired to influence the gastrointestinal tract. Therapeutic use and contraindication must be determined here as elsewhere by the physician who has diagnosed the particular case, but a statement of certain principles, with examples of application may be given.

In any case where it is desired to awaken or stimulate the appetite, one of the wines or malted drinks would be an aid, and the dose of the beverage used for such a purpose would not contain a sufficient quantity of alcohol to fall under any of the contraindications hereafter mentioned.

In conditions of hypermotility of the stomach, due to mental unrest, anxiety, or worry, accompanied by a feeling of epigastric discomfort, fullness, and distention or tightness, alcoholic beverages, as above stated, act both locally and after absorption on the mechanism involved; namely, inhibiting excessive contractions when introduced into the stomach, and when absorbed acting on the central nervous system, producing psychic relaxation, which, if not removing the cause, at least makes it ineffective.

While a drink of whiskey or beer will allay the pains of gastric ulcer or pylorospasm, its use in these conditions as well as in all other conditions requiring surgical treatment is not rational.

Alcoholic beverages should not be used as a stimulant in cases of nausea, vomiting, and shock when the condition may be due to the presence of unknown toxic substances in the digestive tract, because they generally increase the absorption of certain substances and would therefore increase the systemic effects of the poison.

REFERENCES.

1. Sternberg, Wilhelm: Die Pathologie des Appetits, Die Hyperorexie, Anorexie, und Parorexie, *Archiv fur Verdauungs-Krankheiten*, xx, p. 469.
2. Carlson, A. J.: The Control of Hunger in Health and Disease, University of Chicago Press, Chicago, 1916, p. 178.
3. Alcohol; Its Action on the Human Organism, H. M. Stat. Off., London, 1918.
4. Mellanby, Edward: Alcohol; Its Absorption and Disappearance from the Blood under Different Conditions, H. M. Stat. Off., London, 1919.

1720 Connecticut Avenue

EFFECT OF ALCOHOL IN THE THERAPY OF INTERNAL DISEASES.*

By CHARLES G. STOCKTON, M.D.,
Buffalo, N. Y.

It is probable that over the action of no single therapeutic agent has there been more acrimonious and combative discussion than over that of alcohol, owing to the contentions arising from its use as a beverage. This paper seeks to avoid the discussion of alcohol from any other than the therapeutic standpoint and as relates to general disease.

As a remedy, probably it has been more widely employed than any other agent, and until recent times the great importance of this use was unquestioned. The action looking toward the exclusion from the pharmacopeia of alcohol as a remedy probably fails to represent the opinion of the majority of physicians. The action of the House of Delegates of the American Medical Association on this subject makes it advisable for the American Therapeutic Society to review the subject thoughtfully, avoiding if possible the acrimony which heated debate often engenders.

A conservative examination of the question is

*Read at a meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

convincing that any substance so potent as alcohol, used so widely and indiscriminately in the treatment of all manner of diseases and symptoms, must necessarily have been harmful to many. Its supposed happy effect in many instances results from its dulling influence upon the nervous system and the temporary relief to mental and physical suffering. All will admit that to obscure a symptom is not necessarily desirable. Also it will be conceded that to charge the metabolism with the burden of dealing with assimilation and dissimilation of alcohol may at times prove an embarrassment to physiological activity and be a source of injury to the parenchyma of organs. Because of these and other possibly harmful effects, it has been asserted that alcohol is always a poison, and has no place in legitimate medicine. That such a decision is inconsiderate, partisan, and unsafe, I think there can be no doubt. The arguments advanced against the therapeutic use of alcohol might be raised as justly against the employment of any really powerful drug. Because it is competent to do harm is no reason that it is not competent to do good.

Alcohol as a Nutrient.—In considering its field of usefulness in general medicine, we cannot omit its importance as a substitute for food. By giving alcohol we often tide the patient over a critical period when other means of sustenance fail. To deny this is unreasonable. This is true in gastrointestinal diseases when there is faulty assimilation. When from exhaustion the digestive apparatus is so far crippled that it cannot digest or absorb the required amount of other forms of food, the administration of brandy, whiskey, or wine will save life, and to omit it approaches criminal neglect.

In diabetes, when it is incumbent to lessen the caloric intake of carbohydrates or of fats, or of both, alcohol in a certain class of cases serves an excellent purpose; nothing else can replace it. This is true at times in acidosis not related to diabetes.

In old age, when the organs have undergone degeneration from senility, so that there is loss of vitality and functional power, there can be no doubt of the very great importance of alcohol. Used judiciously and with the same care which is exercised in the prescription of other drugs, alcohol often enables an aged person to live on, not only with greater functional power, but with comparative satisfaction. Thus the patient is spared misery of mind and body, and the moral atmosphere of the home is improved. Careful and elaborate studies in nutrition may guide us to accomplish a great deal without the assistance of alcohol, but a satisfactory result may be more easily obtained by having recourse to it, and at times the benefit which follows its regulated administration can be attained by no other means.

In Typhus and Typhoid Fever (Collapse and Convalescence).—In a recent interview published in the *New York Times* (Feb. 20, 1921), Dr. Stephen Smith describes his experiences as an intern working under Alonzo Clark, in the successful treatment of typhus fever by the very liberal employment of alcohol, especially brandy. The success attained through this treatment according to Stephen Smith was extraordinary, and no other measure could compare with it. No one is likely to doubt the wisdom which Alonzo Clark showed in therapeutics, and every one acknowledges the perspicacity of Stephen Smith. Personally I know nothing of the treatment of typhus fever, but there is in this contribution the awakening of a forgotten truth that should be welcomed at this time. As to the value of alcohol in the routine treatment of typhoid, I am in doubt. Having lived through the time when it was generally employed and through a later period when it was excluded, I am unable to come to a definite opinion regarding the question. However, in stages of collapse and in the period of convalescence, alcohol is undoubtedly of value. This observation applies to a wider field than typhoid fever.

In Influenza Pneumonia, in certain phases of other types of pneumonia, alcohol in my judgment is of great value.

Infections.—In grave depression accompanying erysipelas, diphtheria, cholera, cholera nostras, dysentery, and other infections, alcohol may be regarded as of very real value as a substitute for food and as a definite stimulant. Of course it is of alcohol as a temporary remedy, thoughtfully administered, that I speak; when used to excess and habitually it undoubtedly predisposes to infection, through lowering of immunity.

In Chronic Diarrhea, where there is hyperperistalsis, such as occurs in achylia gastrica, amyloid infiltration, tubercular enteritis, in some types of dysentery and in various other local infections, a properly selected alcoholic preparation not merely gives comfort to the patient, but at times is positively a life-saving agent for which there is no satisfactory substitute.

In Diseases of the Circulatory Apparatus alcohol in moderate doses dilates the blood vessels, especially the superficial ones, and according to the U. S. Dispensatory (20th Edition) "increases the amplitude of cardiac action." With these established facts in mind it is understandable why alcohol has become the familiar companion of the victim of angina pectoris. In cardiac insufficiency, especially when the capillary area is narrowed, alcohol is of great value. Here it should be employed in rather frequent small doses, so that it can be completely oxidized and so that its action upon the capillary area may be utilized.

In Nervous and Mental Diseases alcohol, although formerly widely employed with and without professional sanction, has come to be used most guardedly. The objections to its use are evident, and yet there are instances in which it is of very great value. In the depressive psychoses, psychasthenia, and in exceptional cases of neurasthenia, alcohol is at times of value. Its well known predilection for nerve tissue leads the observant physician to be wary of its effects. Many individuals have a remarkable susceptibility to the action of the drug. When used but moderately by such persons there is set up nerve irritability or even polyneuritis.

In Exposure to Cold alcohol acts quickly to restore the circulation and to restore vitality, especially when the subject is placed in a warm room. On the other hand, it diminishes resistance to cold, and when taken before or during exposure to a low temperature, it blunts consciousness, impedes physiological reaction, leads to internal congestion, invites infection, and is generally mischievous.

In Convalescence alcohol preferably should be given in the form of a suitable wine, and its administration carefully guarded by the physician to avoid the well known habit-forming tendency of the drug, especially when the patient belongs to the type of which inebriates are made. Long before the patient is dismissed alcohol should be discontinued and replaced by scientific feeding and psychotherapy.

Alcohol should not be given in quantity greater than that which the organization can readily oxidize. The physician must act as the censor and educator when prescribing the drug, somewhat as with opium or hypnotics. Needless to say, the popular use of alcohol as a preventive and remedy for nearly all illnesses and in case of injury should be most strongly condemned. The harm from the thoughtless employment of this agent has led to its opprobrium.

Finally, it is held that alcohol is an important, sometimes indispensable remedy, that it should be included among the drugs in the Pharmacopeia, that it should be prescribed with discrimination and with a full sense of responsibility, without prejudice, and with careful record of results. The present legal restrictions to the therapeutic employment of alcohol place upon physicians an unnecessary burden and add perplexity to our efforts in relieving human suffering.

436 FRANKLIN STREET.

THE EFFECT OF ALCOHOL ON THE HEART AND BLOOD VESSELS.*

BY LOUIS FAUGERES BISHOP, A.M., M.D., Sc.D., F.A.C.P.,

NEW YORK.

CLINICAL PROFESSOR OF HEART AND CIRCULATORY DISEASES, FORDHAM UNIVERSITY SCHOOL OF MEDICINE; CONSULTANT IN HEART AND BLOOD VESSEL DISEASES, LINCOLN HOSPITAL; PRESIDENT, GOOD SAMARITAN DISPENSARY.

THE clinical relation of alcohol to the heart is not at all a close one. It cannot be said that alcohol has any direct or immediate effect in producing heart disease. Indeed, alcohol presents a social problem far more than one pertaining to health. Just as the law which compels school children to gaze upon diagrams of stomachs turned purple by alcohol is ridiculous, so it is absurd to attempt to build up a case against alcohol on the basis of the production of organic heart disease.

It needs no argument to procure a conviction of the moral, economic, and mental deterioration which results from the abuse of alcohol, but no one has yet been able to prove that alcohol, divorced from the usual unhygienic accompaniments of the abuse of alcohol, has ever led to organic heart disease. That it results in arteriosclerosis has been disproved by the dissection of many drunkards, dead of pneumonia or other infectious disease.

The great fundamental cause of premature arteriosclerosis in the overworked business man is undoubtedly often founded on the reflex action of worry upon metabolism, and it is more than likely that the moderate use of alcohol at the proper time of day and in the proper quantity, removing as it does this nervous and mental tension and abolishing worry for the time being, may be indeed a preventive of arteriosclerosis.

No one will maintain that alcohol can result in organic valvular disease. As to myocardial changes observed in excessive beer drinkers, it may be said that this has to do in all probability much more with the excessive intake of fluid than with the actual alcoholic content of the beer.

To quote some authorities:

1. One authority says: The extremists, who find no good whatever in alcohol, hold that it is a fallacy to apply the term "stimulant" thereto; that alcohol is a paralyzant from first to last; that its apparent cardiac stimulation is in reality the result of its narcotism of cardiac inhibition; and that every special sense is blunted by even small doses of this poison. They calmly ignore the fact that their premises apply to every stimulant in its special field of action as well as to alcohol in its sphere, and forget that their conclusion (that alcohol has no place in medicine except as a poison) applies by the same reasoning to every other stimulant. Hence, to be consistent, they should advocate the banishment of all stimulant drugs from the materia medica.

2. Another says: In heart disease very little alcohol, either as wine, or as brandy or whiskey, may be allowed to persons accustomed to its use. Beer is less advisable, since it carries with it large quantities of liquid and often disturbs the digestion as well, whereas, wine, whiskey, or brandy in small quantities improves it. Against this is balanced the deleterious effect of alcohol upon the heart muscle. Large quantities tend to produce fatty degeneration of the latter. Whether small quantities have any such effect in the individual case is uncertain, but it must be borne in mind that the injured organ is much more susceptible to deleterious influences than is the healthy organ. It is a safe rule that, in persons not already addicted to its use, brandy or whiskey be given only in doses which serve as carminatives, and not in doses intended for stimulation. Even the psychic effect may often be secured as well by small doses as by large ones. One point in favor of alcohol in man as against animal experimentation lies in the fact that in such persons it greatly increases the sense of well being and removes psychic depression and worry. The latter may be especially straining upon the heart, and hence every effort should be made to ward it off, especially during certain crises; but it should be borne in mind that the patient may easily become dependent upon the drink to arouse his spirits, and in this state more harm than good is done. The greatest judgment should be used in the administration of alcohol even in small quantities, and it should even then be reserved for crises when the stimulation of every fiber is all-important. On the other hand, alcohol should never be withdrawn suddenly from persons addicted to its use, since this procedure often precipitates an attack of delirium tremens, but moderate doses (whiskey 15 c.c. or $\frac{1}{2}$ oz. every four hours) should be given.

3. Another says: Palpitation and the other symptoms of "cardioneurotic" (pseudocardiac) weakness also occur in persons who take alcohol in quantities that are just in excess of their tolerance, and the possibility of this cause must be borne in mind. In some individuals, palpitation and irregularity may follow the ingestion of a single glass of wine, without any symptoms of intoxication setting in. That these conditions may continue without the patient's recognizing the cause is a common experience, and a considerable number of cardioneurotic cases result from this unintentional over-indulgence in alcohol. Women and young persons are more sensitive than men. The functional power and endurance of the heart muscle is, moreover, weakened by alcohol; and acute dilatation may set in from comparatively slight exertion. If the use of alcohol is long continued, it may lead to fatty and fibrinous myocardial change, but this in mild cases subsides when the cause is removed.

4. A writer on the heart says: The degree of dam-

*Read at a meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

age to the cardiovascular system by alcohol is still a matter of dispute. Like other poisons, it affects the cardiovascular structures to a variable extent, so that necropsy reports showing absence of cardiovascular damage in chronic alcoholism are not necessarily evidence of its innocuousness. It is probably true, however, that the importance and frequency of alcohol as a cardiac poison have been overestimated. Alcohol attacks particularly the cardiac musculature; the result is myocardial disease varying from slight fatty degeneration to scar-tissue formation. The arterial system, when attacked, presents various grades of intimal thickening and calcareous deposits, and, in exceptional cases, degeneration of the remaining arterial coats. . . . In animals, alcohol slightly increases cardiac contractility. In human beings, when given in large quantities, it produces a marked fall of blood pressure by its action upon the vasoconstrictor center and upon the heart muscle. Small quantities of alcoholic beverages seem occasionally to augment cardiac contractility in decompensated cardiac disease, but the effect is slight and inconstant, and its value problematical. . . . There are certain factors which require brief comment because of their influence upon blood pressure. Moderate amounts of alcohol do not regularly raise the blood pressure in man. In the experimental animal, large doses produce a fall in blood pressure, due to an effect upon the vasoconstrictors and upon the heart.

5. The latest book on Heart Disorders that has come to my desk says: Alcohol raises for a few moments the systolic pressure, and thus acts as an apparent circulatory stimulant; it cannot, however, be regarded as a true circulatory stimulant, inasmuch as it decreases cardiac efficiency, raises disproportionately the diastolic pressure, and lowers pulse-pressure, according to the exhaustive investigations of Lieb, corroborated by many others. Alcohol is no longer considered a food, for it has been determined that its oxidation (as is that of uric acid, xanthin bodies, leucin, etc.); it is not oxidized for the purpose of being used by, or stored up in the economy, as a food.

I take it that this discussion is not from the point of view of alcohol as used in the community. As a therapeutic measure, the use of alcohol has undoubtedly served a very valuable purpose in the past as a sedative, particularly in fevers of the typhoid type. It is also necessary to prevent the development of withdrawal symptoms in those who have been previously accustomed to the use of alcohol. This use, of course, under prohibition will need to be employed less and less.

I have never found it desirable or necessary to prohibit the moderate use of alcohol in people suffering from heart disease or arteriosclerosis. In this I find myself in agreement with English authorities, and only out of touch with those of the profession who for some reason or other have been led to believe that alcohol was the cause of organic disease.

A very sharp distinction should be made between the use of alcohol and profound alcoholic poisoning, such as is observed in a person who drinks to the point of coma. In the latter case the extreme physiologic effect of alcohol is observed and manifests itself in a condition resembling shock, with a low blood pressure, cold and clammy surface of the body, and profound stupor. Even so, the circulatory organs have not received any particular damage, the brunt of the poison falling upon the nervous system.

The other question that will arise in these times is whether alcohol is necessary and desirable in the treatment of heart and circulatory diseases and the answer is that there are many better remedies to accomplish any desired effect, but alcohol has often proved a convenience in the relief of angina pectoris or physical collapse because it was ordinarily quickly available. Nitroglycerin and aromatic spirit of ammonia can fulfill every requirement and fulfill it better than alcohol, but in former times one could obtain alcohol where the others were not obtainable.

REFERENCES.

Potter: Materia Medica, Pharmacy and Therapeutics, p. 134.
Hirschfelder: Diseases of the Heart and Aorta, p. 224.
Neuhof: Clinical Cardiology, p. 150.
Smith, S. Calvin: Heart Affections, p. 407.

109 East Sixty-first Street.

THE EFFECTS OF ALCOHOL UPON THE ENDOCRINES.*

By CHARLES E. de M. SAJOUS, M.D., LL.D., Sc.D.,
PHILADELPHIA, PA.
PROFESSOR OF APPLIED ENDOCRINOLOGY, UNIVERSITY OF PENNSYLVANIA GRADUATE MEDICAL SCHOOL.

No one, perhaps, more keenly than the medical man recognizes the misery, neglect, starvation, brutality, disorder, crime and pathological processes which, directly or indirectly, are attributable to the abuse of alcohol. In our efforts to assist in overcoming so deplorable a state of things, however, we should not overlook the responsibilities incumbent upon us as legitimate arbiters in matters concerning public health, mental and physical. Particularly does this apply to a question upon which depends to-day a decision of great moment to the welfare of the entire nation, that pertaining to the actual meaning of the word "intoxicating" as applied to alcoholic beverages, left undetermined in the 18th Amendment. In fulfilling our mandate in this connection, however, we should avoid an attitude of mind which is bidding fair to annul and degrade for the future any effort in favor of true temperance, the only line of conduct compatible with the rights and best interests of a free people. By this I mean temperance in all things, just as much in carrying out prohibitive laws as in the use of alcohol itself. Briefly, we should avoid all partisanship, and particularly that pernicious trend too often encountered nowadays even among well-meaning people, fanaticism—a form of obsession in which the mind, by becoming the abject slave of its prejudices, loses all sense of proportion and justice.

Last year, in the Presidential Address before this Society, I submitted evidence to the effect that it was through the endocrines that many of our most efficient drugs and other agents produced their beneficial effects and, when used in excess, some of the phenomena we group under the term "toxic effects." This conception of drug action, the foundation of which was first laid in 1903 and 1907 in my work on the "Internal Secretions," applies likewise to alcohol, and elucidates several admittedly obscure points concerning the pharmacology of this agent. To convey at all clearly, however, the bearing of this statement, it is necessary to review succinctly the functions of those endocrines which are known to be influenced by alcohol.

*Read at a meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

Beginning with the adrenals, it is believed by many that confusion exists concerning the functions of these organs. Thus, while in 1894 Oliver and Schäfer found that adrenal extract raised the blood pressure, other physiologists showed that it lowered it, particularly when small doses were used. Again, Abelous and Langlois having found that the adrenal hormone possessed antitoxic properties, other physiologists failed experimentally to discern any such action. Even Cannon's familiar emergency theory in which emotional stress—fright, excitement, etc.—is adduced as a cause of excessive functional activity, has been held by others to be fallacious.

All these functions are harmonized, however, when interpreted in the light of a fundamental function I found the adrenals to possess, which was that their secretion sustains respiration and metabolism by supplying the hemoglobin with the substance which enables it in the lungs to become converted into oxyhemoglobin. This view, confirmed by others since it was first formulated in 1903, sustains Oliver and Schäfer's observation that the adrenal secretion raised the blood pressure, since the relatively large doses they used increased greatly the oxygenation and metabolism in the muscular tissues of the heart and blood-vessels, and caused them to contract. Even moderate doses may cause a rise of blood pressure by acting directly upon the first tissues affected by the adrenal principle, the non-striated fibers of the arterioles. These terminal arteries, by contracting, then increase the vascular tension behind them and raise the blood pressure. The apparently destructive observation of Moore and Purinton that minute doses of adrenalin cause dilatation of the arteries also finds its normal explanation, for such doses first contract the vasa vasorum, owing to their minute caliber. These diminutive vessels, supplying as they do, arterial blood to the muscular coat of the larger vessels, cause, when contracted, dilatation of the latter, thus lowering the general vascular tension and the blood pressure. The antitoxic theory of Abelous and Langlois is also readily accounted for in this process, since increased oxygenation and metabolism tend normally to enhance defensive efficiency, while subjects in whom, as in Addison's disease, the adrenals are the seat of organic lesions, are known to be very vulnerable to infection. Finally, Cannon's emergency theory also becomes a normal feature of increased oxygenation and metabolism since the needs of efficient defense require the increased adrenal activity observed by this physiologist.

Turning now to the physiological effects of alcohol, Sollmann[1] writes, referring to its action in moderate doses, typical of stimulation*: "There is an increase in the rate of the *respiration* and of the *heart;* the *blood pressure* rises." He states, moreover, that "stimulant" doses of alcohol also increase markedly "the rate and depth of the respirations" and that "the amount of respired air may be doubled." All these phenomena are typical of increased adrenal function. They are produced, moreover, not only by small doses of alcohol but are also sustained for a time by the prolonged use of alcohol. Does alcohol, however, stimulate the adrenals directly? This was shown by the researches of Bernard and Bigart,[2] who found that slight intoxication increased their functional activity; Aubertin also found in experiments on animals that even chronic alcoholic intoxication caused hyperactivity of the adrenals, with marked hyperplasia. In one of two cases of marked chronic alcoholism studied by Schmiergeld,[4] the adrenals showed changes in the spongiocytes of the glomerular layer which likewise indicated hyperactivity. That these phenomena are brought about by stimulation of the respiratory centers which include that governing the adrenals, is also shown by many experimental facts including the observation of Burge[5] that alcohol greatly increases the catalase of the blood. This catalase is, as my own researches have shown, the adrenal ferment adrenoxidase, thus indirectly sustaining all other observations that alcohol stimulates the adrenals when administered in moderate doses.

Conversely, when large doses are ingested or chronic alcoholism due to the continuous use of large quantities of alcoholic beverages prevails, the functional activity becomes deficient. Thus Bernard and Bigart[2] and also Aubertin found in such cases cellular lesions corresponding with those of hypoadrenia. These effects have likewise been noted by other observers. E. F. Hirsch[6] has also called attention to marked alterations in the cortices of the adrenals in cases of delirium tremens.

On the whole, what observations have been made on the effects of alcohol upon the adrenals show that when employed in therapeutic doses as a stimulant, or used daily in moderation, it promotes the functional activity of the adrenals and therefore general oxygenation and metabolism. This fully supports the observations of Sollmann[1] who states (p. 554), after reviewing the pharmacological domain on the subject, that "*it may be considered as probable—some authorities to the contrary notwithstanding—that a certain amount of alcohol (variable in individual cases) may be taken daily without any demonstrable permanently injurious effect.*" Conversely, it is equally certain that what has very properly been described popularly as "intoxication" and chronic alcoholism tends to cause pathological lesions in the adrenals which may compromise temporarily or permanently, their functional efficiency.

Other factors bearing upon the relationship between alcohol oxidation and the adrenals will be considered presently.

Turning to the thyroid, the fact that this organ is also concerned with metabolism needs only to be recalled. Kendall,[7] who isolated thyroxin, its most active principle, states in this connection: "The changes occurring in a patient with thyroid deficiency, or in experimental animals by the administration of thyroid are so great that practically every cell within the animal organism is changed. The effects are felt throughout the nervous system and the circulatory system, the rate of metabolism is enormously increased and even the skin and hair show revolutionary changes." Moreover, we also find the thyroid concerned with defensive functions. While Victor Horsley in 1892 found that the rôle of the thyroid in catabolism included the breaking down of toxic waste products, my own labors published in 1903-1907 showed that the thyroparathyroid hormone took part in our defensive functions against infections and exogenous pathogenic

agents, the hormone constituting what Wright and Douglas have since termed "opsonin." This has been repeatedly confirmed in Europe. McCarrison,[8] who has himself contributed much to our knowledge in this connection, states in a review beginning with my labors in 1902: "The fact that the antitoxic and bactericidal resources of the body are largely dependent on the functional perfection of the thyroparathyroid mechanism is, I believe, as clearly established as is the influence of this mechanism on metabolism."

What is the influence of alcohol upon the thyroid? The literature of the subject virtually repeats, in respect to this organ, the statements made concerning the adrenals. As stated by Lorand, small doses of alcohol, particularly in weak solution, do not injure this gland, while stimulating it. In a personal practice covering over forty years, twenty of which have been devoted entirely to endocrinology, I have never seen a case in which, even under the influence of moderate daily use of alcohol, the thyroid showed, during life, at least, any sign of functional deficiency. Conversely, the fact that it is stimulated is emphasized by the observations of several investigators to be mentioned later, showing that therapeutic on non-toxic doses increased the defensive efficiency of the body against disease.

As soon, however, as the line of demarcation between the moderate therapeutic or stimulating dose —which, of course, varies greatly in different individuals—is passed and toxic doses are ingested habitually, the whole picture changes. As emphasized by Hertoghe,[9] de Quervain,[10] Sarbach,[11] and Petroff,[12] degenerative lesions, in which sclerosis is a prominent feature, are produced, with all their evil consequences upon the health of the drunkard, including his own vulnerability to disease and what is worse, upon his offspring. Schmiergeld,[4] in describing the histological lesions found in the thyroids of two confirmed drunkards, which showed marked sclerosis, large bands of connective tissue subdividing the organ into many lobules, etc., states that we cannot attribute the changes strictly to alcohol since they may also be caused by tabes, epilepsy, syphilis, etc. The fact remains, however, that alcoholism may be included among the disorders which cause sclerosis of the endocrines in general. Schmiergeld also found sclerosis in the pituitary of his two cases. This is well illustrated in a photophotograph of the pituitary of a confirmed drunkard shown opposite page 1332 in my work on the Internal Secretions.

The morbid effects of chronic alcoholism upon progeny, so well established by a multitude of recorded facts, has also been placed on a solid footing by the labors of Bourneville, Robinovitch, Bernard, Vincent, LeClerc[13] and others, cretinism being the main disorder observed in the offspring. As this endocrinopathy is the most advanced stage of hypothyroidism, it is probable, as my own observations have tended to show, that a far greater proportion of cases of feeblemindedness and backwardness in children than 5 per cent. (which is the proportion of true cretinism among such cases), may be traced to chronic alcoholism in one or both parents. As to its effects upon progeny through the gonads, Simmonds,[14] Kyrle and Schopper,[15] Arlitt and Wells,[16] and others found that alcoholism, also the injection of alcohol in animals, caused practically always changes in the testes, resulting mainly in alterations in spermatogenesis. This appears to be the main effect produced, changes in the ovaries being slight or nil, although sclerotic changes are occasionally found. This analysis of the effects of alcohol upon the endocrines, which effects correspond with those upon other organs, demonstrates also that alcohol in keeping with other powerful tonics, strychnine for instance, stimulates functional activity when administered in therapeutic or moderate doses, and that it becomes an active, destructive toxic when taken in large doses.

Besides the stimulating action of alcohol on the endocrines, however, another factor must be taken into account, to wit, the familiar fact that alcohol is oxidized in the blood and tissues. Now, both the adrenal and thyroid hormones, we have seen, influence powerfully both oxidation and metabolism. How does the oxidation of alcohol square with these glandular functions?

An important therapeutic resource asserts itself in the use of small doses in this connection, while, conversely, large doses find therein an additional power for harm. In the case of small doses, oxidation of the alcohol supplies heat energy to all tissues which is *added* to that produced by its stimulating action upon the adrenals, causing them to unite their efficiency. This parallelism shows itself when they are compared. Thus, Sollmann[1] describes as "stimulant effects" after taking moderate doses of alcohol, an increase of the rate and depth of respiration, the increase in respired air being sometimes doubled, with increase of the systolic blood pressure, particularly where this is depressed, and increase of heart action." In Sollmann's own words, "The amplitude and force of the pulse; the mass movement of the blood; the output of the heart and the efficiency of the circulation in general, will be improved. The effects are not very great and not altogether constant in *normal* individuals, but they suffice to produce decided therapeutic effects especially in conditions of exhaustion."

This corresponds precisely with the action of adrenalin. Its effects are inconstant and often *nil* in the *normal* individual, but we know that it is also in exhaustion when the vascular tension and the blood pressure is low, particularly at the close of acute infections, that it produces its best effects. Alcohol, through its own property of becoming oxidized, and its stimulating action on the adrenals, which itself promotes oxidation, thus combines to form a double source of heat energy and of metabolic activity, culminating in powerful general stimulation towards normal efficiency.

As soon, however, as the therapeutic dose, say 15 to 20 c.c. well diluted, is exceeded, the toxic phase of alcohol begins. This is due to the fact that while a small dose takes up but a small proportion of the body's asset in oxygen, which is readily replaced by an increased intake of this gas, a large dose takes up a greater quantity, more than can be replaced and finally becomes oxidized in part at the expense of the tissue cells including those of the endocrines. Hence, after a period of excitement, the increasing loss of control over the limbs, and when the dose has been sufficient, the total loss of muscular power, etc., which constitutes the "dead drunk."

Another important distinction between therapeutic and toxic doses of alcohol asserts itself when it is recalled that both the adrenals and the thyroid take an active part in the defensive processes against infection. Since, as we have seen, alcohol in therapeutic doses stimulates these organs, it should in such doses increase defensive activity, while, conversely, large doses which depress these glands should lower defensive activity. This is precisely what independent observation has demonstrated. As far back as 1903, Hobart A. Hare[17] found as the result of a comprehensive study, that alcohol combatted infections by increasing the bacteriolytic power of the blood when administered in ordinary medicinal doses. This corresponds with the observations of Müller,[18] Wirgin,[19] Parkinson,[20] and others. Parkinson's experiments showed, moreover, that while small quantities of alcohol temporarily increased the production of antibodies, large doses caused the opsonic index to fall. If these large doses were persisted in, the opsonic index remained low, permanently indicating failure of the defensive mechanism. The protective value of small doses of alcohol in free dilution was also illustrated repeatedly during the world war. Conversely, the predisposition of the drunkard to infections and the unfavorable prognosis chronic alcoholism entails in these diseases are too well known to require emphasis.

Finally, as is well known, the benefits derived from the moderate use of alcohol manifest themselves mainly in the direction of recuperation after great fatigue, during convalescence from debilitating diseases, or in the debility due to old age. This also coincides with the main indications for adrenal preparations—a suggestive fact in view of the stimulating action of therapeutic doses of alcohol upon the adrenals previously mentioned. During the war it was found by Josué,[21] Satre and Gros,[22] and others, that overstrain in troops, with symptoms of cholera (Asiatic cholera having been shown by myself in 1903 to correspond symptomatically with complete adrenal failure, a fact also confirmed during the war by the remarkable effects of adrenal injections) was promptly arrested by the use of adrenalin. While alcohol has long been our sheet anchor in the threatening heart failure often witnessed at the close of acute infections, we now know that intramuscular injections of adrenalin in 8-minim doses of the 1-1000 solution has the same effect while acting more promptly. In the aged, atrophy of the adrenals is now fully recognized pathologically and clinically as an underlying cause of their weak heart and circulation. Ample experience has shown that the moderate use of alcohol is of great value in the elderly—doubtless due to its stimulating action on the adrenals. The workingman after a hard day's labor experiences great relief and a sense of well-being from a couple of glasses of beer or wine which, by stimulating his endocrines, his systemic oxidations, and his circulation, aid in the catabolism of fatigue wastes. Known as these wastes are to breed bad temper and irritability, the temperate use of such stimulation, by creating a sensation of comfort and well-being, replaces these elements of family trouble by geniality and cheerfulness, which make for good fellowship. Again, does science confirm biblical text:

> He causeth the grass to grow for the cattle, and herb for the service of man that he may bring forth food out of the earth, and *wine that maketh glad the heart of man.* Psalm civ, 14, 15.

As to the dilutions of alcohol which prove harmless even in large quantities, the consensus of opinion among pharmacologists is well summarized by Sollmann[1] who, after reviewing its effects upon the mental attitude, the circulation, the digestion, etc., states that "alcohol should be taken well diluted as light wines or beers." The more recent investigations only serve to confirm the teachings of many decades. H. M. Vernon,[23] for instance, in a comprehensive study of the question for the British Central Control Board, in which various dilutions varying from 5 to 40 per cent. solutions were used with impairment of neuromuscular coordination as index, speaks in the same direction. Higher dilutions than 5 per cent. were all found harmful, but the effects of alcohol taken in considerable dilution were found to be much slighter than anticipated. Indeed, he remarks in this connection: "Practically speaking, beer containing 3 per cent. by volume of alcohol or 5.25 per cent. proof spirit is a non-intoxicating liquid."

As to light wines, white or red, the sobriety of districts in France, Italy and Spain in particular, where such are used as usual beverage, speaks in the same direction. This is well illustrated among our own laborers, the best, most orderly and most industrious of which are the wine drinking Italians, as all road contractors will testify. Again, claret is a prophylactic against a class of deficiency diseases now receiving much attention. Suggestive in this connection is the fact, recalled by Bouchardat that claret prevented the development of scurvy aboard a French war-vessel, one of two detained in the South Seas, while the disease developed aboard the other, a British vessel, upon which the usual ration of rum was used. Prof. Bouchardat ascribes the salvation of the French crew to the inorganic matter and particularly the potassium salts contained in their wine. The proportion of alcohol in natural wines varies from 5 to 15 per cent. but the quantity consumed at one time, even of the finer vintages, is far below that of beer, because of their tendency in any large amount, to disturb the stomach, owing to the tannates, ethers, and essential oils they contain. Hence the rarity of intoxication due to wine.

Very different, however, are the percentages of alcohol in whiskey, brandy, gin, rum, etc. (44 to 55 per cent.) which percentages are the real source of all the ills attributed to alcohol as a whole and the use of which it should be our aim to discourage.

Conclusions.—All these facts, which could be multiplied almost indefinitely, owing to the vast amount of literature available upon the pharmacology of alcohol, suggest the following deductions:—

1. Alcohol either stimulates, depresses, or causes organic lesions in the endocrines, according to the quantity consumed, and, as such, in keeping with other therapeutic agents, proves beneficial in small or moderate doses, but harmful in large doses, *i.e.* when such exceed, either singly, or cumulatively, certain limits.

2. Pharmacology: Alcohol increases general metabolism: (1) by becoming itself oxidized and thus

increasing the heat energy liberated in the blood and tissues; (2) by stimulating the adrenals, which govern the intake of oxygen, and sustain anabolism, and (3) by stimulating the thyroid which sustains catabolism.

3. In stimulating but non-toxic doses alcohol increases the functional activity of the endocrines. This action, through the adrenals and thyroid especially, increases the cardiovascular tone, respiratory activity, the rate of metabolism, and the efficiency of the defensive functions.

4. In toxic doses, the excess of alcohol taken becomes oxidized at the expense of the oxygen in the blood. The tissues, including the endocrines, being inadequately supplied with oxygen, their metabolic rate is slowed, the cardiovascular tone is lowered, and the defensive efficiency of the body is reduced, giving rise in marked cases to the symptomatology of acute alcoholism.

5. When the use of toxic doses of alcohol is prolonged, or becomes habitual, the excessive heat energy developed in the tissues by the oxidation of the alcohol increases sufficiently the proteolytic activity of the tissue enzymes to cause autolysis in various highly differentiated tissues including the endocrines, causing therein focal lesions which lead to sclerosis.

6. Therapeutics: Small doses in free dilution are indicated because of their stimulating action upon the adrenals. These organs, by increasing the oxygen intake, add to the heat energy liberated by the oxidation of the alcohol itself, a potent agency for the prompt acceleration of cellular metabolism which entails a correspondingly rapid resumption of depressed vital functions. Hence, the familiar fact that alcohol is indicated in such conditions as circulatory failure including that of acute infections, fainting, shock (all of which conditions, when threatening, may be further counteracted by also giving intramuscular injections of adrenalin), convalescence, senile debility, overstrain, fatigue, etc.

7. General Uses: Beverages containing 3 per cent. by volume of alcohol such as light beers, cider, etc., are nonintoxicating because of the necessity of ingesting too great a volume of fluid to cause any degree of intoxication. Light wines, white or red, containing 5 per cent. by volume of alcohol are likewise nonintoxicating partly for the same reason, but particularly because any large quantity of wine tends to produce gastric discomfort owing to the tannates, ethers, aldehydes, essential oils, etc., they contain, thus automatically precluding intoxication.

8. The cause of true temperance would be better subserved and a large majority of the antagonists of prohibition would lend it their support for public good, if in its details, the law enforcing it were compatible with the teachings of science and with the needs of the workingman and others in whom fatigue, debility, physical and mental depression, justify the use of nonintoxicating beverages such as light beers, cider, etc., containing not more than 3 per cent. of alcohol by volume, or light wines containing not more than 5 per cent. by volume. The Volstead Act which imposes the rule that one-half of one per cent. of alcohol is intoxicating within the intent of the Prohibition Amendment is not sustained by a single scientific fact, and, as all wrongs invariably do, is steadily defeating its object.

REFERENCES.

1. Sollmann: Manual of Pharmacol., Phila. and Lond., 1917.
2. Bernard and Bigart: *Jour. de pathol. et physiol. gén.*, viii, 1014-1029, 1902.
3. Aubertin, C.: r. de la Soc. de Biol., Paris, lxiii, 270-272, 1907.
4. Schmiergeld: *Arch. de Méd. Exper. et d'Anat. Pathol*, xxi, 75-85, 1909.
5. Burge: *Amer. Jour. Physiol.*, xlv, 57, 1917.
6. Hirsch, E. F.: *Jour. Amer. Med. Assoc*, lxiii, 2186, 1914.
7. Kendall: *Journal-Lancet*, xxxvii, 768, 1917.
8. McCarrison: *Lancet*, i, 365-373, 1913.
9. Hertoghe: Die Erkrankungen der Schilddrüse u. d. chronische gutartige Hypothyroidisms, München, 1900.
10. De Quervain: *Semaine méd.*, xxv, 517, 1905.
11. Sarbach: Mittheil. a. d. Grenzgeb. d. Med. u. Chir., xv, 213-246, 1905-1906.
12. Petroff: *Roussky Vratch*, ix, 681-683, 1910.
13. LeClerc: *Bull. de l'Acad. de Méd.*, 3e Série, lxxxii, 394, 1919.
14. Simmonds: *Berl. klin. Woch.*, xxxv, 806, 1898.
15. Kyrle and Schopper: *Virchow's Archiv.*, ccxv, 309-335, 1914.
16. Arlitt and Wells: *Jour. Exper. Med.*, xxvi, 769, 1917.
17. Hare: *Therap. Gaz.*, xxvii, 289-300, 1903.
18. Müller: *Archiv. f. Hyg.*, li, 365-421, 1904.
19. Wirgin: *Centralbl. f. Bakter.*, I, xxxviii, 200-209, 1905.
20. Parkinson: *Lancet*, ii, 1580-1582, 1909.
21. Josué: *Paris méd.*, vii, 13, 1917.
22. Satre and Gros: *Progrès méd.*, xxxiii, 205, 1918.
23. Vernon, H. M.: *Brit. Med. Jour.*, ii, 638, 1920.

2043 WALNUT STREET.

ALCOHOL IN SURGERY.*

BY ROBERT T. MORRIS, M.D.,

NEW YORK.

ALCOHOL possesses a sort of universality which has led it at various times into several fields of surgery. On the whole, we may say there appears to be no place in which it holds a superior position to other agents which may be employed for the purposes for which alcohol is employed.

In advance of the days of ether anesthesia, patients about to undergo surgical operation during the days of the heroic era in surgery were sometimes put profoundly under the influence of alcohol —a resource which is said to be still employed among some of the native tribes in Africa and in remote districts elsewhere, where anesthetics are not available. Alcohol was at one time used in combination with chloroform and ether in what was known as the A. C. E. mixture, which was supposed to lessen the refrigerating action of sulphuric ether and chloroform and at the same time add a certain stimulating influence which would overcome the depressing influence of chloroform. The A. C. E. mixture has, however, now passed out of use for the most part.

In some of the neuralgias alcohol has been used for injection purposes, particularly in trifacial neuralgia, sciatica, and neuralgia of the superior laryngeal nerve occurring in tuberculous laryngitis. Osmic acid, however, in weak solution seems to be more effective and with longer duration of influence than alcohol. Both of these substances are injected directly into the nerve pref-

* Read at a meeting of the American Therapeutic Society, June 3, 1921. (See page 300.)

erably, although sometimes alcohol in the nerve sheath will suffice to halt the severe neuralgic pain. In all probability this action is secondary to a coagulation of albuminous elements in the nerve structure, and the neuralgia is prone to return after a restoration of the nerve elements to normal condition, which naturally occurs spontaneously.

Alcohol as an evaporating lotion diluted with water is a valuable agent for cooling purposes in cases of contusion. Gauze moistened with an alcohol solution and gently fanned produces a very grateful refrigerating effect.

Alcohol has a place in the preparation of surgical instruments. In emergency, other means not being available, certain instruments may be sterilized by "flaming" by means of alcohol. In some operating rooms it is the custom also to boil sharp-edged instruments for one to three minutes only and then immerse them in 70 per cent. alcohol. When knives are sterilized by immersion in pure carbolic acid, they are immersed in alcohol before being used. As a general disinfectant of instruments, however, alcohol at ordinary temperatures cannot be considered to be useful. Various experiments on the part of a number of observers have shown that alcohol is not really a germicide, but it may act as an antiseptic with inhibitory action upon the growth of bacteria. There seems to be evidence that certain bacteria resist the action of 95 per cent. alcohol, that they are not affected by a 50 per cent. solution, and yet 70 per cent. seems to penetrate the bacterial tissue and act as an agent inhibiting bacterial growth. Some species of bacteria, the colon bacillus, for example, are injured more by a very strong solution than by the weaker ones, this matter of response to alcohol varying with different kinds of bacteria.

Alcohol is used extensively as one of the substances for hand preparation and for preparation of the skin of the patient in advance of operation. Its action here, however, belongs to nothing more than that of a general solvent for removing sebaceous material and other materials which hold bacteria upon the surface of the skin. Scrubbing with green soap presumably does more than is done with alcohol in this way, and it has the special advantage of not hardening the epithelium of the hands of the surgeon. Alcohol, being hygroscopic, abstracts a certain amount of water from the superficial epithelium so that a surgeon who employs it several times in the course of a day would lose a certain degree of delicacy of touch that goes with soft skin.

Alcohol in weaker solutions, not stronger than 25 per cent., appears to have been beneficial at the hands of a number of gynecologists for flushing purposes in cases of septic endometritis in connection with a drainage device. The empirical results recorded do not take into account the fact that alcohol is not a germicide, and we apparently have some local stimulating effect upon the normal tissue cells leading them to resist bacterial invasion. The unknown factor may relate to the astringent action of alcohol.

Alcohol has been employed as a preservative for catgut, but it exerts germicidal influence only at boiling temperature and under pressure.

Alcohol as a stimulant after surgical operation, for the purpose of overcoming the effects of shock and for stimulating flagging energies into activity, appears to have a place of considerable importance at times, although a good deal of judgment on the part of the surgeon is required in order to avoid injurious action. Continuous vomiting after surgical operation is sometimes quieted promptly by small doses of champagne, and patients who are making slow recovery from the shock of operation occasionally make prompt response for the better when alcohol is given in the form of good wine or spirits.

In conclusion we may state that alcohol as an antiseptic and anesthetic in surgery has negligible value, and as a stimulant it has limited application.

616 Madison Avenue.

Medicolegal Notes.

Expert's Opinion Must Be Based on Facts, and Does Not Prove the Existence of the Facts.—In an action on an accident insurance policy against death by external, violent, and accidental means, and excepting death or loss from inhaling gas or asphyxiation, three witnesses testified that they saw a reddish spot on the deceased's temple a short time after his death, and a physician, in response to a hypothetical question, testified that in his opinion the death was attributable to the external signs of violence over the temple. It was held that this evidence was not sufficient to authorize or support a finding by the jury that the deceased came to his death by violent, external, or accidental means, and not by asphyxiation from automobile fumes, as stated in the death certificate and proofs of loss. The court said: "The opinion of the physician as to the cause of death is invoked to supply the substantive facts necessary to support his conclusion. This cannot be done. It is the function of opinion evidence to assist the jury in arriving at a correct conclusion upon a given state of facts. To endow opinion evidence with probative value it must be based on facts proven or assumed, sufficient to enable the expert to form an intelligent opinion. The opinion must be an intelligent and reasonable conclusion, based on a given state of facts, and be such as reason and experience have shown to be a probable resulting consequence of the facts proved. The basis of the conclusion cannot be deduced or inferred from the conclusion. In other words, the opinion of the expert does not constitute proof of the existence of the facts necessary to support the opinion."—Dreher v. Order of United Commercial Trav. of America, Wisconsin Supreme Court, 180 N. W. 815.

Where there is a dispute about the existence of the facts stated in a hypothetical question, it is the exclusive province of the jury to determine whether such facts do exist. The truth or existence of each and every fact included in the hypothetical question is assumed. The opinions of the experts are built upon the assumption, and if this foundation falls the superstructure goes with it. Therefore, if the jury finds that any fact stated in the hypothetical question is untrue, does not exist, the jury must then disregard the opinion of the experts. But, on the other hand, if the jury finds that all the data stated in the hypothetical question exist, are true, the jury must consider the opinion of the experts in connection with all the other evidence in the case.—Kelly v. State, Arkansas Supreme Court, 226 S. W. 137.

Consideration of Medical Opinion Without Opportunity to Cross-Examine Is Error.—The Appellate Division holds that the consideration by the State Industrial Commission in a workmen's compensation proceeding of a written opinion of a physician as to the cause of death after the hearings were closed, so that no opportunity for cross-examination of the writer of the opinion was offered, was error, necessitating reversal of the award.—Jack v. Morrow Mfg. Co., 194 App. Div. 588.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, August 13, 1921.

THE CONNECTIVE TISSUE FRAME-WORK OF UNSTRIATED MUSCLE.

WHEN a good tissue for study is selected, such as the esophagus of the turtle in which the special interstitial connective tissue is very developed, it would appear that this tissue is essentially composed of precollagenous amorphous connective substance in which only a few fine elastic fibers are found. The amorphous substance composing the major part of this interstitial tissue is finely alveolar, the alveoli communicating more or less among themselves. The occasional presence of nuclei which are directly included or separated from it by a thin layer of endoplasm would seem to indicate that this represents a protoplasmic alveolar rete which has undergone a transformation in exoplasm in most or all of its extent. Garnier has reached different conclusions purely because his staining methods were imperfect. For this reason the trabeculæ of the rete were ill-defined in his sections and he therefore regarded them as fibers while in reality they are true thin laminæ marking off the alveoli. This alveolar rete is not a new discovery but it has been made perfectly evident by Lemoine. On the other hand, Lemoine has shown that at the limits of the submucosa it gradually continues with the fibrillary connective tissue. Its amorphous stroma is slowly invaded by true fibers which deform it more or less completely. To the very delicate framework formed by them another and grosser framework in which fibers predominate, becomes substituted; on the other hand, in the general connective tissue of many invertebrate animals, a similar fine alveolar rete is present, but with still more incomplete septa. By proper staining methods as described by Lemoine, Schneider, and others, it will be seen that the whole of the neighboring septa of the alveoli nearest to the muscle fiber are in contact with it so as to give it a continuous sheath.

Lemoine's researches concord with those carried out by Schäfer on other organs possessing abundant interstitial tissue, since they both reach about the same conclusions. In organs with little interstitial tissue development—arteries and veins of mammiferous animals—Lemoine found the same arrangement, only here, between two neighboring fibers usually one or two rows of alveoli existed, a condition frequently met with in the turtle; these alveoli were very small and often so compressed as to be flattened out. It is probable that either by osmosis or perhaps by direct communications a current of interstitial lymph circulates through the alveoli and bathes the muscle fiber. All these descriptions show the importance of the amorphous connective substance because it alone may form a supporting interstitial framework.

The study of the adult aorta shows the presence of elastic laminæ included in an amorphous lamina of the same nature and further emphasizes this importance. Histogenesis explains how the connective lamina at first alone exists and how the elastic substance appears within it later on. The amorphous connective lamina is itself due to a thickening and regularization of the amorphous substance between each stratum of unstriated fibers in which they are embedded and thus forms a sheath for each. On account of the absence of connective cells, strictly speaking, between the unstriated muscle fibers of the aorta undergoing differentiation, it would seem that this amorphous substance represents here, not as elsewhere the exoplasm of the connective tissue cells, but the exoplasm of young unstriated muscle fiber. Thus the cells of the mesenchyma in the wall of the aorta may evolve in two directions, some becoming connective tissue cells, others becoming unstriated muscle; but it would appear that in both the young and less differentiated state the most superficial strata of the protoplasmic bodies can become differentiated into a precollagenous exoplasm, that is to say amorphous connective substance.

The conclusions that may be deduced from recent studies are that no intercellular cement is present between unstriated muscle fibers, nor are there any intercellular bridges. The fibers are plunged in an amorphous connective substance, very finely alveolar, which forms a sheath around each one. In organs with abundant interstitial tissue there may be several rows of alveoli, otherwise there is usually but a single row between each fiber. The alveoli become still more numerous and are not arranged in rows between two adjacent fasciculi. True connective tissue fibers and fine elastic fibers may be found here and there within the lamellar septa of the alveolar rete, but they are usually very sparse, and are best developed in the veins. The elastic laminæ of the large arteries develop in the midst of an amorphous connective lamina and always remain included within it. The amorphous connective substance can probably be derived directly from the unstriated muscle cells in the form of exoplasm, as it is likewise derived from the connective tissue cells.

ABNORMAL SENSITIVENESS TO MUSHROOMS.

THIS behavior is naturally quite distinct from the mushroom poisoning due to the presence of toxic alkaloids, and has been noted so rarely in literature that Azoulay does not seem sure that his observa-

tions are not unique. His article on "sensitiveness to edible fungi" appears in the *Bulletin Médical* for May 11-14, 1921, xxxv, 20. However rare in literature, the condition itself cannot be rare, as shown by answers to questions put to various people. The first patient whose case is described was a woman of 35 of excellent digestion and free from any irregularity of the bowels. At the age of 22 she had eaten of the mushroom known as the *Psalliotes* in company with her family, none of whom complained afterward. There were no symptoms during the digestive period, but later she suffered from an intense diarrhea. Ever after when she essayed to eat any kind of mushroom, wild or bedded, she experienced the same symptom. It was only necessary to eat about one cubic centimeter of the fungus to obtain this effect. The duration of the bowel trouble was around 18 hours. Apparently she was not sensitive to any other article of diet, although once she was poisoned by eating tainted meat. Another woman, aged 50, was healthy and of good digestion but somewhat predisposed to attacks of diarrhea from no apparent cause. At the age of 16 or 18 she had partaken of certain kinds of mushrooms with other people, of whom none other was taken ill. On this and subsequent occasions she paid for the indulgence by attacks of diarrhea so severe that she was compelled to abstain from mushrooms for life, as she supposed. At a much later period she ate cultivated mushrooms in Paris and had comparatively little trouble. A third woman aged 65 was made very ill by eating mushrooms and mussels and she was also abnormally sensitive to the action of drugs of all sorts.

While we have stated that this sensitiveness to mushrooms in the absence of alkaloidal poisons in the latter cannot be regarded as cognate with true mushroom poisoning, it must nevertheless be remembered that there is a marked personal equation in the latter, the sensibility of individuals showing much variability. But in the case of the edible mushroom an anaphylaxis is clearly suggested, although in the absence of details this cannot be demonstrated. The author thinks his third case was anaphylactic, but is not sure about the others. He assumes that the first episode was connected with eating mushrooms for the first time and the second as well. This does not appear in the histories. He would agitate the subject by having medical men put interrogatories to people who are exposed much to the consumption of mushrooms. Data of importance are the age, the usual condition of the digestive tract, the first date when mushrooms were eaten, and the reaction, if any; and if none was present on this occasion the date at which the first poisoning occurred, the species eaten, and whether well cooked or not, whether ordinary indigestion was ever experienced, the relative experience with wild and cultivated fungi, the number of crises which followed the indulgence, etc., etc. Other data of special interest concern the possible existence of a family idiosyncrasy and of anaphylaxis or simple poisoning by other familiar dietetic articles.

VASCULAR HYPERTONUS AND HYPERTENSION WITH ARTERIOSCLEROSIS.

Professor Pal writes on this subject in the *Wiener klinische Wochenschrift*, xxxiv, 6. The three conditions, he states, are commonly regarded as almost synonymous with one another, but hypertonus is an active state of the smooth muscle while hypertension refers to the lateral pressure on the vascular wall. Two factors are therefore concerned, one kinetic and the other biological. The tone of the muscle determines or regulates the kinetic function. The muscle tone is a matter of muscle consistency, and the latter has to do with the stratification of the muscle cells. With increased tonicity the artery becomes harder and the difference can be estimated by the touch. Not only quantitative but qualitative alterations are recognizable. Normally arteries are barely palpable, but in hypertonus they are palpable in various degrees. In some cases the hardness is persistent, in others it may abate with time. Since there may be hardened arteries with weakened heart action the phenomenon can have no necessary connection with increase of blood pressure, although in general increased tonus is associated with increased tension. Again high tension over long periods does not necessarily mean an anatomically altered artery. Presumably the muscle elements show some increase in number or size. To realize that long hardened arteries may suddenly become soft one has only to study the vessels on the paralyzed side of a hemiplegic. The arterial tonus is certainly a component of the blood pressure, but one which has been greatly overvalued. The finger is a most fallacious guide in these cases, for the caliber of the artery may vary greatly. A narrow hypertonic artery feels very different from a wide one, yet the former is seen in secondary contracted kidney, while the latter may sometimes be encountered in the arteriosclerotic kidney. Narrow rather than wide is the rule in hypertonic vessels.

To distinguish blood pressure from arterial hypertonus the use of instruments is an aid, but it does not appear that as yet we can measure either alone. The author, however, has contended for the autonomy of an essential hypertonus—primary, of course—of the arteries. This affection is virtually new—a functional arteriosclerosis. Apparently it may accompany polyglobia, but the author refers to an independent form concerning the origin of which we as yet know but little. It is at first without symptoms, latent—but in time a picture develops of enlarged heart with its congestive states, headache, insomnia, irritability, etc.

Our word arteriosclerosis is a rather confused conception. One form counts among the degenerative phenomena and is best called atherosclerosis.

Calcification of the media is something apart from the latter, for it is general, while atherosclerosis is focal. A presclerosis which ends in atherosclerosis does not exist as a universal phenomenon, for there is much arteriosclerosis which does not terminate in the degenerative phenomena. Both of these are seen exceptionally in young and even very young subjects. In the author's primary permanent hypertonus he has not found atheromatous foci in the large vessels. That mechanical factors alone can produce high pressure and sclerosis has been shown classically for the pulmonary artery by Ljungdahl. But if we can clamp off the limb arteries the protracted hardness and even the convoluted arrangement may soon vanish, showing that kinetic factors alone were present. There is apparently a direct connection between cases of functional hardness and calcification; in both the media is affected and the condition is general, not focal. Often, however, the differential diagnosis is impossible.

Tuberculous Salpingitis.

Although there is much evidence in the literature that the frequency of tuberculous salpingitis has been recognized by many of our prominent gynecologists, it seems possible that general practitioners, those who see the patients first, have failed to appreciate how common this affection really is. It is possible that we are doing the physician an injustice, for this opinion must necessarily be based upon impression rather than any statistical evidence. But in any event it seems profitable to call attention to Greenberg's article on the subject in *Johns Hopkins Hospital Reports*, xxi., 2, 1921, and to emphasize anew the important place which tuberculosis of the tubes has come to occupy. Greenberg found that almost 1 per cent. of more than 24,000 patients suffering with gynecological disorders had tuberculous salpingitis and that one in each thirteen pathological tubes examined showed the lesions of tuberculosis. At first sight these figures appear extraordinarily high, but they are in agreement with those obtained by other investigators and there is no good reason to believe that Greenberg's experience differs essentially from that in other large gynecological clinics. A preoperative diagnosis is unusually difficult and there are many instances in which the condition was first recognized on microscopic examination of the excised tubes. With careful physical examination and complete history it may be possible at times to make a tentative diagnosis and in the presence of ascites the diagnosis is relatively simple. Greenberg notes that the majority of the patients showed tenderness in the lower abdomen, menstrual disturbances, pain and leucorrhea, while about one-half or more showed some anemia and loss of weight. In 70 per cent. of the patients masses were found in the fornices. The picture is admittedly not a clear cut one, but the existence of the condition may be suspected much more often if it is always thought of when considering the diagnosis in a gynecological condition. While tuberculous salpingitis is a serious condition, especially when associated with tuberculosis elsewhere in the body, it appears to show some tendency to healing and it is probable that with early recognition and proper care a large percentage of these patients would recover.

The Hemoclastic Crisis.

The expression "hemoclastic crisis," or hemolytic crisis, having recently come into familiar use, Laumonnier gives to the readers of the *Gazette des hôpitaux* for June 22-24, 1920, xciii, 56, some timely information on the subject. He prefixes it with a summary of anaphylaxis and anaphyiactic shock and relates that in 1913 the distinguished clinician Widal made the discovery that in a certain case of alimentary anaphylaxis the shock was preceded by a vasculosanguine crisis comprising the following manifestations: lowered blood pressure, diminished number of white globules with inversion of the normal leucocyte formula, rarefaction of red cells and hematoblasts, modifications of coagulability, shining appearance of the venous blood, etc. This condition lasts several hours and is followed by a reaction in which some of the changes are overcompensated. Since that date innumerable experiments have been made on the hemoclastic crisis, and while much information has been gained the nature of the phenomenon is still obscure. The crisis followed by the shock is elicited by a variety of substances, comprising peptones, proteins, colloidal solutions, sera, etc. In a malarial access the entrance into the blood of the merozoites, which are foreign bodies, produces a hemoclastic crisis followed by shock which is no other than the malarial rigor and febrile attack. Again hemoglobinuria *a frigore* is the expression of a hemoclastic crisis, despite the fact that no foreign substance has gained access to the blood. Instead the cold appears to have denatured some of the protein compounds of the individual which then behave as heterologous substances. Attempts to limit these behaviors to colloidal activities have been unsuccessful, for a certain quantity of hypertonic saline infusion has produced the crisis and subsequent shock. The hemolytic crisis makes it evident that our knowledge of anaphylaxis is in its infancy, and it is also evident that this crisis figures in some way in the great majority of serological phenomena.

News of the Week.

Cholera Spreads in Starving Russia.—A special despatch to the New York *Times*, under date of August 4, states that Moscow authorities have officially admitted that there are 47,779 cases of cholera throughout Russia, and have also tacitly admitted that the number is on the increase. According to Soviet figures, there were in all Russia between January 1 and July 15 of this year 47,779 cases of cholera, of which 24,000 occurred in June. Observers on the Russian border in close touch with conditions believe these figures are below the actual number of cases.

Pellagra Conference Opens in Washington.—The conference called at the suggestion of President Harding to discuss the pellagra situation in the Southern States began on August 4. Those participating included Surgeon General Hugh S. Cum-

ming and other officials of the Public Health Service, health officers of the Southern States, with the exception of Georgia and Texas, and representatives of the American Red Cross and the Department of Agriculture. Mississippi was the only State that presented complete statistics. From January to June last in that State 5,417 cases of pellagra were reported as against 2,763 cases for the corresponding period of 1920, an increase of approximately 100 per cent. Oklahoma admitted that there were within her borders about 500 cases.

The Senate Passes the Willis-Campbell Bill.—The anti-beer supplement to the Volstead law was passed by the U. S. Senate on Monday of this week. The bill forbids physicians to prescribe beer for their patients. The vote passing the bill was 39 to 20. Those who voted against the bill were Senators Ball, Brandegee, Broussard, Cameron, Gerry, Johnson, King, La Follette, Lodge, McLean, Moses, Penrose, Phipps, Ransdell, Shortridge, Stanley, Pomerene, Wadsworth, Warren, and Weller.

Smokers Incorporate to Protect Rights.—The Supreme Court has given approval to the certificate of incorporation of the Smokers' League Against Tobacco Prohibition, Inc. According to the certificate, the objects of the new organization are "to establish and conserve the right of the citizens of the United States of America to use tobacco." The incorporators are all business and professional men of Greater New York.

South Carolina Licenses Physicians.—The State Board of Medical Examiners of South Carolina announced on July 29 that twenty-one doctors, fifty-eight nurses, and one osteopath had successfully passed the examinations conducted by the Board in June and had been licensed to practise their profession.

Medical Society Announces Legislative Program.—The Welfare Committee of the Medical Society of New Jersey announces a legislative campaign for the ensuing year, embodying opposition to every member of the House of Assembly who voted against the medical men's bill which would raise the educational standard of those who would practise healing and setting forth a general line of legislation which the medical profession will seek at the next Legislature. No names of assemblymen to be opposed were given, it being specifically stated that such action was the function of the various county medical societies. An amendment to the workmen's compensation law is also proposed "which will provide for the fair and proper compensation for the physicians and hospitals who are called upon to care for persons injured in industry." Opposition to compulsory health insurance is also voiced.

Increase in Suicides.—The semi-annual report of the Save-a-Life League, submitted by its president, Dr. Harry M. Warren, on August 7, shows that during the first six months of this year there were in New York City 443 suicides, of which 319 were men and 124 women. This is an increase of 102 over the same period for 1920. The report notes that while 225 children ended their lives during the first half of 1920, the number has more than doubled during the first six months of 1921. Many of these children gave school conditions, especially examinations, as the cause of their desire to kill themselves. The report indicates that throughout this country and the civilized world there has been a wave of suicide. During the first half of 1920 there were reported to the league 2,771 suicides in the United States as against 6,509 for the corresponding period of this year. This large increase is attributed to business depression, economic disturbances, and the general abnormal conditions of the war's aftermath.

Physically Strong Children Best Pupils.—The Detroit News reports the results of an investigation of 84,000 school children which shows that the physically robust child is far in advance of the weaker youngster of similar age as regards scholarship. Taking the grade for a child of normal weight and height for his age at 100, it was found that if a child is two and one-half years ahead of his age group in school he is also, as a rule, 10.2 per cent. higher and heavier than the ordinary child of his age. In the same way it was found that a child 9.5 per cent. under weight and height for his age is four years behind in his school work. The difference among the girls was slightly less than among the boys. The report states, however, that there are many factors—nationality, hereditary characteristics, etc.—which in different individuals tend to modify these conclusions.

Trustees Urge Restoration of Polyclinic Hospital.—In the name of the trustees and medical staff of the New York Polyclinic Hospital, Dr. John A. Wyeth protests "against the injustice of the further prolonged occupancy of this property by the Public Health Service of the United States," and appeals "to the State and municipal officers and to every man and woman who believes in the recognition of an honorable obligation to aid in bringing such pressure to bear upon the authorities at Washington that this great hospital—serving one of the most populous districts in the city of New York, in which there is a great shortage of hospital accommodations for the largely increased civil population may be returned to its owners and again used for the benefit of the people." The protest recalls that the hospital was turned over to the Medical Corps of the War Department during the World War and that the War Department transferred it to the United States Public Health Service against the wishes and the written protest of the trustees. It is pointed out that two years have elapsed since the Public Health Service took possession of the property and that it has persistently refused to relinquish its occupancy on the pretext that we were still at war inasmuch as the treaty of peace had not been signed.

Sanitary Code Regulates Noises from Automobiles.—At a meeting of the Board of Health of New York City on July 25 resolutions were adopted amending the Sanitary Code with the object of suppressing unnecessary noises from automobiles and other motor vehicles. The resolutions prohibit loud and explosive noises and require that engines shall be constructed so that the exhaust is made to discharge into a muffler or other device which will prevent loud or explosive noises, and

that no person having the management of an automobile shall allow the exhaust from such an engine to discharge into the open air. The resolutions further require that horns and other devcies for signalling shall be used in a reasonable manner as a danger warning only and shall not be continued for an unnecessary and unreasonable period of time.

Memorial to Dr. Trudeau.—A memorial window erected in the Episcopal Church of St. John in the Wilderness at Paul Smith's, N. Y., by William Rockefeller, in memory of Dr. Edward Livingston Trudeau, was dedicated on August 7. The dedication service was conducted by the Rev. Philemon F. Sturges of Providence. St. John's in the Wilderness was built of logs in 1887, Dr. Trudeau having started the work four years after his first visit to the Adirondacks.

Osteopaths Oppose a Secretary of Health.—The American Osteopathic Association, at its annual meeting held in Cleveland, Ohio, July 27-30, put itself on record as opposed to the Owen bill and Kenyon-Foss bill, claiming that this legislation would create State medicine and give to one school of healing a monopoly. The association is also opposed to the Sheppard-Towner bill.

War Memorial for Post-Graduate Hospital.—The New York Post-Graduate Hospital is having set up a huge bronze memorial tablet in memory of the medical officers, nurses, and enlisted men who formed a unit from that hospital and served in the American Expeditionary Forces in France, and which functioned under the unit name of Base Hospital No. 8, A. E. F., Savenay, Loire-Inférieure, France. Five of its members lost their lives while in the service. A gold star is placed opposite each of these names on the tablet.

Malaria Discovered Among Immigrants.—The New York Health Department has received information that some of the hospitals in the city have found malaria among newly arrived immigrants. This disease is among those certified as reportable, and because such immigrants might serve as a spark to light up a very considerable outbreak of this disease the Health Department urges that physicians should remember that it is their moral and legal duty to report to the department at once each and every case of malaria that comes under their professional notice. The Health Department further reminds physicians that the aid of the laboratory should be sought in all diagnoses of this disease.

Deaths from Narcotics in New York City.—A report submitted to the New York City Health Department from the Chief Medical Examiner of the City of New York for the years 1918-1921 shows that during this period there were 164 deaths from narcotic poisoning, of which 107 were due to morphine, 24 to opium, 27 to heroin, and 6 to cocaine. Of these deaths 65 occurred in 1918, 56 in 1919, and 43 in 1920.

Male Births in Germany During the War.—According to statistics which have just been announced, the average birth ratio in Prussia is 103 boys to each 100 girls, but during the war the ratio was 107 boys to 100 girls. The same phenomenon was reported during the Franco-Prussian War, but the accuracy of the figures was questioned then because of the imperfect methods for gathering statistics.

Gifts for New Broad Street Hospital.—The Downtown Hospital Association, New York, reports that at the end of the first week's campaign for $1,000,000 for the Broad Street Hospital building fund $257,000 has been contributed. An anonymous gift of $100,000 brought the total up to that amount. It is expected that the new one hundred bed addition to the hospital will be completed by the end of November.

Dr. William J. Pollock has been appointed city physician of Chicago by Mayor Thompson to succeed Dr. Clarence W. Leigh, whose term has expired.

Dr. Frederick E. Strozzi of Buffalo has recently been the recipient of a citation from the King of Italy conferring upon him the grade of cavaliere of the Order of the Crown of Italy for conspicuous services during the late war.

Dr. Homer Dupuy has been elected president of the medical staff of Hotel Dieu, New Orleans, La., to succeed Dr. Marion Souchon.

Gifts to Madame Curie.—According to an announcement by Mrs. William B. Maloney, chairman of the Marie Curie Radium Fund, gifts from American women now total over $162,000. In addition to the gram of radium purchased for $100,000, Madame Curie returned to France with a gram of mesothorium and other costly ores. She received awards from scientific societies amounting to $6,884.51, and a balance of $60.000 remains with the Equitable Trust Company, which is being held by the committee awaiting a decision as to what shall be done with it. There is also being collected a fund of $50,000 for the equipment of Madame Curie's laboratory.

Positions for Medical Internes.—The United States Civil Service Commission announces an open competitive examination for medical interne, to fill vacancies in St. Elizabeth's Hospital, Washington, D. C., and positions requiring similar qualifications. The salary is $1,200 a year and maintenance. Applicants must be graduates of a reputable medical college or senior students in such an institution; they must not have graduated previous to 1915 unless they have been continuously engaged in hospital, laboratory, or research work. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. In the absence of further notice applications for this examination will be received by the Civil Service Commission at Washington, D. C., until the hour of closing business on November 1, 1921.

Obituary Notes.—Dr. ISAAC MORTENSE CORNELL of Wappinger Falls, N. Y., a former resident of Rensselaer, died in Hudson about July 1, at the age of seventy years. He was graduated from New York University in 1877.

Dr. JAMES E. GROFF of Doylestown, Pa., a graduate of Jefferson Medical College in 1880, died on June 11, at the age of sixty-five years. He was the Bucks County representative of the State Department of Health and a former member of the Borough Council.

Dr. LOUIS EDOUARD SCHILLER of Lowell, Mass., a

graduate of Laval University College of Medicine in 1888, died following an operation in a Manchester hospital on June 10, at the age of sixty-three years.

Dr. ORELLO S. MARTIN of Salamanca, N. Y., a graduate of the Cleveland University of Medicine and Surgery in 1870, died on June 6, at the age of seventy-three years.

Dr. DANIEL EDGAR ROBERTS of Keyport, N. J., a graduate of New York University Medical College in 1883, died on June 15, at the age of sixty years.

Dr. GEORGE D. MCGAURAN, City Physician of Newburyport, died on June 15, at the age of seventy-one years. He was graduated from the Eclectic Medical College, New York, in 1875 and was a consultant on the staff of the Anne Jacques Hospital.

Dr. WILLIAM CALHOUN EBAUGH, formerly of Salt Lake City, died at the home of a relative in Granville, Ohio, on June 10, at the age of eighty-two years.

Dr. JACOB PRESTON SARGENT of Lodi, Cal., a graduate of Bellevue Hospital Medical College in 1886, died in a San Francisco hospital on June 7, at the age of fifty-eight years.

Dr. LEONARD BRIGGS OLIVER of Chula Vista, Cal., a graduate of the State University of Iowa College of Medicine in 1887, died suddenly on June 10, at the age of sixty-three years. He formerly practised medicine in Chicago.

Dr. EDWIN A. WEIMER of Peoria, a graduate of Rush Medical College in 1895, died in a hospital in Elkhart, Ind., as a result of injuries received in an automobile accident, on June 7, at the age of fifty years.

Dr. ALBERT WENTWORTH POWERS of Fountain, Minn., a graduate of Rush Medical College in 1872, died on May 29, at the age of seventy-one years.

Dr. HENRY J. LACIAR of Bethlehem, Pa., a graduate of the College of Physicians and Surgeons, Baltimore, in 1881, died following a stroke of apoplexy on June 13, at the age of sixty-five years.

Dr. A. J. GOURLEY, a graduate of the Kentucky School of Medicine, Louisville, Ky., in 1890, died recently at his home in Lick Creek, Ill., at the age of sixty-nine years.

Dr. FRANK B. SEWALL of Marlin, Texas, died on June 6, at the age of forty years. He was graduated from the University of Virginia Department of Medicine in 1902, and served as first lieutenant in the Medical Corps of the A. E. F. in France during the World War.

Dr. MOULTON J. KLINE of Orefield, Pa., a graduate of the University of Pennsylvania in 1875, and at one time a member of the Pennsylvania State Legislature, died from uremia at Central Valley, on May 15, at the age of sixty-six years.

Dr. JOHNSON MCKEE SITES, a graduate of New York University in 1885, and a former president of the Eastern Panhandle Medical Society, died at his home in Martinsburg, W. Va., on May 23, at the age of fifty-nine years. He was a member and president of the State board of examiners of nurses.

Dr. FREDERICK A. TUCKER of Noblesville, Ind., a graduate of Rush Medical College in 1898, died on June 7, following an operation for appendicitis, at the age of forty-eight years. He was a Lieutenant-Colonel in the United States Army during the World War, in charge of Base Hospital No. 1, near Paris, for eighteen months.

Dr. A. B. CAMPBELL of Orrville, Ohio, a graduate of the University of Michigan in 1871, died on June 2, at the age of seventy-six years.

Dr. WILBUR S. WATSON of Danbury, Conn., formerly surgeon general and medical director of the Connecticut National Guard, died on June 7, at the age of sixty-nine years. He was graduated from the Long Island College Hospital in 1886. He was a member of the medical staff of the Danbury Hospital and a former member of the board of aldermen of Danbury.

Correspondence.

NOW IT CAN BE TOLD.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Sir Philip Gibbs a year or so ago toured this country lecturing upon his experiences in the great war. The title of his lecture was "Now It Can Be Told." It seems to me that the same title can be used for what I am about to say.

Dr. J. Milton Mabbott in a letter published in your journal, July 30, 1921, makes certain statements concerning me, some of which do not interest me because they are merely expressions of his personal attitude toward me. The part of his letter that really interests me is his statement that I am "largely responsible for the chaotic conditions now existing in New York State, and New York City in particular."

It may be well, therefore, to recapitulate some of the history of narcotic legislation of recent years to show that this statement is false. The endorsement by the State Society of the Cotillo Bill of last year with which the Smith-Fearon Bill of this year is in large part identical, was secured by a snap vote in the House of Delegates on the last day of the session in 1920, when less than half of the House were present and without any discussion of the proposed bill whatsoever. This action related only to the bill of that year with which I had no concern because at that time I was not an officer of the State Society. So far as securing an endorsement for any bill either on the floor of the House of Delegates or in the Council this year the facts are these: Both of these bills were referred to a reference committee of the House of Delegates composed of Dr. Charles D. Stockton of Buffalo, chairman, Dr. T. J. Farrell of Utica, and others, who, after hearing the arguments upon these measures, referred the whole question to the House of Delegates. Even Dr. Mabbott may recall that it was I who made the motion to refer these bills to the Council for action, and I am quite sure that any other member of the Council will recall that at the meeting of this body held immediately after the adjournment of the State Society, I suggested that the first Smith Bill abolishing the Narcotic Control Commission be recommended to the Governor for signature and that he be requested to veto all of the other bills. In this matter the only law concerning the use of narcotic drugs which would be operative, would be Federal. Dr. E. Eliot Harris, I am quite sure, can verify this statement. So that it can be seen that so far as my position was con-

cerned as an officer of the Society I advocated no legislation from any personal or prejudiced viewpoint but endeavored to keep an eye clear for the best interests of the public and the medical profession. The Governor followed out to the letter the request of the Council.

What precipitated this whole conflict? The Narcotic Control Commission which was appointed in conformity with the statute passed as suggested by the Whitney Commission, antagonized the profession and the public by its promulgated rules and regulations. It made itself a nuisance and a thorn in the flesh to the ordinary practising physician and surgeon who was not in any way treating addicts; for this reason the profession revolted against this dictatorial administration of the law. The Commissioner of Narcotic Drug Control, a most estimable gentleman and a personal friend of mine from boyhood, told me after the bill was introduced to abolish his Commission that he could not understand why this attitude of antagonism was assumed by the medical profession, when, as he stated, he, knowing that this was so largely a medical question and that he was not well enough informed, had been advised by such eminent men as Dr. Alexander Lambert, Dr. E. Eliot Harris, Dr. Alfred C. Prentice, Dr. S. Dana Hubbard, and others. He further stated that he was endeavoring to enforce the State law on the same lines as those which the Smith-Fearon bill would make statutory. Dr. Prentice has stated that the Smith-Fearon Bill was formulated solely for the purpose of enacting a State statute, which would bring the State law in conformity, not with the Federal law, but with the interpretation of that law as formulated by its administrators through rules and regulations. It may be seen then, that the group of men who, Commissioner Herrick states, acted as his advisors and some of whom were the proponents of the Smith-Fearon Bill, were to a large degree one and the same, and that the sole purpose in proposing the Smith-Fearon Bill of this year and the Cotillo Bill of last year was to put into statute law what until then existed solely in the way of rules and regulations as promulgated by the Commission on Narcotic Drug Control.

It would seem then that it is not I who am responsible for the "chaotic conditions," etc., but rather the group of men who by their advice of Commissioner Herrick secured the antagonism of the medical profession. No one in the medical profession in the State is less satisfied than I with the present rotten conditions in relation to the study and treatment of narcotic drug addiction and the necessary police power for the management of criminal illicit purveyors of narcotic drugs. I can conceive of no more inhumane and horrible lack of humanitarian interest in the care of the sick, whether they be criminal or non-criminal, than is evidenced by the recent newspaper accounts—if they be true—and they must be true because of the unvarying character of them in all of the journals of the City of New York—which is the result of the adoption of an amendment to the sanitary code of New York City in line with the provisions of the Smith-Fearon Bill. Whether or not the addict is sick, as I believe; whether as a result of his own volition or not; whether he is a criminal or non-criminal; the same brutal treatment would not be meted out to him if instead of being addicted to narcotic drugs he had, let us say, typhoid, venereal disease—the result of his own act—diphtheria, or any of the other infectious diseases, even leprosy.

As an evidence of my position upon this matter may I further say that in my report submitted officially to the House of Delegates of the State Society, I made no recommendation as to the enactment of any narcotic legislation, but I did recommend—and this recommendation was adopted by the House of Delegates—as follows:

"That a committee be appointed by the House of Delegates for the purpose of prosecuting a real State-wide investigation—not the closed chamber, five-hour, stereotyped, dictated sort—on the subject of narcotic addiction disease, and that their report embody suggested changes in the present law, both Federal and State, that they deem necessary for (*a*) proper medical care, and (*b*) police regulation. Furthermore that this committee meet with such other bodies, magisterial, charitable, health, and educational in the hope that this most important question may be clarified and, if possible, an unanimity of opinion arrived at which will have imperative effect upon legislatures both national and State."

This is my position: that none of the bills thus far suggested meets the situation adequately, not even the Federal law, which is bastard legislation enacted by subterfuge as a revenue law and administered as a police law. The medical profession has been remiss in its duty in this matter as it was remiss in its duty for one hundred years on the question of venereal diseases. Every one has been afraid to touch it because of fear of being dirtied by it. It is time that this attitude were changed and I for one will do all that properly lies within my power to change it. I need no defenders and I wish none. I shall not be swayed from my purpose by the methods that have been used against me during the past seven years by those who opposed me on Compulsory Health Insurance and State Medicine as well as those who now take sides against me on the subject of Narcotic Addiction. From now on the best means of cleaning the Augean stables of this accumulated mess should be by use of the truth, the whole truth, and nothing but the truth. I hold no brief from any man or group of men. I do not need to say again that my interest is only what I believe to be that of the public and the medical profession. Aside from this I have a sword that knows no brother.

JAMES F. ROONEY, M.D.

ALBANY, N. Y.

WHEN IS A DELEGATE NOT A DELEGATE?

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—When is a delegate not a delegate? When he is 129 147ths of one. This is the condition in the House of Delegates of the American Medical Association because of the fact that certain groups, called Scientific Sections, existing under Chapter XI of the Constitution, have the right to elect delegates to the House of Delegates to the number of *fifteen* which reduces the value of Representative Delegateship 15 147ths, or makes necessary the

pairing of the voting value of the equivalent of fifteen states, having one vote each, before representative delegateship begins to function. There are three other delegates, one each for the Army, Navy, and Public Health Service, who are appointed and who reduce, by 3 147ths, the value of representative delegateship but as these are necessary evils and it would be impracticable for them to be elected by their respective groups we will eliminate them from this analysis and confine ourselves to the "block of fifteen."

These Scientific Sections are a variable quantity; they may be attended by any one and the business deliberations, including the election of those delegates, may be participated in by "any fellow or associate fellow" who may happen to be in the Convention City at the time (Chap. XI).

The function of these Scientific Sections, I take it, is to afford the medical men of the country an opportunity to get the very best medical thought in crystallized shape at the annual meeting of the A. M. A. Good. But just what interests of these sections require this "block of 15" delegates in the House? Just why are not the duly elected representatives of the component State medical societies competent to safeguard the interests of the scientific sections which the House of Delegates had the power to create in the first instance and have the power to abolish at any time?

What is painfully apparent to the observer of medical society politics is the fact that here, at hand, and available to and malleable by the Administration, is a solid block of fifteen votes which can be influenced or coerced or hand-picked in support of a candidate for office or a policy with relation to legislation, such as compulsory health insurance, state medicine (health centers), maternity centers, national socialization of medicine (dept. of public welfare stuff) and medical reregistration acts.

Can't you hear those dear, gullible, honest doctors of ours gasp as, shocked and resentfully, they say: "Why, this man is talking about *doctors!* Surely they are above such manipulation of scientific medical societies to the purposes of mean politics!" Well, I am sorry to have to bruise their beautiful faith, but I would remind them of the attempt made to swing the New York State Medical Society over to the endorsement of compulsory health insurance; of the effort made by the Council of the same Society to secure the passage of the reregistration bill; of the effort made by the A. M. A. to impose compulsory health insurance on the profession through the appointment of a professional propagandist working in New York City. Details of the ins and outs of these maneuvers cannot be given here for want of space, but they can be had for the asking.

So, my dear, credulous doctors, it behooves you to re-form your opinion that "the king can do no wrong" and to realize that this "block of 15" is a menace to representative delegateship and to the best interests of the profession which it is supposed to serve. Apart from the fact that Drs. Phillips of New York and Billings of Chicago, were elected trustees by a majority, respectively, of 13 and 7 at the A. M. A. meeting in Boston over opposition which was based on their activity as propagandists of the very legislation which the rank and file of medicine realize is a menace—compulsory health insurance, State medicine and the like, it must also be borne in mind that 111 of the 147 delegates of the House passed upon the resolution which opposed the ambulatory treatment of narcotic addiction and that this action was quoted on June 29 in support of a demand for a New York City Health Department Ambulatory-Treatment-Prohibition ordinance, despite the fact that *not a single State medical society* had informed or instructed its delegates with regard to this subject and despite the further fact that the Governor of New York State had refused to sign a bill embodying that provision, because the rank and file opposed it as unreasonably restrictive of professional freedom and reasonably productive of a mushroom crop of drug-addict sanatoria in the State. . . . That A. M. A. Resolution was submitted by a Committee of Individuals and passed by a House of Individuals, fifteen of whom were elected delegates by the votes of not more than 5000 "fellows and associate fellows" in New Orleans at the 1920 meeting, and their voting power was equivalent to that of Arizona, Delaware, Florida, Idaho, Maine, Mississippi, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oregon, South Carolina, Rhode Island, and the District of Columbia—15 States with a population of 10,100,364, or New York and Michigan with a population of 13,953,241, or Pennsylvania and Ohio with a population of 14,479,411.

Then at the A. M. A. meeting in Boston, this year, the incoming president presented a resolution that $100,000 (of *your* money) be put in a fund and the *foundations* invited to contribute a like amount for "post graduate teaching." Are you so credulous, my dear doctor, as to believe that any one but the Foundation would boss that job? Do you realize that these 15 "scientific section delegates" had as much to say about that as the delegates from Massachusetts, Missouri, and Texas, representing 11,919,639 people, or the delegates from Arkansas, Colorado, Connecticut, Georgia, Louisiana, Maryland, Minnesota and South Dakota, with a population of 13,242,138 people?

Well, what are *you* going to do about this inequitable and potentially vicious situation between now and the next meeting of your State Medical Society which elects and has the power to instruct its delegates to wipe out this handicap to representative delegateship and the square deal in a National organization of Medical Men which is supposed to be representative of organized medical men in these United States but is not? Each delegate from a State Medical Society, being, as a matter of fact, but 129 147ths of a delegate, 18 147ths of his power vesting in a hand-picked group of Administration adherents, *three* being the personal appointees of the heads of the Army, Navy and Public Health Service, and *fifteen* being the choice (cumulatively) of not more than 5000 "fellows and associate fellows" present at the Boston meeting, and in attendance upon the section meetings at the time the "scientific section delegates" were chosen. It is nearly time there was a house-cleaning in the A. M. A. and Chapter XI of the Constitution amended to conform with equity.

JOHN J. A. O'REILLY, M.D.

405 UNION STREET, BROOKLYN, N. Y.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, July 11, 1921.

Post-Graduate Medical Education in Great Britain.—The carrying out of arrangements for making of London a great post-graduate medical center lags sadly. A general scheme for providing facilities calculated to attract post-graduate medical students to London has been sketched for some little time, but further progress is extremely slow mainly because of lack of funds. Dr. Addison, the late Minister of Health, appointed in January last a committee to investigate thoroughly the entire subject. The committee included Sir Wilmot Herringham, Sir George Makins, and Sir George Newman, besides several eminent business men. Its report was issued a week or two ago. The main recommendation advanced by this committee is that a Central Post-Graduate Hospital and School be established to be devoted to post-graduate work alone. According to the report the hospital should contain, at least, 300 beds and its equipment should be complete and thoroughly up-to-date. The point that a fully developed out-patient department is an essential feature of such a school is insisted upon. Moreover, the great special hospitals of London would be associated with this school, and the institution of a central office to link up post-graduate study in this country with that of Europe and America is suggested.

A further notable recommendation is the establishment of an institute of state medicine in which public health post-graduate work should be concentrated. The scheme in its entirety as outlined in the report would cost about £28,000 a year. As constituent parts of the University of London, the school and institute would be eligible for inclusion in the list of institutions subsidized by the treasury through the University Grants Committee. It may be said that it is not proposed to ask for any aid from local rates. It seems somewhat extraordinary that the money should not be forthcoming for the completion of a scheme of this nature. It is a fact that the wealthy philanthropists of Great Britain are curiously averse to contributing largely in support of schemes likely to benefit health generally. If London were the great medical center it should be it would attract students from all parts of the world and give an immense impetus to medical training and the improvement of medicine and surgery with consequent obvious advance in methods for saving and lengthening life. If the suggestions contained in the report are not acted upon promptly the time for doing so with good chance of success will have gone never to return. Vienna and Berlin are making every effort to recapture the positions they held before the war as the principal post-graduate centers of Europe.

British Congress of Obstetrics and Gynecology.—The first British Congress of Obstetrics and Gynecology was held in Birmingham on June 3 and 4, last. Before the reading of papers attention was called to a resolution which was to be proposed, namely: "That in the opinion of this meeting operations by the abdominal route are quite unnecessary for the treatment of genital prolapse." It was thought by certain objectors that the best interests of the profession would not be served by placing this resolution before the meeting and the proposer then withdrew his motion. Dr. Fothergill opened a discussion upon the end-results of vaginal operations for genital prolapse. He described briefly the steps by which he was led to adopt the technique of vaginal operation he now employs and provided figures showing the results of this operation. Dr. Lacey and he inquired of women operated upon by this method, and in the replies covering a period of four and one-half to seven and one-half years from the date of the operation, 150 women stated without qualification that they were cured, whilst six were not. In conclusion Dr. Fothergill observed that, inasmuch as vaginal operations afford for all varieties of prolapse, treatment that is efficient and permanent, that does not prevent pregnancy, and that stands the test of parturition in a large proportion of cases, abdominal intervention is unnecessary and undesirable. The latter adds to the risk and discomfort of the patient and involves more trouble and loss of time to the operator.

Dr. Lacey strongly corroborated all of the previous speaker's statements, and said that it was unnecessary and superfluous to operate for genital prolapse by the abdominal route.

Dr. Herbert Spencer of London said that statistics have been described as "lies expressed in terms of figures." He might also have referred to the description of statistics given by the late Professor Black of Glasgow that like sausages they depended largely upon the old woman who made them. Dr. Spencer went on to remark that while he was not able to put forward figures himself, he was, on the whole, fairly well satisfied with vaginal operations for prolapse, and he agreed with Dr. Fothergill that abdominal operations were not necessary. Dr. T. G. Stevens of London agreed that vaginal operations were the most satisfactory by far, but drew attention to risk of secondary hemorrhage after this operation. Dr. A. G. Giles, London, said that symptomatic cures were often not anatomical cures. The converse might also be true. No operation could be curative in every case, and for this reason the result should not be guaranteed. In his experience 96 to 97 per cent. of all cases were cured after the operation. With regard to Dr. Fothergill's operation he thought that to say it was the only method was rather begging the question. There were over 150 different methods of suturing the abdominal wall, and one writer had stated that every one was as good as any other. In the same way he could claim equally good results in the treatment of prolapse from hysteropexy combined with a vaginal plastic operation. Dr. Walter Swayne of Bristol said that he was averse to abdominal methods.

Prof. Henry Briggs of Liverpool said it was incorrect to assume that one method only could cure prolapse, or that one type of suture material was the only material admissible. Dr. R. H. Paramore of Rugby drew attention to the complete absence in the case of previous speakers of any reference to the levator ani in the cause of genital prolapse. He was under the impression that myor-

rhaphy of the levatores ani was most important and was surprised that no mention had been made of this procedure. Prof. Gammeltoft of Copenhagen expressed surprise at not having heard greater reference to the levatores ani. Dr. Miles H. Phillips of Sheffield said he had in a large measure adopted Fothergill's practice, but he had not cured all his cases and wondered if any one method would cure them all.

Dr. I. W. Eden said it was important that we should adhere to the principle of selecting the ideal operation for each individual case.

Dr. E. J. Browne of Edinburgh read a communication upon the pathology of syphilis of the new-born. The speaker drew attention to the failure of the Wassermann reaction in the diagnosis of fetal syphilis, since on many occasions it was repeatedly negative in both mother and child when undoubted evidence of the disease existed on pathological investigation of the organs. The viscera which give the most important evidence are the liver, spleen, kidney, suprarenals, and lung. The placenta may or may not show lesions, and Dr. Browne had been unable to demonstrate the presence of the *Spirocheta pallida* in any of the placentæ that he had examined. Dr. Carlton Oldfield of Leeds thought that one very important fact was that the diagnosis of syphilis as a cause of still-birth could not be made without a very exhaustive examination.

Professor Gammeloft agreed with Dr. Browne that neither examination of the placenta nor the Wassermann reaction could be relied on in the diagnosis of fetal syphilis. He considered, however that endarteritis of the vessels of the umbilical cord was a very important diagnostic point.

Dr. Eardley Holland said that he had been interested for some time in the still-birth problem, but his investigations had been confined to viable and not macerated fetuses. The problems he had set out to investigate were two, viz., the incidence of fetal syphilis as a cause of stillbirth and how to diagnose syphilis in the absence of spirochetes. Formerly the percentage of fetal deaths due to syphilis was thought to be as high as 50. Lately, however, it had been proved by Whitridge Williams and others that 15 per cent. was nearer the mark. His own investigations in 37 cases had been confined to the following points: (1) The Wassermann reaction in the mother; (2) the presence of chondroepiphsitis in the fetus; (3) enlargement of the liver; (4) enlargement of the spleen; (5) examination of the placenta. In the case of the Wassermann reaction he had found it positive in the mother in 97 per cent. of the cases investigated. Chrondoepiphsitis was also present in 97 per cent. of the fetuses. The spleen was enlarged in every case and the liver in nearly all cases. A difficulty arose with regard to the weight of organs, in that at present, there is no absolute standard. It was necessary to consider, therefore, the ratio of the weight of the liver and spleen to that of the fetus and this was the line he was now taking. If both organs were enlarged Dr. Holland considered it a very important diagnostic point. The largest spleens occurred in cases of general edema of the fetus. As regards the placenta, naked-eye appearances were of no value. Typical microscopic appearances, however, were present in 67 per cent. of the cases examined. In all these spirochetes had been demonstrated in the tissues. In the case of 263 still-born fetuses where spirochetes could not be found, 25 were considered worthy of detailed investigation. Five of these showed certain evidence of syphilis, in spite of the apparent absence of spirochetes.

Dr. G. L. Strachan agreed with Dr. Browne as to the difficulty of diagnosing fetal syphilis from an examination of the placenta. He considered, however, that the examination of the umbilical cord was most important, even if the Wassermann reaction was negative. Spirochetes were demonstrable in the arterial walls, as well as endarteritis. From the examination of 100 cases of still born fetuses, he believed that syphilis was a very rare cause of antenatal death. Dr. Walter Swayne, from an investigation of the Wassermann reaction in the case of new-born infants, was of the opinion that syphilis is much less common as a cause of infant death than is suspected. Certainly a positive Wassermann reaction is much more difficult to obtain in new-born infants, even if obviously syphilitic, than in adults.

Obituary.—Sir George Henry Savage, consulting physician for mental diseases, Guy's Hospital, died in London on June 20. He was seventy-eight years of age and graduated at London University in 1867. He was lecturer in mental diseases at Guy's Hospital, consulting physician to that hospital and to the Earlswood Asylum, an examiner in mental physiology to London University, and the author of a manual on insanity.

Henry Work Dodd, F. R. C. S. (London), consulting surgeon to the Westminster Ophthalmic Hospital, died after a long illness in London on June 30. He held many hospital appointments and was a somewhat voluminous writer on ophthalmology.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 28, 1921, 185, 4.

1. Address Made to the Aesculapian Society, January, 1920. Frederick C. Shattuck.
2. Differential Diagnosis in Destructive Lesions of the Great Trochanter. Report of Two Illustrative Cases. C. W. Peabody.
3. Empyema. Report of Cases Occurring at Boston City Hospital, Assigned to the Writer in 1920. J. O. Hubbard.
4. The Present Status of the Radiation Treatment of Hypertrophied Tonsils. Herman A. Osgood.
5. A Nutrition Campaign in Rochester. William R. P. Emerson.
6. Significant Reactions of the Arterial Tension. Manifestations of the Angio-Kinetic Energy Clinically Observed and Interpreted. Claës Julius Enebuske.

3. Empyema. Report of Cases Occurring at the Boston City Hospital, Assigned to the Writer in 1920.—J. O. Hubbard reports observations made on 35 cases of empyema, of which four died. Death was due in one instance to bad judgment in selection of the time for operation, in the other three cases to erysipelas, auricular fibrillation, and septic absorption, respectively. The different bacteria found on culture were the *Streptococcus hemolyticus* in 13 instances, pneumococcus Type I in eight cases; in the remaining cases the infections were scattered. When the writer began he thought he could tell from the gross characteristics of the fluid in the chest the particular germ which was causing the infection. He soon learned that he was wrong and that by culture alone was it possible to tell. Of the cases which recovered 20 had no pneumothorax; the duration of time elapsing between operation and

x-ray ranging from twenty-two days to eight months. The type of operation apparently had little to do with the presence of pneumothorax. In 32 of the cases there are records of the type of operation. Of these 32 cases, 11 had primary rib resection and nine a catheter insertion only. Of these, seven recovered and two died, an interesting showing for nothing more than drainage through a catheter. The fact that several cases returned with a broken down wound and discharge at periods of five to nine months after discharge shows the folly of trying to draw conclusions about end results until many months have elapsed. As the result of his experience certain very definite ideas in regard to treatment have suggested themselves to the writer. In the first place empyema is no longer the emergency it was once considered. It is best not to operate for several days, but to try the effect of repeated aspiration and later to put a catheter into the chest through a trochar, under gas oxygen anesthesia. It is not necessary to work hard or to bother the patient much with attempts to keep a tight joint for long. Cases that will not drain in this way require rib resection. Irrigations and installations are of benefit if proper technic is carried out.

4. The Present Status of the Radiation Treatment of Hypertrophied Tonsils.—Herman A. Osgood asserts that the present status of radiation treatment for hypertrophied tonsils is that of an optional method to surgery. It is not a replacement of tonsillectomy. It is a method which can produce definitely an induced atrophy of hypertrophied tonsils without hemorrhage, discomfort or loss of time. It does not sterilize. Its effect on the bacteria and crypts is that of mechanical drainage. As compared with tonsillectomy it is the method of choice in cases in which complications increase the operative risk. Its disadvantage is the time required for results, and the necessity of selecting suitable cases. It is a method which has given very gratifying results clinically thus far, but has not been proven by the test of time. The dangers of radiation are (1) the possibility of *x*-ray dermatitis; (2) the possibility of other than *x*-ray tissue being affected by the ray; (3) the possibility of late degenerative changes in the skin. All of these objections may be overcome by proper technic.

Journal of the American Medical Association.

July 30, 1921, lxxvii, 5.

1. The Section on Diseases of Children. Frank C. Neff.
2. Physiology of the Blood in Infancy and Childhood. William Palmer Lucas.
3. Cholecystogastrostomy and the Courvoisier Gallbladder. Charles Gordon Heyd.
4. The Use of Experimental Psychology in the Practice of Medicine. Edmund Jacobson.
5. Determination of the Basal Metabolism as a Method of Diagnosis and as a Guide to Treatment. James H. Means.
6. The Basal Metabolism in Fever. Eugene F. DuBois.
7. In What Cases Do Uterine Fibroids Still Require Operative Removal. Fred J. Taussig.
8. "War" Neuroses and Allied Conditions in Ex-Service Men, as Observed in the United States Public Health Service Hospitals for Psycho-neurotics. G. H. Benton.
9. Quantitative Estimate of the Total Protein in the Cerebrospinal Fluid. James B. Ayer and Harold E. Foster.
10. Mesenteric Vascular Occlusion: With Report of Nine Cases in which Operation Was Performed. Ross G. Loop.
11. The Medical Significance of Disorders of Speech.

1. The Section on Diseases of Children.—Frank C. Neff. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1084.)

2. Physiology of the Blood in Infancy and Childhood.—William Palmer Lucas. (See MEDICAL RECORD, June 25, 1921, xcix, 26, p. 1117.)

4. The Use of Experimental Psychology in the Practice of Medicine.—Edmund Jacobson states that, while every practitioner makes use of some type of psychology, whether he knows it or not, his knowledge of the mind does not come from the laboratory, but is popular rather than scientific. Modern instruments of precision for measuring mental processes might be simplified and applied to clinical use. For instance, electrical stimulation may move a muscle where willimpulse fails. On this basis it is possible to determine whether fatigue is in the muscle or in the nervous system. There are instances where a graphic registration of stereotypy of movement would seem to have a certain diagnostic value. The writing machine of Kraepelin and the simpler device of Henry have been recommended for measuring voluntary motor activity. In melancholia a rapid decrease of pressure and speed has been noted, while in manic excitement the opposite seems to be characteristic. In catatonia, even when letters are made correctly and well, it seems characteristic that the time intervals are markedly irregular. This trait seems to come and go with the phase of catatonia, and would appear to be a fine sign pathognomonic of this condition. Some of the problems of general medicine that may be attacked by instruments and methods such as have been referred to are the effects of suggestion, controlled data as to the faith of the patient that he will get well, emotion, the origin of subjective symptoms, the influence of work and rest on the course of disease, the effect of mental influences on particular diseases, and the question as to whether functional disturbance can lead to organic disease, and in what way, the study of mental conditions in individual diseases, etc. The writer ventures to express the hope that with the future development of experimental psychology applied to medicine, a new period of treatment may gradually arise, not merely for functional, but also for organic conditions; a period when the internist will not be content with considering the nervous and mental aspects of disease utterly out of his domain; a period in which it will not be considered sufficient to doctor the body alone, or, in other instances, the mind alone; but rather the assumption as a rule that, with every patient and in practically every malady, there is both a physical and a mental side that may demand delicate attention. From this point of view therapeutics in general should have a combined physical and mental approach.

5. Determination of the Basal Metabolism as a Method of Diagnosis and as a Guide to Treatment.—James H. Means. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1078.)

6. The Basal Metabolism in Fever.—Eugene F. DuBois. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1078.)

9. Quantitative Estimate of Total Protein in the Cerebrospinal Fluid.—James B. Ayer and Harold E. Foster have made more than 2100 quantitative tests of the protein in the spinal fluid from approximately 800 patients. The results of 429 of these tests are tabulated in the present study. They were not chosen to conform to any preconceived idea, but only if the history, symptoms, and laboratory findings permitted of a fairly definite and accurate diagnosis. The method of Dennis was used and abundantly justified the extra amount of time it consumed. The quantitative method serves to control quicker and less accurate methods and is a means of drawing the line more closely between the normal and pathological condition of the spinal fluid. The method is of value in following the protein content of fluids from patients under treatment for neurosyphilis. It has been found that protein begins to fall early under treatment in all forms of neurosyphilis except paresis; in the latter it may even increase though the cell count is dropping. In studying fluids from different loci of the subarachnoid space, especially in the early diagnosis of spinal subarachnoid block by tumors and other pathological states, not infrequently a fluid is obtained by lumbar puncture which is slightly abnormal in protein content, but which might, and frequently does, pass as of no significance. When, by means of cistern puncture, the fluid above is compared with that below, a difference of more than the slightest degree is found to be of importance. Such comparative readings are of great value in the diagnosis of cord tumor, as significant as, and of more practical value than, the dramatic xanthochromic fluid with massive coagulation. For certain disease entities the quantitative protein estimations give fairly constant readings. The average normal quantity of protein in the spinal fluid is within the limits set by other observers. Any total protein quantitation above 40 mg. per 100 c.c. is distinctly pathological. In the syphilitic group of cases higher readings are associated with acute meningitic types (exudate in origin) or with the more profound degenerative types, such as paresis

(transudative in origin). Several groups of cases in which the spinal fluid has been said to be negative are shown to be abnormal on careful protein determination. Thus of a group of cases presenting vascular hypertension, 30 out of 39 showed hyperalbuminosis. In these cases there is usually to be found protein excess which, because of lack of cells, is of transudative origin. This is a point but seldom emphasized, and one of considerable diagnostic significance. In a similar manner a limited number of cases of purely degenerative character, such as multiple sclerosis and paralysis agitans, have presented increased protein. Fluids from brain tumors and abscesses are not necessarily "negative," but may present considerable protein excess. As is well known the acute forms of meningitis yield a very great amount of protein, but it was not realized by the authors until the present method was employed that a typical acute meningitis might be associated with a comparatively slight protein output, even in advanced stages of the disease. The amount of protein obtained in tuberculous meningitis agrees with preconceived ideas that the protein is moderately increased, but less than in the pyogenic forms. During the course of these observations it was clearly demonstrated that in cases in which fluid was withdrawn at an interval of a few days, the second fluid regularly presented lower readings. If the interval was increased to a week or more, this was not the case.

The Lancet.

July 9, 1921, pp. 5106

1. Lumleian Lectures on Some Points in the Etiology of Skin Diseases. Arthur Whitefield.
2. The Capillary Pressure and the Circulation in Shock. Leonard Hill and James McQueen.
3. Diagnosis and Treatment of Diphtheria. Frederic H Thomson.
4. Effects of Hot and Cold Applications to the Surface of the Body on the Temperature of the Muscles, Liver, Kidneys, and Brain. J. J. R. Macleod and N. B. Taylor.
5. An Anomalous Response to Direct Faradic Stimulation of a Nerve at Re-exploratory Operations.
6. Two Cases of Aplastic Anemia. E. C. Pillman Williams.
7. The Colon and Colitis. Lord Dawson.
8. The Work of the National Institute for Medical Research. H. H. Dale.

2. The Capillary Pressure and the Circulation in Shock.—Leonard Hill and James McQueen, as a result of experimental work, state that normally the loss of pressure of the blood in traversing a capillary area is very small. L. Hill found a very small pressure was required to propel the blood along the capillaries in the web of the amputated foot of the frog. The kinetic energy of the flow in the capillaries naturally is correlated exactly to the frictional resistance of the blood inside the capillary. In normal conditions both the kinetic energy of flow and the frictional resistance due to viscosity are very small. Any increase in viscosity has, therefore, a very great slowing effect on the blood current because the kinetic pressure of blood flow is at most a very few millimeters of mercury. In normal conditions of health the body maintains the viscosity just as constant as it does the osmotic pressure or the hydrogen-ion concentration of the blood. Hill has shown that the capillaries that have blood in them are capable of taking up much more blood by dilatation; that there are numerous capillaries not filled at all, and that there are anastomotic channels whereby pressure is easily and quickly transmitted between the small arteries and the veins. In surgical shock blood slowly concentrates in the capillary area and the return blood to the heart is a mixture of blood of more normal concentration passing by the direct anastomotic channels and concentrated blood returned from the capillaries to the veins. Viscosity of the blood in the capillaries may be overcome by dilution with other blood or gum saline mixtures and the pressure in the arterial tree raised by the injection; both factors tend to remove the stagnation. The blood diluted with donor's blood or gum saline has the easy path of return to the heart via anastomotic channels, and is not compelled to force its way through the capillaries that are already choked with concentrated blood. The pressure rising from the injected blood or gum saline is transmitted to the capillary area, dilutes the concentrated blood in the capillary area, restores it to a more normal viscosity, reoxygenizes the tissue cells and prevents the increasing loss of fluid by imbibition and permeation. The accurate measurement of capillary blood pressure then throws light on stasis. Low arterial blood pressures are dangerous because the capillary kinetic energy of blood flow is very small with normal arterial blood pressure. There is a very small margin of safety in the capillary area.

4. Effects of Hot and Cold Applications to the Surface of the Body on the Temperature of the Muscles, Liver, Kidneys and Brain.—J. J. R. Macleod and N. B. Taylor have shown in a previous communication that the application of heat to the surface of the thigh in a rabbit caused an immediate rise in the temperature which spread laterally for about 20 mm., and penetrated into the muscles for about the same distance. When heat was applied to the surface of the abdomen, at a temperature difference of 15° C. and over a broader area, temperature changes were observed to a depth of 75 mm., the lateral spread being 20 mm. It was shown that the rise of temperature was mainly dependent upon actual conduction of heat through the tissues, and not due to vaso-dilatation. In the present communication the writers report further observations of the same general nature. The effect produced on the subcutaneous temperature by local cold is very marked, and is immediately evident. The lateral spread of cold conforms very well with the results obtained for the lateral spread of heat. As might be expected from its greater vascularity, the changes in temperature in the liver, for equal differences in temperature between the applicator and the body, are decidedly less than in muscle when heat is applied. The effects of cold are much more marked. Although this is mainly due to the much greater difference between the temperatures of the applicator and the body, it would appear that there is some critical temperature difference below which the cold has a progressively greater influence. This may be due to vaso-constriction. For the kidney the results in the main were the same as for the liver, at least for heat. The temperature in the kidney never rose more than 0.3 C., even when the applicator was 12 C. higher than the body temperature. The conclusion from these experiments is that it is not possible to cause any significant change in temperature in the liver or kidney by the local application to the surface of the body over either viscus of applicators that are 10° or 12° C. warmer than the viscus. Similar experiments carried out on the brain showed that heat penetrated from the surface into the brain much more than it did in the case of the liver or kidney, although apparently not so much so as into the muscle. When lower temperatures were used the fall in brain temperature became very marked indeed. A knowledge of this fact is of importance therapeutically.

British Medical Journal.

July 9, 1921. No. 3115.

1. The Colon and Colitis. Lord Dawson.
2. Acute Infections of the Endometrium. Remington Hobbs.
3. The Intravenous Administration of Calcium Acetyl Salicylate. Archibald Campbell.
4. Extravasion of the Bladder. The Sequel to Two Cases. Alfred Auston Lenion and H. Simpson Newland.
5. On the Estimation of the Physiological Cost of Muscular Work. J. B. Orr and J. F. Kinloch.
6. The Control of Hemorrhage by Intramuscular Injection of Calcium Chloride. W. R. Grove and H. W. C. Vines.

1. The Colon and Colitis.—Lord Dawson of Penn points out the great influence for weal or woe that the colon exerts in our daily lives. It is an organ with a highly developed functional activity closely linked up not only with other portions of the alimentary tract, but with the high nervous centers. An acute attack will sometimes begin quite definitely in the upper alimentary tract with symptoms quite suggestive of protein shock. Again the order is reversed and colonic manifestations are followed by gastric symptoms. Colitis is one phase of a disturbed digestion in which stomach, duodenum, intestine, pancreas may all play a part. Side by side with the stress and strain of modern life which impair function we find food and methods of feeding that at the same time overtax it. The food of people to-day is in many respects open to more criticism than in former days. Many of our

foods show a vitamin deficiency which means not only impaired metabolism, but appears directly to damage digestive function itself. In discussing the subject of intestinal stasis and toxemia Lord Dawson insists on the important detoxicating function of the liver, and refers to the observations of Widal and his coworkers on the "hemoclasic crisis" or the changes—leucopenia, fall in blood pressure, and loss of coagulation—which precede the manifestation of protein shock; normally the liver prevents proteins having this effect from entering the general circulation, and therefore no "hemoclasic crisis" follows digestion; but with hepatic insufficiency these changes occur, and in this connection it is mentioned that Widal, Abrami, and Iancovesco have adopted as a test for the functional activity of the liver an examination of the "hemoclasis crisis" after drinking a tumbler of milk. The condition commonly known as "chill on the liver" is compared to anaphylactic shock, and a resemblance is traced between asthma and colitis, which suggests that some attacks of colitis without obvious cause may be anaphylactic in origin. Discussing the subject of treatment, Lord Dawson says that the appendix is rarely the primary focus, and when inflamed becomes so concomitantly with the colon; its removal seldom benefits patients with colitis. Further, a wise caution is thrown out as to the significance of anatomical abnormalities revealed by *x*-ray photographs; various displacements may exist without symptoms because the really important factor is the muscular efficiency of the bowel, and hence ingenious operations for various ptoses may prove disappointing when the essential defect is muscular failure and not the obvious visceral displacement. Complete colectomy the author regards as disappointing, though exceptional successes are admitted. The indications for colectomy would seem to be: 1. Where the motility of the colon is so spent that all other measures fail to prevent stasis within it. 2. Where the colon is so damaged in its defenses that, in spite of every effort to keep it cleansed, toxic products get through in such abundance as to ruin the health of the patient. But here, too, there is danger that the second line of defense in the liver may be damaged also. Hemicolectomy, however, is on a different footing. The operative risk is small, and if it fails in its object there is little danger of the patient's condition becoming worse. If the failure of function is in the proximal end the prospect of success should be good, especially if the ileocecal valve is preserved in the implanted portion. Colotomy is likely to be more efficient in cases in which the distal colon shows muscular insufficiency.

3. The Intravenous Administration of Calcium Acetyl Salicylate.—Archibald Campbell has employed intravenous injections of calcium acetyl salicylate in a number of conditions where other remedies have failed to bring alleviation. They include sciatica, acute rheumatism, tabes dorsalis, interstitial keratitis, acute iritis, gonorrheal synovitis, arsenical neuritis, dysmenorrhea, and severe headache of doubtful causation. In all, 55 cases have been treated in this way. Pain is relieved in half to three-quarters of an hour and the effect persists for several hours and in some cases for days. The technique is simple. A 1-gram tablet is dissolved in 10 c.c. of distilled water by boiling in a test tube in order to insure sterilization; the solution is then cooled and injected into a vein with a glass syringe. Calcium acetyl salicylate produces a greater and more immediate relief of pain than aspirin administered by mouth, and its administration is not harmful. It acts beneficially in many instances where other remedies have failed.

American Journal of the Medical Sciences.

June, 1921, clxi, 6.

1. The Breathing of Air of Lowered Oxygen Tension as a Test of Circulatory Function. Alfred Stengel, Charles C. Wolferth, and Leon Jonas.
2. Broncho-Esophageal Fistula and Traction Diverticulum. John B. Hawes, 2d.
3. Chronic Nephritis: From the Point of View of the General Practitioner. Its Diagnosis, Prognosis and Treatment. A. I. Ringer.
4. Treatment of Tetanus. S. O. Freedlander.
5. Gonorrheal Endocarditis: Review and Report of a Case. Dudley C. Smith.
6. Epidemic Encephalis: Observations on a Series of Five Cases; Autopsy Findings; Predominating Symptomatology; Relation to Influenza; Personal Conclusions. Kenneth M. Lewis, George King, and Robert Dunegar.
7. A Report of an Epidemic with Certain Cases Presenting the Picture of Meningo-Encephalitis. Charles E. Nixon and Theodore H. Sweetser.
8. Aneurysm of the Hepatic Artery: With the Report of a Case. Edward Weiss.
9. Primary Sarcoma of the Appendix: A Case of Lymphosarcoma of the Appendix with Acute Intestinal Obstruction in a Young Woman. A Review of the Literature. Hyman I. Goldstein.
10. Influenza and Epilepsy: Further Studies upon the Relation of Mental Disease and Influenza. Karl A. Menninger.

1. The Breathing of Air of Lowered Oxygen Tension as a Test of Circulatory Function.—Alfred Stengel, Charles C. Wolferth, and Leon Jonas have attempted to determine the usefulness of the rebreathing apparatus for clinical purposes in hospital work, especially with reference to its value in estimating circulatory efficiency. A number of studies were made on presumably normal individuals, also convalescent hospital patients who had no anemia, lung disease or apparent circulatory deficiency, as well as a few patients with pneumokoniosis and a number with varying degrees of circulatory inadequacy. The rebreathing apparatus used was similar to the one described by Henderson in the *Journal of Physiology*, 1919, liii, 181. As was to be expected, moderately advanced pneumokoniosis did not interfere materially with the ability of the individual to compensate for low oxygen. Some of the results in cardiac cases were unexpected. If the heart always played an important part in the compensation for anoxemia in all the cases presented an early breakdown would be expected in the rebreathing test. Early failure did, indeed, occur in two of the five cases observed—notably in one with advanced decompensation. The writers conclude that, while the rebreathing test may offer a good indication as to the general fitness of the individual, the part the heart plays in any case in the adaptation anoxemia is particularly difficult to evaluate because there occurs a coordination of several mechanisms, some of which are known, doubtless others unknown. The variations in response to the anoxemia produced by the rebreathing apparatus, among cases with, at most, narrow margins of cardiac reserve, appear to justify the conclusion that the test does not furnish a trustworthy index of cardiac function.

10. Influenza and Epilepsy: Further Studies upon the Relation of Mental Disease and Influenza.—Karl A. Menninger, from a study of pertinent literature and clinical material afforded by the epidemic of influenza of 1918-1919, summarizes his observations as follows: 1. The effect of influenza upon idiopathic epilepsy is not uniform. 2. Beneficial influence is occasionally observed; seizures are perhaps usually absent during the febrile state and in some instances occur with decreased frequency after the acute infection. There are no cases on record in which influenza has induced an entire cessation of epileptic attacks once instituted. 3. Deleterious influence is more frequently observed manifested in various ways. 4. Seizures may occur with increased frequency following influenza, both as compared with short periods and long periods of time prior to the acute infection. 5. The character of type of the seizures may change subsequent to the influenza, in addition to or independent of the increase in frequency. 6. Epilepsies whose manifestations have long lain latent may be incited to renewed activity by the attack of influenza. 7. Psychoses may be precipitated in epileptics by influenza, as in non-epileptics. 8. Epileptiform syndromes which resemble typical idiopathic epilepsy, except that recovery usually occurs shortly, are occasionally evoked by influenza. Probably we should regard these as recoverable or "reversible" types of idiopathic epilepsy, the product of influenza and a (possibly) susceptible brain. Possibly they are manifestations of multiple miliary (encephalitic) hemorrhages. 9. The majority of epileptic patients observed did not exhibit any alteration in their disease. 10. The effect of epilepsy on influenza was observed to be a lowered resistance, and hence increase morbidity and mortality rates (as compared with normal persons). 11. Influenza thus appears to exhibit in the case of enilepsy the properties previously demonstrated to be operative in the case of psychoses associated with influenza—namely, creation, precipitation, aggravation, and amelioration.

Book Reviews.

CHIRURGIE DE L'ŒIL ET DE SES ANNEXES. Deuxième Edition Refondue. Par F. TERRIEN. Paris: Masson & Cie, 1921.

THE first edition of this work appeared in 1902 so that the present volume is practically a new book. The earlier edition was part of a system of medicine and surgery and its successor has nearly 200 more pages (620 all told) with nearly 500 illustrations. There are two volumes in one, devoted respectively to the globus oculi and adnexa. In the first we find chapters on operative surgery of the cornea, sclerotic and iris, with three entire chapters on cataract operations and one on the surgery of the bulk as a whole. In the second part there are chapters on the surgery of the muscles, the conjunctiva, lacrymal apparatus, orbit, and eyelids. In addition there is an introductory chapter and an appendix, the latter dealing with lumbar puncture in eye diseases and visual disorders due to hypophysis tumors.

DIE CHIRURGIE DER PERIPHEREN NERVENVERLETZUNGEN mit besonderer Berücksichtigung der Kriegsnervenverletzungen. Von Privatdozent DR. WALTER LEHMANN. Berlin und Wien: Urban & Schwarzenberg, 1921.

THIS volume comprises 269 pages and 66 illustrations including colored and multicolored plates. There is a brief introduction by Professor Stich of the Surgical Clinic at Göttingen, to whom the author is an assistant. The eleven sections of the book (comprising 38 chapters) are devoted respectively to etiology and symptomatology, pathological anatomy, diagnosis, prognosis and operative treatment of peripheral nerve injuries, technics of resection and suture, repair of great nerve defects, early recoveries, special lesions of cranial nerves, brachial plexus and lumbosacral nerves with resulting pareses. The exhaustiveness and conciseness of the book are well matched, and the arrangement of the matter as shown in the table of contents leaves nothing to be desired. Finally the analytical index does not duplicate but supplements the table of contents.

GRUNDRISS DER HISTOPATHOLOGIE DER HAUTKRANKHEITEN. von Dr. WALTER FRIBOES. Professor der Dermatologie und Direktor der Dermatalogischen Klinik an der Universität Rostock. Leipzig: F. C. W. Vogel, 1921.

THIS volume of 208 pages has 105 illustrations of which many are in colors and is therefore virtually an atlas. The subject matter is almost entirely personal, based on the author's own material as shown by the silence of the book on the earlier work of Unna and others. The author writes primarily for the students in the aim of connecting the histology of dermatoses with clinical phenomena. Hence the text while in part a commentary on the pictures also comprises a brief clinical description of the various affections. In reading the preface we note that the only illustrations borrowed for the book are a few supplied by Professor Jadassohn, of rare dermatoses not represented in the Rostock collection. An English edition of this work would doubtless be appreciated by the numerous students, under- and postgraduates, of the United States and Great Britain and her dependencies.

KOMPENDIUM DER KINDERHEILKUNDE mit besonderer Berucksichtigung der Sauglingskrankheiten Von Professor Dr. ALBERT NIEMANN. Berlin: S. Karger, 1920.

THIS work was written in part before the war, and was completed at the close of the war. Its object is to give up-to-date information concerning diseases of the newly born with especial reference to congenital and acquired diseases. In a very interesting chaper on infantilism the condition is described by the author as hypotrophy. Congenital heart, spastic diplegia, rickets, and exudative diathesis (which has been elaborated by Czerny) are described in detail. In the second portion of the book we find many interesting points concerning infant feeding and practical data for the general practitioner. The author figures the amount of nutrition in calories. Regarding the special forms of feeding we find malt soup and buttermilk soup frequently advised. The vitamine question is considered in the chapter on feeding. The book is devoid of theories, and the author does not waste much time in giving literature. There is a distinct absence of illustrations. We are so accustomed to seeing books on children illustrated that the absence of the same is noticeable.

HANDBUCH DER SEXUALWISSENSCHOFTEN. Mit besonderer Berüchsicktigung der Kulturgeschichtlichen Beziehungen. Unter Mitwerkung von Dr. med. et phil. G. BUSCHAN in Stettin, HAVELOCK ELLIS in London, Professor Dr. SEVED RIBBING in Lund, Dr. R. WEISSENBERG in Berlin, und Professor Dr. K. ZIELER in Würzburg herausgegeben von Dr. ALBERT MOLL. Geh. Sanitätsrat in Berlin 2 auflage. Leipzig: F. C. W. Vogel, 1921.

THE author-editor candidly states that this edition is only a reprint of his first edition of 1911, with the exception of an appendix on the gonads which occupies but sixteen pages. The original edition having become well known to the reading public, there is nothing for the reviewer to add. Dr. Moll states that there is practically nothing to incorporate into a second edition, but even had anything accumulated, tne war would have prevented a revision.

GENERAL PATHOLOGY. By Dr. ERNST ZIEGLER, Professor of Pathological Anatomy and of General Pathology in the University of Freiburg in Breisgau. From the Eleventh Revised German Edition (1905). Revised by DOUGLAS SYMMERS, M.D., Director of Laboratories, Bellevue and Allied Hospitals. Price, $7.00. New York: William Wood & Co., 1921.

THERE are those who assert that tissue pathology is a finished subject so far as our present methods will permit us to go. A perusal of the list of changes which were found necessary in the preparation of this edition is ample demonstration of the falsity of any such accusation. The statement may well be true in a limited sense and with a special application to certain problems, but there is still room for the careful observer and earnest student to add to our information on this subject. Dr. Symmers has performed a valuable service in revising this work and has enriched it with the results of his own large experience. He has also added a number of illustrations from the service at Bellevue Hospital. The original arrangement of the book has been preserved. We surmise it will be helpful not only "to the medical profession generally and especially to students of medicine," but also to pathologists who inevitably tend to become interested in special pathology and so need the broadening influence of a work of a more general type.

AMEBOID MOVEMENT. By ASA A. SCHAEFFER, Ph.D., Professor of Zoology, University of Tennessee. Princeton, N. J.: Princeton University Press, 1920.

THIS subject has interest for the physiologist, the psychologist, and the general biologist and evolutionist as well as for the student of medicine. To the medical investigator the movements of the white blood corpuscles and the values of the ciliated cells, there is a great suggestion. Further, the determination of movement in orderly paths in organisms in which orienting organs are absent or not functioning, suggests interest in cell movement and circulation in structures such as ciliated membranes or even the organ of Corti.

LEITFADEN DER NEUROLOGISCHEN DIAGNOSTIK. Eine Differential diagnose aus dem führenden Symptom für praktische Aerzte und Studierende. Von Dr. KURT SINGER, Nervenarzt in Berlin. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THIS volume of about 200 pages comprises 18 chapters devoted to the following subjects: paralyses, sensory disturbances, muscular atrophy, disturbances of reflexes, disturbances of gait, spasms, convulsions, tremor, neuralgias, headache, vertigo, unconsciousness, speech disturbances, pupillary disturbances, disturbances of vision, ocular pareses, nervous manifestations of visceral origin—chiefly cardiac palpitation and vomiting—and nervousness. This arrangement is highly practical and suggests that of works like Cabot's "Differential Diagnosis by Case Histories," in which the dominant symptom is used as a base of classification. The present volume is much too concise, however, to permit the use of illustrative cases.

Society Reports.

AMERICAN THERAPEUTIC SOCIETY.

Twenty-second Annual Meeting Held in Washington, D. C., June 3 and 4, 1921.

First Day—Friday, June 3.

President's Address.—Dr. JOHN C. HEMMETER of Baltimore delivered this address, taking as his title: "The Human Constitution and the Perspectives in Pathogenesis and Therapeutics of Today." (See page 223.)

Dr. C. E. DE M. SAJOUS of Philadelphia expressed his admiration of the scholarly and elucidative address of Dr. Hemmeter who typified, owing to his broad biological knowledge, the kind of worker needed to raise medicine eventually to a truly scientific plane. Such a man, a trained physiologist, biochemist, histologist, and clinician, all in one, would be able, if endowed with a philosophical mind, to coordinate, analyze, and synthetize sound data from various branches of medical knowledge and evolve new resources of great value to suffering humanity. The socalled "authorities" of older days who, though working in a restricted clinical field, thought themselves all-wise, and acted accordingly, were, fortunately for humanity, rapidly disappearing. Laboratory investigators were likewise losing their hold upon the profession, owing to the discordance of their own results and the freedom with which they presumed to criticise, often with obvious ignorance of clinical facts, the observations and conclusions of practitioners. The tendency of the day was toward harmony and constructive work with all branches of medicine, practical and auxiliary, as sources of information. A striking example of the advantages of this attitude was afforded by the present views concerning the functions of the adrenals. Although these conceptions were about as divergent and mutually antagonistic as the physiologists who described them, all could easily be shown to harmonize when interpreted from the standpoint of broader knowledge. The various branches of medical learning had become during the last seventy years replete with sound and unused data which, inventoried, grouped, scrutinized, and harmonized, would reveal more new truths than the present day narrow-gauge, discordant, and random methods of research would evoke in decades. It was here that broadly equipped men such as Dr. Hemmeter —constructive philosophers of a high type—were needed.

Symposium on Alcohol.

History of Alcohol as a Substance for Human Consumption.—Dr. JOHN C. HEMMETER of Baltimore opened the Symposium with this paper. (See page 271.)

The Pharmacology of Alcohol and Its Influence on Metabolism.—Dr. JACOB DINER of New York presented this as the second contribution to the Symposium. (See page 273.)

The Effect of Alcohol on the Gastrointestinal Tract.—Dr. WILLIAM J. MALLORY of Washington followed with this paper. (See page 275.)

The Effect of Alcohol on the Therapy of Internal Diseases.—Dr. CHARLES G. STOCKTON of Buffalo presented this communication. (See page 277.)

The Effect of Alcohol on the Heart and Blood Vessels.—Dr. LOUIS FAUGÈRES BISHOP of New York sends this paper. (See page 279.)

The Effects of Alcohol Upon the Endocrines.—Dr. CHARLES E. DE M. SAJOUS of Philadelphia sends this paper. (See page 280.)

Alcohol in Surgery.—Dr. ROBERT T. MORRIS of New York presented this communication. (See page 284.)

Influence of Alcohol on the Cerebral and Peripheral Nervous System.—Dr. W. M. BARTON of Washington, D. C., read this paper.

The Relation of Alcohol to Modern Health Ideals.—Dr. EUGENE LYMAN FISKE of New York presented this paper, which consisted of a statistical study of the relation of alcohol to health and disease. He said it had been a hard pull to drag the problem of alcohol out of the arena of politico-religious discussion and subject it to practical analysis. It had been the widespread dissemination of information derived from thoroughly impartial sources expressing the liability that alcohol imposed upon the groups that used it that had brought man to the point of deciding that it should be taken from the table and placed on the drug shelf. In fact, alcohol had even been denied a certificate of character as a drug. It had fallen to a lower level than opium. Personally, Dr. Fiske said he had no sympathy with the characterization of alcohol as a demon or as an occult malignant influence. It had seemed to him a very simple problem in toxicology. From the evidence that we had from the laboratory as to the disturbing effects of alcohol on the cerebrospinal mechanism added to the evidence which we had from the clinic as to the obviously destructive effect of alcohol in heavy dosage, which it was the ultimate fate of a considerable proportion of alcohol users to receive, it might fairly and honestly be stated that there would be every reason to expect that an analysis of the mortality experience among large masses of individuals classified as moderate and temperate users of alcohol would show in the final analysis a heavier death rate than that experienced among individuals similarly situated, except for the use of alcohol. This was exactly what was shown by the records of forty-three insurance companies. Other statistical data showed a larger percentage of psychoses among the users of alcohol than among the nonusers. In a questionnaire sent out from Washington during the war asking "What is your experience as to the effect of alcohol consumption is having on the quantity and quality of labor," 160 reported that they were not employing men who drank. There were only six of the 1,500 that thought the effect of alcohol was good. The idea had spread through the business world that alcohol was a handicap to business advancement and success and on this material basis alone it was being excluded from modern society. Facts of the kind referred to went to show that the turning down of alcohol was no reflection of a hysterical tendency, but rather a gradual spread of wholesome educational influence appealing to practical common sense. It was to be hoped that there had also been at work a more idealistic influence leading us to regard alcoholic indulgence as a mark of weakness—always to some extent a moral risk. Allowing for all statistical fallacies, it might safely be said that the evidence showing alcohol to be a social liability was consistently overwhelming and it was upon such evidence that any final decision must be made, cold-bloodedly and without feeling or prejudice.

Dr. OLIVER T. OSBORNE of New Haven expressed his enjoyment of the papers that had been presented and said that while there was nothing to be added to the scientific end of the discussion he wished to go on record as believing that the medical profession could get along without alcohol in the treatment of disease. That did not mean, however, that there were not indications which were not better met by alcohol than by some other drug. The main point in the discussion of alcohol and the law was the effect on well people. It was a question whether a little alcohol did any harm to a working man after he was through with his labors, but there was no question that alcohol taken in any amount by the individual deteriorated mental and physical work. He did not approve of legislation putting upon the medical profession and the druggists the onus of the distribution of alcohol; and therefore he and many others of the medical profession had taken no license to prescribe it. Many druggists also refused to be under suspicion in the handling of alcohol. It was a serious question as to whether the little alcohol a man might wish as a quieter of his nervous system and for its narcotic effects was not going to be succeeded by getting more active stimulants. There was no question but that the sale of coffee had increased fifty per cent. within the past year, and it was known that more drugs were taken. The harm of home brews and of miserably distilled preparations would soon be in evidence in the form of numerous digestive and nervous ailments. It could not yet be determined as to whether radical legislation was the best way in which to present this matter to the country, but he could not approve of the way it had been put upon us.

Dr. CHARLES E. DE M. SAJOUS of Philadelphia said that the paper he had submitted was in favor of the prohibition law, owing to the evil effects of the *abuse* of alcohol. But the Volstead Act was in itself an abuse —an abuse of power in that it imposed upon the public restrictions which were not warranted by scientific investigations which had shown that a three per cent. by volume beverage could not intoxicate. Law-abiding people, whether they approved of the amendment or not, were in entire accord with the proposition that public morality was not being promoted by keeping on the statute books laws which were creating outlaws on all sides. In most states the people were perilously near the situation of open evasion of the law and fresh technicalities were daily being invoked on both sides to defeat them. Events were increasingly proving that the perverse measures being adopted to enforce the 18th amendment were increasingly nullifying its benefits. In the papers read much had been said about efficiency. There was no doubt that alcohol reduced efficiency; but the point under discussion in the present connection was whether three per cent. beer, cider, etc., or the five per cent. wine taken after work by our Italian laborers, which promoted the hydrolysis of fatigue wastes, was going to do any harm, and whether the fact that we recommended this mild stimulation would not be of distinct benefit and help to eliminate much of the antagonism toward the law. There was no doubt that if the ugly side of the law were eliminated the good side with all its advantages could be preserved. The influence of the physicians in this matter should not be overlooked. That in nontoxic doses, alcohol promoted the defensive functions of the body had first been shown by Dr. Hare of Jefferson Medical College, and had been repeatedly confirmed in Europe. The profession could do much to preserve the beneficial effects of the 18th Amendment by allowing their opinions to be guided by the teachings of science and opposing the intemperate fanaticism of the Volstead law.

Dr. SPENCER L. DAWES of New York said that he had been very much impressed by what Dr. Fiske had said in a statistical way. Of course, anything could be proved by statistics, but he had been particularly interested in the statistical features regarding insanity in the State of New York, showing that it had decreased markedly. The question was, what was alcoholic insanity? There were other features which had to be considered beside alcohol. Dr. Dawes said that he had had to deal with all of these 41,000 insane in the State of New York. A man was reported as an habitual drinker—did he therefore have alcoholic insanity? Beside that, would it not have been possible to have had this decrease in alcoholic insanity with an elimination of the hard drinkers? Dr. Gregory talked about the great decrease of alcoholic cases in the psychopathic ward at Bellevue, but he did not say that the number of drug takers had quadrupled. How many of them came in every two or three months? One could not place a great amount of confidence in the statistics regarding the effects of alcohol on the insane in New York State. In the MEDICAL RECORD of May 7, 1921, the following paragraph appeared: "*Alcoholic Cases Increase in Kings County.*—An increase of nearly 120 per cent. in the number of the alcoholic cases in the Kings County Hospital within the last two months has been reported by Dr. Mortimer D. Jones, Medical Superintendent, to Bird S. Coler, Commissioner of the Department of Public Welfare. The report states that 650 persons were admitted to the alcoholic wards during the nine months ending April 1, against 299 for the corresponding period in 1919-1920. The cases have become much more acute in character."

Dr. JACOB DINER of New York said that he recalled very vividly a symposium on alcohol in the New York Academy of Medicine before the prohibition act had definitely gone into effect and was still under discussion. Dr. Gregory stated that he anticipated a marked increase in drug addiction as soon as the use of alcohol was prohibited. His prophecy was borne out by the figures mentioned by Dr. Dawes. Dr. Gregory had reversed himself now by reporting the number of reduced alcoholics, but he was careful not to mention the increased number of drug addicts. Dr. Diner said he believed that physicians would rather have a man committed to Bellevue for two to four weeks as an inebriate than to have to deal with a confirmed heroin or cocaine user. There was no question at all but that drug addiction had increased since the ostensible reduction of alcohol consumption.

Dr. REYNOLD WEBB WILCOX of New York said there was another phase of this matter which this Society as physicians should consider very carefully. Physicians were admitted by the state to the practice of medicine and required in their daily duties to obey three specifications: they should have the proper education, which the Regents of the state took care of; they should exercise due diligence, and they should exercise good judgment. The moment physicians were limited in the exercise of their professional judgment their usefulness as physicians would undoubtedly be diminished. Dr. Wilcox further said that he had not himself taken out a license to prescribe alcohol; there was no man up or down from the President big enough to make him a saloon keeper. He could conceive that the best educated man and the most conscientious man and the most moral man in the profession might believe that the exercise of good judgment demanded that a patient under certain circumstances should receive much more alcohol than was permitted under the Volstead act. It was easy to conceive a man, with all these great characteristics, feeling that there might be occasions in which the administration of other forms of alcohol was needed. The great moral wrong of this act was that it forbade men to exercise the good judgment which the law of the state demanded they should exercise. No moral question could ever be settled until it was settled right, and one was compelled to question the Volstead act and the arbitrary manner in which the regulations were carried out as well as the character of the men chosen to carry them out, men of criminal records who deliberately shot down their fellow men in cold blood without warrant of law. The definition of law was well stated in Professor Robinson's little book, that law was merely crystallized custom. That was all it was. We could not make people good by law, but we could make them bad. Dr. Wilcox said he was told by police magistrates and hospital authorities that men who were formerly satisfied with light wines and beer of which they were now deprived were turning to the saloons and drinking whiskey and other liquors of which there was a plentiful supply, thus perpetuating the worst form of intemperance. While he regarded the prohibition act as the greatest economic advance that had ever been made, he also considered that it was most severely to be criticised and condemned on moral grounds.

Dr. WILLIAM F. MILROY of Omaha said there were two points to which he wished to call attention in respect to this matter. The first was that probably the great majority of the members of the Society present resided in two or three of the great cities of the country and they should not form their conclusions in respect to this whole question simply from the observation of these few great cities. They must not forget the balance of the hundred million people living outside of these great cities, and the conditions among these people as influenced by this new law. He had heard of people in the State of Kansas, his eighboring State, who had grown up without ever seeing a saloon and some of them had never seen an intoxicated person. They had lived there since Kansas became prohibition state, and that was the condition in which they had lived to the present time and had lived for years. That suggested the other point, which was that not enough time had elapsed since the introduction of this law for any one to determine finally its ultimate value or consequences. The nation had lived drinking alcoholic liquors of various kinds throughout its history, and it could not be expected that in one, two, or even five years it would gracefully submit to the conditions imposed by this law. It was a matter that would take time, and if this present generation of drinkers saw fit to take themselves off by the illegal use of liquors it would leave the country in the future, if this law was carried out with its full intent, a very different country from what it had been in the past; the economic advantages would materialize and the disadvantages would disappear to a very great extent.

These two points ought to be recognized whatever might be one's attitude in respect to the physiological or therapeutic value of alcohol.

Dr. JACOB DINER of New York asked whether it was not a matter of fact and statistics that in many socalled prohibtion states there was a correspondingly greater consumption of alcoholic "patent" medicines.

Dr. MILROY replied that he could not answer definitely, but that the pure food laws of the country would take care of that question in the future as occasion would arise. It was well known that in the formulæ of many of these articles the allowance of alcohol had been cut off and restricted. In his own state of Nebraska prohibition had been in operation for about six years, and in his opinion the result had been most beneficial. In his own city with a population of over 200,000 the conditions had improved enormously. Of course it was true that liquor was sold—being imported from Canada and manufactured—but that was diminishing rapidly.

Dr. EUGENE L. FISKE of New York said he had tried to make clear in his paper that he drew no positive conclusions from the statistics with regard to the influence of prohibition, but he might have been misunderstood. He had stated that in 1920 the mortality in the industrial population was very low, but he had uttered a caution that no dogmatic conclusion should be drawn from the figures presented from Drs. Kirby and Pollock as regards the effect of prohibition. He made the point that long before prohibition there had been a steady decline in the use of alcohol due to other causes. He had stated that the admissions for drug psychoses had dropped from .38 to .28. He thought he had not read some figures relating to the proportion of users of alcohol in various groups investigated. It was generally considered that total abstainers formed a small minority of the population, that they were a peculiar group. The New England Mutual Life Insurance Company, through its investigations extending over 60 years, showed 38 per cent. of practically total abstainers. In two other companies, including one containing many Germans, the proportion was 64 per cent.; in another, 56 per cent.; in other industrial groups, 45 per cent.; commercial groups, 72 per cent.; and to these might be added a number who used alcohol casually but were not committed to its use. From what he had observed by intensive study of all the facts, he could see very good reason for figuring out a majority against alcohol, and it was erroneous to form the opinion that, because a great noise had been made, a group of agitators had put this thing over. Personally he had never engaged in anti-alcohol propaganda, but had collected facts and let them be used for what they were worth. He did not offer his paper as a brief for prohibition, but he did believe prohibition had been a wholesome thing. He believed that the forces of education and the practical common sense of the people were for a reduction in the use of alcohol before the law decreased consumption, and was inclined to agree with Dr. Kirby that there had been growing up a sentiment against alcohol and that political agitation had not had a great influence in the matter

Dr. JOHN C. HEMMETER, in closing, said that the blood of the human being normally contained under physiological conditions 3 1000 proportion of alcohol. The blood of several total abstainers examined, who lived largely on carbohydrates contained a slightly higher proportion of alcohol. The distillate of the human feces yielded a considerable percentage of alcohol, being largely from intestinal fermentation of carbohydrates and sugars, for the alcohol was made from the sugar; and as total abstainers were proverbially large consumers of sugar they distilled a little more alcohol than the consumer of alcohol, for the latter lived largely on a protein diet, from which no alcohol could be formed. It would be interesting to watch this situation, for the total abstiner would be the unconscious manufacturer of alcohol since he had the most favorable conditions for forming it. That little moonshine distillery was working all the time, and though the percentage of C_2H_5OH formed was small, yet it could only be estimated as having a pharmacologic effect because of continuous action; whereas the man who took his regular drink used it sporadically. Experiments on the isolated dog heart reported in the English *Journal of Physiology* eight years ago brought out the fact that when measured amounts of Ringer's solution mixed with different percents of alcohol were perfused through the heart and circulated through the coronary arteries, the blood oxidized the alcohol and those animal hearts performed a greater amount of work than the controls without alcohol. This was mentioned as being of biological interest at any rate.

Alcohol Is of Therapeutic Value.—Dr. LEWIS H. TAYLOR of Washington said that the Council of the American Therapeutic Society had instructed him to present to the society the following resolution: *Whereas* the use of ethyl alcohol and its preparations is not only justified but also indicated by observations made by laboratory investigators and clinical experience, therefore be it *Resolved* by the members of the American Therapeutic Society in convention assembled that alcohol has a proper place in the treatment of disease; and be it further *Resolved* that the least possible restrictions in the use of the drug compatible with the enforcement of the 18th Amendment be imposed on the members of the medical profession; and be it further *Resolved* that a copy of this resolution be sent to the proper authorities.

Dr OLIVER T. OSBORNE of New Haven said that he was not opposed to the resolution but at the same time he was not sure he wanted the American Therapeutic Society to go on with a rush. They should be deliberate in a resolution which was likely to be misunderstood and misinterpreted. He did not see that there was any way our methods of giving or not giving alcohol could be helped by the resolution. He did not wish to be on record as opposing the Volstead law if it was modified into a decent law. He did not approve of the law as it stood.

Dr. JACOB DINER said that Dr. Osborne was losing sight of the fact that the enforcement officers had the power to make whatever rulings they desired in order to stop the use of alcohol. That might lead and probably would lead to an entire upset of all pharmacopeial preparations. The prohibition officers had already promulgated certain changes in the U. S. Pharmacopœia preparations. Unless we took a definite stand and recognized the necessity of the use of alcohol in some form or another as a drug it might not be so very long before no tinctures or elixirs could be prepared, because they all contained alcohol. It might mean the abrogation of our privileges to prescribe a drug to meet certain conditions. This resolution was not in favor of antiprohibition but merely of the protection of the rights of the physician to use drugs as deemed necessary in the treatment of disease.

Dr. GEORGE H. HOXIE of Kansas City supported Dr. Osborne in his contention, for he believed that as medical men they would make a mistake if the society mixed in this fight. It seemed to him that the best attitude for medical men to pursue was the scientific one, keeping away from any discussions that would belittle them or tend to put them on a level with saloon keepers. He had himself refused to take out a license to prescribe alcoholic drinks. He agreed with Dr. Wilcox that the society should abstain from anything that might appear like coming down into the plane of the antiprohibition fight. He himself happened to have lived in Kansas, having been a member of the faculty of the State University for several years, and he could testify somewhat in answer to the question that had been put by Dr. Diner. He had found it a very delightful place to live in, and had found no difficulty whatever in prescribing whatever drugs he needed, and he did not believe the people of the state were to any extent damaged by prohibition. For the last few years he had lived in Missouri which had been wet until the Volstead act and could therefore contrast the wet with the dry neighborhood. If he had a choice of location witout knowing anything more about it than one was wet and the other dry, he would select the dry state. He did not believe the medical profession had been or would be interfered with in any legitimate way. If a protest as to the present condition of affairs was needed it should be made by those injured and not by the doctors. If the patients really did suffer their protests would reach Congress more effectively than if this society, a small group of medical men,

should enter such a protest. The majority of the men present were from the East and it would be wise for them to heed the warnings of Dr. Milroy and himself who represented another section of the country, and one that was vitally interested in the matter.

Dr. REYNOLD WEBB WILCOX of New York suggested that perhaps Dr. Osborne should bear in mind the fact that the trouble caused to physicians resulted not so much from the enforcement of the various acts of Congress and amendments to State laws—not from the laws themselves, as from the interpretations which had been put upon these laws, the rulings that had been made. In those cases that had had to be defended in court in order that the rights of human beings should be protected, it became necessary to point out to the court that the burden of proving that these rulings were germane to the law rested upon the district attorney, and that if they were germane to medicine and not to the practice of law they were rulings that the commissioners and the district attorneys would attempt to force at their peril. That was the law. He would dislike very much to have the society leave the matter as it stood at the present time, because if they should fail to act now the Associated Press would send out the news that the American Therapeutic Society declined to take action upon the value of alcohol as a therapeutic agent when that decision was to be based upon scientific grounds. That he would regard as very unfortunate. Personally he would like to see the very carefully drawn resolution passed upon by a large majority, and should it be so passed action by any other medical society would be entirely superfluous, because this organization, representing the best and most scientific knowledge as to the medicinal use of alcohol, would render a decision which could not be even questioned.

Dr. J. MADRIM TAYLOR of Philadelphia said he had heard a sudden resolution presented and was asked to vote for it; but he wished to make some pertinent response. This question could not be passed upon by this or any other body unless it contained a certain number of competent psychologists. It was the question of the effect of alcohol on the average individual. He did not believe this matter had been taken into proper consideration, and he objected. That was his stand.

The Society then voted upon the Resolution and it was adopted by a two-thirds majority.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO STATE BOARD OF MEDICAL EXAMINERS.

Denver, January 4, 1921.

(Continued from page 221.)

TOXICOLOGY.

1. Describe a case of poisoning by some mineral acid and caustic alkali. Give symptoms and treatment.
2. Describe opium poisoning. With what disease may it be confounded? Give differential symptoms.
3. Describe a case of poisoning by digitalis. Give symptoms and treatment.
4. Name chemical antidotes for the following poisons: Nitrate of silver, carbolic acid, lye, corrosive sublimate, sulphuric acid.
5. What are the dangers that may come from the use of salol in large quantities? Give symptoms and treatment.
6. What are the symptoms of iodism? Give treatment.
7. Describe the forms of ergot poisoning. Give treatment.
8. Describe the difference between physiological and chemical antidotes. Illustrate each.
9. How do corrosive poisons differ from true poisons? Give example of each. Describe symptoms and treatment.
10. Give symptoms and treatment for use of nitric acid poisoning.

In questions 1, 8 and 9 do not use poison asked for in other questions.

SYMPTOMATOLOGY.

1. Give the symptoms of variola and differentiate the eruption from that of varicella.
2. Discuss aortic insufficiency with regard to symptoms, physical findings, and etiology.
3. Discuss etiology, symptoms, and diagnosis of aneurysm of arch of aorta.
4. Give symptoms and physical signs in spontaneous pneumothorax.
5. Discuss the diagnosis and describe typical course of lobar pneumonia.
6. Discuss fully symptomatology and diagnosis of incipient pulmonary tuberculosis.
7. Discuss etiology, symptoms, and complications of vascular hypertension.
8. Discuss symptoms and physical findings in exudative pericarditis.
9. Discuss diabetes mellitus, symptomatology, pathology, and complications.
10. Give differential points between cerebral apoplexy, acute alcoholism, syncope, and postepileptic coma.

ANSWERS.

TOXICOLOGY.

1. POISON BY SULPHURIC ACID. *Symptoms:*—"When concentrated sulphuric acid is taken into the mouth, symptoms present themselves immediately. Its irritating action upon all the tissues with which it comes into contact is followed by severe burning and pain in the mouth, or extending down the throat into the stomach, and there is vomiting which occurs at once and consists of frothy material, shreds of mucus, liquid of a dark coffee-ground color, with more or less blood. Shreds of mucous membrane are found even in the first vomitus. The mouth is excoriated and its lining membrane is at first white, later changing to gray or brown. Salivation is marked. The injury to the lining of the mouth, throat, and esophagus is followed by considerable swelling and difficulty in breathing, the face usually taking on the livid expression of asphyxia. The material which is first vomited usually contains a large portion of the acid in a concentrated form, so that wherever it may touch the hands or clothing there will be found stains due to the action of the acid. The expression is anxious, the evidences of suffering and pain very great, the intellectual faculties clear, and death usually results suddenly at the end of eighteen to twenty-four hours after the poison is taken."

Treatment.—"When a strong acid has been taken, there is no substance which will have any material effect upon its action. The proper treatment would be an attempt at dilution and the administration of mild alkalies, such as cooking soda, chalk, or magnesia, with the usual soothing substances like barley-water, flaxseed tea, or oil. No tube should be introduced on account of the danger of perforating the already softened esophagus and stomach." (Dwight's *Toxicology.*)

POISONING BY CAUSTIC ALKALI. *Symptoms:*—"A nauseous acrid taste, rapid destruction of the mucous membranes and even the deeper tissues of the mouth and throat, burning pain in the throat and stomach extending very soon to the abdomen, which becomes exceedingly tender, aphonia, vomiting of bloody mucus, frothy and with a soapy taste, pulse small and thready, surface cold and covered with a clammy perspiration, great prostration, sometimes ending with convulsions, especially with children. When potassium hydroxide has been taken it sometimes shows its specific action on the heart, causing slow, weak pulse, the patient sinking into unconsciousness. Constipation is sometimes troubles me, but generally a bloody diarrhea supervenes. The urine is scanty and alkaline, or entirely suppressed. The blood is dark and gelatinous. If the patient survives a few days, sloughing of the fauces and esophagus may occur, followed by stricture and death from exhaustion or starvation, or the stomach may have been most severely affected and death result from destruction of its functions."

Treatment: Do not use stomach pump. The necessity for caution is here even greater than in poisoning

by the strong mineral acids, as the disorganized tissues are more rapidly softened. Give the weaker vegetable acids where accessible, as lemon juice, dilute vinegar, etc. In their absence the mineral acids may be given very dilute and cautiously, always remembering that too much of the antidote may be quite as injurious as the original poison. Vegetable or animal oils may also be given, as sweet oil, lard, butter, cream and milk. Where symptoms of heart depression appear, as slow, weak pulse and tendency to coma or convulsions, caffeine, digitalis or other heart stimulants may be given."—(Riley's *Toxicology.*)

2. The *symptoms of poisoning by opium* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis, the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."—(Witthaus' *Essentials of Chemistry and Toxicology.*)

Treatment of opium poisoning consists in washing out the stomach, preferably with a dilute solution of potassium permanganate; ambulatory treatment to keep the patient awake; artificial respiration is indicated, and strong coffee should be administered by the mouth or rectum; the bladder should be emptied by the catheter.

The following table (from Eisendrath's "Surgical Diagnosis") gives the differential diagnosis:

APOPLECTIC COMA.	UREMIC COMA	ALCOHOLIC COMA	OPIUM POISONING
Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supra-orbital pressure unless very profound.	Can be aroused unless very deep.
Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pin-point size.
Pulse full and slow, often arteriorsclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.
Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow—May be 6 to 8 per minute.
Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.	
Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.
Hemiplegia with convulsions on one side.			

3. *Symptoms of poisoning by digitalis:* "Nausea, and occasionally vomiting. Sometimes colic and diarrhea. After two or three hours, marked diminution in the frequency of the pulse, which may fall to 40 or even 25. Dyspnea, attended by a sense of oppression in the chest and coldness of the extremities. Headache, vertigo, and tendency to sleep. Usually attacks of syncope occur, provoked sometimes by the slightest movement of the patient. Death is generally by syncope, sometimes after several hours of coma succeeded by convulsions. *Treatment:* The patient must be kept strictly in the recumbent position. The stomach should be washed out with infusion of tea by the stomach tube. Stimulants should be given."—(Witthaus' *Essentials of Chemistry.*)

4. CHEMICAL ANTIDOTES. For *nitrate of silver*, sodium chloride. For *carbolic acid*, sodium sulphate. For *lye*, a very weak or dilute acid. For *corrosive sublimate*, milk or white of egg. For *sulphuric acid*, magnesium oxide or hydroxide.

5. *Salol*, in large quantities, may cause phenol poisoning.

Symptoms of carbolic acid poisoning: Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

The *treatment* consists in administering white of egg, sodium sulphate, or saccharated lime, followed by lavage. Alcohol is said to be antidotal. At one time alcohol was much used; just now the older remedies (such as sodium sulphate) are more relied on. Soluble sulphates form with carbolic acid the insoluble sulphocarbolates, which can be removed by lavage.

6. *Iodism* "is characterized by violent coryza, headache, a metallic taste in the mouth, increased salivary secretion, gastric irritation, and an acne rash. Elimination should be procured, the drug should be stopped, and pyrethrum root, tincture of belladonna, quinine, digitalis, etc., should be administered. The incorporation of tincture of belladonna (♏ 5) with each dose of iodide will generally prevent the disagreeable catarrhal symptoms."—*Pocket Cyclopedia.*

7. *Acute ergotism:* "In a large dose ergot acts as a gastrointestinal irritant, causing nausea and vomiting, gastralgia, colic, thirst, and purging. It slows the heart, raises the arterial tension greatly, dilates the pupils and produces pallor, vertigo and frontal headache. It stimulates the contraction of unstriped muscular fiber, especially affecting the sphincters and causing contraction of the sphincter of the bladder, making micturition difficult if not impossible. It produces cerebral and spinal anemia, a great fall of the body temperature, coldness of the surface, tetanic spasms, and violent convulsions." *Chronic ergotism* "occurs in two forms, the convulsive and the gangrenous—either usually excluding the other. The convulsions are tetanoid spasms of the flexor muscles, the uterus, the intestinal fibers, and the muscles of respiration, ending in coma and death by asphyxia. The gangrenous form begins with coldness and numbness of the limbs, formication of the skin all over the body, loss of sensibility and abolishment of the special senses, bullæ of blood and ichor, followed by dry or moist gangrene of the lower extremities, buttocks, and other parts, epileptiform, convulsions, coma, and death. Autopsies show changes in the posterior columns of the cord, resulting probably from spinal anemia."—(Potter's *Materia Medica*, etc.)

Treatment: Wash out the stomach; give castor oil or magnesium sulphate; keep the patient warm, and at rest; stimulate with alcohol, or nitroglycerin, or strychnine, or caffeine.

8. *Physiological antidotes* act as such by combating one or more of the physiological actions of the poison, such as opium for belladonna.

Chemical antidotes act as such by uniting chemically with the poison and thus converting it into a harmless or insoluble compound, such as magnesium sulphate for lead poisoning.

9. A *poison* is a substance which, on being in solution in or acting chemically upon the blood, causes death or serious bodily harm.

A *corrosive* is a substance capable of producing death or injury by its chemical action upon a tissue with which it comes in contact. Corrosives and poisons also differ in other respects. Corrosives act upon dead and living tissue alike, while poisons, as a rule, do not. The violence of corrosion is directly proportionate to the degree of concentration, while the action of poisons depends upon the actual quantity absorbed, but in no wise on the degree of concentration of the solution taken. A corrosive may kill by destroying the skin, producing an injury resembling a burn; the poisons, if applied to the skin, act only when absorbed.

Example of a poison, aconite; *of a corrosive,* hydrochloric acid.

ACONITE. "*The symptoms of poisoning by aconite* usually manifest themselves within a few minutes; sometimes are delayed for an hour. There is numbness and tingling, first of the mouth and fauces, later becoming general. There is a sense of dryness and of constriction in the throat. Persistent vomiting usually occurs, but is absent in some cases. There is diminished sensibility, with numbness, great muscular feebleness, giddiness, loss of speech, irregularity and failure of the heart's action. Death may result from shock if a large dose of the alkaloid be taken, but more usually it is by syncope.

"The *treatment* should be directed to the removal of the unabsorbed poison by the stomach tube, and washing out of the stomach with infusion of tea holding powdered charcoal in suspension. Stimulants should be freely administered"—(Witthaus' *Essentials of Chemistry.*)

HYDROCHLORIC ACID. "The symptoms produced are similar but less in severity than those due to other acids. Dark clothing is stained at first a bright red, changing to a reddish grown. Mucous membranes are stained white or grayish, and a false membrane is sometimes formed in the fauces. The shortest period within which fatal results have followed its taking is said to be two hours, the average perhaps being eighteen to twenty-four, and death has resulted from the taking of something less than a half ounce.

Treatment. Treatment is similar to that of poisoning by sulphuric or nitric acid."—(Dwight's *Toxicology*).

And see Questions 1 and 10.

10. NITRIC ACID. *Symptoms:* Sudden and acute burning pain in epigastrium and extending from mouth to stomach; violent and distressing vomiting of acid and dark material. Eschars where the acid has come in contact with skin, lips or tongue; these are first white, then yellow or brown.

Treatment: Magnesia suspended in water, or a strong solution of soap. Do *not* use the stomach tube.

SYMPTOMATOLOGY.

1. *Symptoms of variola:* "After twelve days' incubation, the malaise of onset comes on. Its most notable features are—shivering, frontal headache, pains in the back, vomiting. In children there may be convulsions. The temperature runs up rapidly, with all the phenomena of 'fever.' On the third day the fever usually declines and the rash appears as a papule. Soon, however, the symptoms become worse and more pronounced than before, the fever increases, and on the ninth day, when the rash becomes pustular, the so-called secondary or suppurative fever is fully developed, and assumes a septic type with oscillatory temperatures. There may be severe rigors and a rapid assumption of the typhoid state. There is great swelling of the face—the eyes may be even closed up—and too frequently the patient dies; or the fever may subside, and the scabs commence to dry, falling off finally on the eighteenth to twentieth day, and leaving a more or less pitted appearance."—(Wheeter and Jack's *Handbook of Medicine.*)

(1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterwards; or the two diseases may coexist. (4) Varicella is noninoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in 24 hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in excessive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin.—(From J. W. Moore's work on *Variola and Varicella.*)

2. AORTIC REGURGITATION. *Symptoms:* "So long as the cardiac hypertrophy is just sufficient to compensate for the valvular condition, there are no symptoms, but as the muscle walls continue to increase symptoms of cardiac hypertrophy present themselves, such as forcible cardiac action, with marked pulsation of all the vessels including the capillaries, the characteristic forcible and receding pulse ('water-hammer pulse' or 'Corrigan pulse'), head ache, insomnia, tinnitus aurium, congestion of the eyes and face, etc. Precordial pain is usually present in aortic disease. It may be a sensation of constriction in the cardiac region or it may consist of sharp, shooting pains extending to the arms —anginoid attacks. As soon as the slightest failure of compensation occurs, the cardiac action becomes excessive and distressing. Palpitation is present and causes anxiety and fear on the part of the patient. When there is complete rupture of compensation, there develop, either gradually or rapidly, dyspnea, increased on exertion, cough, cyanosis, hepatic enlargement, renal congestion with scanty, albuminous urine, ascites, and dropsy. If mitral insufficiency is now superadded, general venous stasis and death rapidly follow. Sudden death is most frequent in this form of valvular heart disease."

PHYSICAL SIGNS. "*Inspection* shows that the cardiac impulse is forcible and displaced downward and to the left. The pulsation is visible far beyond the normal apex.

Palpation confirms inspection. It may at times serve to detect a diastolic thrill over the base of the heart and the adjacent large vessels. The Corrigan pulse and the capillary pulse are recognized by palpation.

Percussion serves to demonstrate an increase in the area of cardiac dullness downward and to the left. Occasionally it is increased upward and to the left of the sternum as the result of hypertrophy of the left auricle.

Auscultation reveals characteristic alterations in the heart sounds. The first sound is forcible; the second sound is replaced or associated with a churning, rushing, or blowing murmur of low pitch, well heard at the second right costal cartilage (aortic area) but most distinct at the junction of the sternum and the fourth left costal cartilage. It is diastolic in time and is transmitted downward and toward the apex. A presystolic rumbling murmur (*Flint murmur*) may occasionally be heard over a limited area at the apex."—(Hughes' *Practice of Medicine.*)

Etiology: Generally, it is the result of an acute endocarditis following rheumatism or an acute infectious disease; but it may be due to alcoholism, syphilis, gout, arteriosclerosis, chronic nephritis, or excessive muscular labor.

3. ANEURYSM OF ARCH OF AORTA. *Etiology:* "There are many reasons why aneurysms should be so common in the arch of the aorta: (1) It is much curved; (2) the first part of the arch has very little support; (3) the blood stream ejected during systole of the heart tends to bulge the aorta locally; (4) this part is much more affected by the variation of the cardiac pressure than the distal arteries; (5) it gives off large branches in a very small area; (6) the vessels tend to dilate during inspiration; (7) aortitis and atheroma are

very common in this situation. Aortic aneurysm occurs most frequently among men who are either prematurely old through intemperance, syphilis, etc., or in those engaged in occupation which tend to increase the normal aortic strain, such as hammermen, brewers, young soldiers.

Symptoms "depend on the portion of the arch affected, and on the size and shape of the aneurysm:

1. *Symptoms in connection with the Circulation.*—"Palpitation, anginoid pains, imperfect filling of the arteries, and sometimes difference in the two radial pulses.

2. *Symptoms due to Pressure*—"(1) There is difficulty in swallowing, especially solids. (2) Less air enters the lung of which the bronchus is pressed upon, and the breath sounds are consequently weak. There is much dyspnea, attacks of the so-called aneurysmal asthma, or a peculiar alteration of the voice and cough. Hæmoptysis may occur later. (3) *Implication of Nerves.* The symptoms will depend on the amount of pressure exerted on the nerves. Thus, if *slight*, we get symptoms due to *irritation;* if *severe*, symptoms due to *paralysis*. The nerves most likely to be involved are

	IRRITATION	PARALYSIS.
Left Recurrent Laryngeal	Alteration of voice; and stridor, due to spasm.	Aphonia. Paralysis of left vocal cord.
Phrenic	Painful and persistent hiccough.	Intercostal breathing. Death.
Sympathetic	Dilatation of the pupils. Pallor from constriction of the vessels on the one side. Rapid action of the heart.	Contraction of the pupil and flushing of that side of the face.
Vagus.....	Depressed action of the heart. Vomiting and nausea.	Irregular action of the heart. Pneumonia. Death.

(4) Edema of the superior extremities, one side of the head, etc. (5) Rapid emaciation, and fatty stools. (6) *Bones.* Erosion and absorption; the process being accompanied usually with intense boring pain."—(From Wheeler and Jack's *Handbook of Medicine.*)

Diagnosis: "The presence of a tumor, as shown by the abnormal area of dullness, with expansile pulsation and a bruit in the region occupied by the aortic arch, is diagnostic. The *x*-ray will serve to define its exact situation and outlines. The signs and symptoms will vary according to the part of the arch involved."—(Hughes' *Practice of Medicine.*)

4. PNEUMOTHORAX. *Symptoms:* "The onset is abrupt with sudden or sharp pain in the side, intense dyspnea, symptoms of collapse, coldness of the surface, and cold sweats. These symptoms in many instances follow a severe or violent paroxysm of coughing. In severe cases the acute pain and distressing dyspnea are constant until death.

Physical signs: "Inspection serves to detect enlargement of the affected side with absent or diminished respiratory movements. The intercostal spaces are widened and sometimes bulged out so that the surface of the chest is smooth. The apex beat is displaced. *Palpation* reveals diminished tactile fremitus. *Percussion* yields marked changes in the resonance. Immediately after the rupture, the percussion-note is hyper-resonant, or even tympanitic or amphoric in quality. If the amount of air in the pleural cavity becomes extreme, there is dullness on percussion, associated with a feeling of great resistance or density. When effusion of blood occurs, dullness is obtained over the lower part of the chest, hyper-resonant, or tympanitic percussion-note over the upper portion of the chest, these sounds changing as the patient changes position. *Auscultation* demonstrates several characteristic features. The normal vesicular murmur may be diminished or absent. The typical amphoric respiratory sound is heard when the fistula is open, usually associated with a metallic echo. The vocal resonance may be diminished or absent, or, rarely it may be exaggerated, with a distinct metallic echo, *Metallic tinkling*, or the bell sound, is sometimes distinctly produced by breathing, coughing, or speaking, after the development of inflammation of the pleura. After the development of pleuritis, suddenly shaking the patient gives rise to a splashing sensation, the succussion sound, if both air and fluid are present in the pleural cavity."—(Hughes' *Practice of Medicine.*)

5. *Diagnosis of lobar pneumonia* is based on the physical signs and symptoms. "*The first stage* is characterized by sudden onset with chill a sharp pain in the side, rise of temperature, a short and sharp cough, rusty-colored, viscid sputum, and dyspnea. There may be headache, scanty urine, insomnia, and herpetic vesicles on the face, and there is always an increase in the number of leucocytes in the blood. Physical examination will reveal diminished expansion, impairment of the normal percussion note, feeble or suppressed respiratory murmur, moist or dry râles, crepitation, and sometimes a pleural friction sound.

"*In the second stage* the dyspnea is more marked; the face is more or less livid in color; the temperature is high (104°-105° F.); and the pulse increases in rate (110-120), its tension and fullness lessening with the progress of the disease, and growing feeble and intermittent. Headache, delirium, and various other nervous symptoms may be present. Expansion is diminished and vocal fremitus is exaggerated upon the affected side. There is dullness with increased resistance over the consolidated lung, and auscultation detects bronchophony or bronchial breathing over this same area.

"*The third stage* is ushered in by a sudden drop of temperature on or about the fifth or ninth day, followed by a natural sleep, free sweating and relief from suffering. In this stage the crepitant râle (râle redux) is heard in the midst of the bronchial breathing, together with numerous moist râles. Dullness may persist for some time, but usually by the twelfth or fourteenth day the lung has returned to its normal state."—(Gould's and Pyle's *Pocket Cyclopedia.*)

In a *typical case of croupous pneumonia*, "there may be slight catarrhal symptoms for a day or two; but as a rule the disease sets in abruptly with a severe chill, which lasts from fifteen to thirty minutes or longer. In no acute disease is the initial chill so constant or so severe. The patient may be taken abruptly in the midst of his work, or may awaken out of a sound sleep in a rigor. The temperature taken during the chill shows that the fever has already begun. If seen shortly after the onset, the patient has usually features of an acute fever, and complains of headache and general pains. Within a few hours there is pain in the side, often of an agonizing character; a short, dry, painful cough begins, and the respirations are increased in frequency. When seen on the second or third day, the picture in typical pneumonia is more distinctive than that presented by any other acute disease. The patient lies flat in bed, often on the affected side; the face is flushed, particularly one or both cheeks; the breathing is hurried, accompanied often with a short expiratory grunt; the alæ nasi dilate with each inspiration; herpes is usually present on the lips or nose; the eyes are bright, the expression is anxious, and there is a frequent short cough which makes the patient wince and hold his side. The expectoration is blood-tinged and extremely tenacious. The temperature may be 104° or 105° F. The pulse is full and bounding and the pulse-respiration ratio much disturbed. Examination of the lungs shows the physical signs of consolidation—blowing breathing and fine râles. After persisting for from seven to ten days the crisis occurs, and with a fall in the temperature the patient passes from the condition of extreme distress and anxiety to one of comparative comfort."—(From Osler's *Practice.*)

6. In *incipient pulmonary tuberculosis*, "there is no expectoration, and probably no hemoptysis, but a persistent dry, hacking cough, possibly with a slight afternoon rise in temperature and occasional feverish attacks ascribed to colds or influenza; there is slight loss in body weight, and the general health is suffering. The physical signs are mainly defective entry of air

into one lung, probably at the apex; slight prolongation of expiration, possibly cogwheel respiration, perhaps impaired movement of the chest on one side, and it may be very slight dullness if the deposit be near the surface. Rapid breathing and a persistently frequent pulse are suggestive of early tubercle. The injection of tuberculin giving pyrexia may be tried as a diagnostic reaction. The *x*-rays, using the screen, may quite early show a lagging of the diaphragm on the affected side."

7. VASCULAR HYPERTENSION. *Etiology:* Chronic infections; syphilis, typhoid; streptococcic focal infections (from teeth, tonsils, nasal sinuses ears, appendix, genital organs); chronic intoxication; alcohol, tobacco, lead; intestinal putrefaction; chronic nephritis; hyperthyroidism. *Symptoms:* Nervous irritability, slight indigestion, nervousness, palpitation of the heart, insomnia; headache, shortness of breath on slight exertion, anginoid attacks, amnesia; later, dyspnea, thoracic oppression, apoplectiform or epileptiform attacks, intermittent claudication, retinal hemorrhage.

Complications: Cerebral hemorrhage, chronic nephritis, myocarditis, angina pectoris.

8. ACUTE EXUDATIVE PERICARDITIS *Symptoms.*—Subjective symptoms are often lacking and only a routine examination of the heart enables its recognition. There may be vague precordial discomfort or constriction, or pain. It is felt over the pericardium, occasionally extending to the left arm; or at the ensiform cartilage and over the upper abdomen. It is seldom increased by pressure. There may be dyspnea, palpitation, and perhaps a weak and irregular pulse. Fever, (rarely exceeding 102° to 102.5°), is present. The *physical signs* are friction rub, which usually begins at the base of the heart and extends more or less over the surface. Sometimes this friction may be observed by the palpating hand. It is not synchronous with the cardiac sounds, and may intermit.

9. DIABETES MELLITUS. The *symptoms* are: Weakness, excessive thirst, frequent urination, and increase in the amount of urine voided, the presence of glucose in the urine. Hyperglycemia is a feature of the disease; pruritus, emaciation, a dry and harsh skin, lost or diminished knee-jerks, coma, and air hunger are often present. The urine also contains acetone, oxybutyric acid, and diacetic acid, sometimes albumin and casts, and an increased output of nitrogen.

Pathology.—"The theoretic interpretation of diabetes varies with the view which may happen to be held of the glycogenic function of the liver. Normally about 0.1 per cent. of sugar is present in the blood, and a minute trace, which the clinical tests cannot detect, in the urine. When the amount in the blood is more than 0.2 per cent. an appreciable glycosuria occurs, and even in health a temporary glycosuria may be produced by an ingestion of sugar beyond the physiological limit. The appearance of sugar in the urine is thus due to an excess of sugar in the blood. The usual view of the glycogenic function is that the liver converts the carbohydrates brought to it from the intestines into glycogen, which it stores up as a reserve, and gradually reconverts into sugar and delivers *via* the blood to the tissues according to their needs. On this view the excess of sugar in the blood is due either to excessive production of sugar in the liver, or to diminished oxidation by the tissues. On the other hand, Pavy holds that part of the ingested carbohydrates is converted by the intestinal villi into fat, and another part is synthetically built up into proteids, in which forms it reaches the blood, and that only a portion reaches the liver, where it is stored up as glycogen, and prevented from entering the general circulation except in synthetic combination with proteid bodies. A temporary glycosuria would therefore be due to a defect in the sugar-transforming mechanism, and diabetes to its arrest, permitting the passage of unaltered glucose. In mild forms of the disease, a diet free from carbohydrates stops the glycosuria, the excess of sugar being thus derived from the carbohydrates of the food; but in severer cases, glycosuria persists though carbohydrates are withheld, and sometimes even though no food is taken. In these instances, sugar is formed by disintegration of the proteids of the food, and in the gravest cases by disintegration of the body proteids. It remains to explain why the excess of sugar is not utilized by the tissues, is not, that is, oxidized in the ordinary manner by the muscles. It has been conjectured that it may require previous elaboration in other organs, and as the pancreas is in many instances diseased attention has been directed to that gland. The recent researches of the younger Conheim are suggestive in this regard. He finds that neither pancreatic juice nor muscle juice has singly any action upon sugar, but that when the two are combined the sugar is rapidly broken up. He holds, therefore, that the proenzyme produced in the muscles is only activated by a glycolytic substance contained in the pancreatic juice, and probably derived from the internal secretion of the islands of Langerhans. Extensive disease of the pancreas would destroy this substance, and render the sugar unavailable for combustion in the muscles. It must be added that, in some cases, no disease of the pancreas or liver has been found. In some of these there has been disease in the region of the 'diabetic puncture' (floor of the fourth ventricle)."—(Wheeler and Jack's *Handbook of Medicine.*)

Complications are: Pruritus, eczema, boils, cataract, retinitis, neuritis, albuminuria, cirrhosis of kidney, acidosis, and tabes.

10. *Coma from Apoplexy.*—"The coma is usually profound, and the patient can not be aroused. The face is flushed or pale and cyanotic. The respirations are slow, stertorous, and sometimes of the Cheyne-Stokes type. The lips are blown out, and one cheek flaps more than the other during respiration. The pulse, as a rule, is full, strong, and infrequent, and the arteries are hard. The pupils do not react to light, are dilated, and often unequal. There may be conjugate deviation of the head and eyes—i.e., they are turned persistently to one side. One side of the face is usually paralyzed, as indicated by the smoothing out of its wrinkles, the flapping cheek, and the droop of one angle of the mouth. By lifting the limbs and finding those of one side to fall more flaccidly than those of the other side, the presence of hemiplegia may be demonstrated. The skin is dry and the temperature of the body above the normal.

Alcoholic Coma.—"It may or may not be possible to arouse the patient. If he can be awakened, he may protest by words or blows. The face is usually flushed, often somewhat cyanotic, more rarely pallid. The respirations are of normal frequency, deep, and sometimes stertorous. The odor of alcoholic liquor can be detected in the breath; and there is usually the peculiar sour, mawkish smell which results from the disturbing effect of alcohol upon the buccal and gastric mucosa—the odor of "drunkard's stomach." This odor is of no value as a diagnostic symptom; its absence is of importance as a negation of alcoholism. The pulse is rather rapid, full and strong, finally becoming small and feeble. The pupils are equal, and either of normal size or dilated. Very commonly the skin is cool and moist, and the bodily temperature below the normal point. Convulsions are infrequent, but there may be some local muscular spasm or twitching.

Syncope.—"Unconsciousness from sudden anemia of the brain is rarely confounded with other forms of coma. The pallor of the face is absolute, the respirations are shallow and almost imperceptible, the pulse is weak, perhaps absent, and the pupils are widely dilated. The eyes may remain open. If the syncope is due, as it is in the majority of cases, to a temporary weakness of the heart action from emotional causes or the sudden assumption of the erect position by an enfeebled person, consciousness will soon return under appropriate treatment.

In *coma from epilepsy*, "the history of the convulsion, the bitten tongue, the foam on the lips, and, above all, the brief duration of the gradually lessening unconsciousness, are in the majority of cases sufficient to settle the question. The face is congested, the breathing stertorous, the limbs are relaxed, but there is no hemiplegia."—(From Butler's *Diagnostics of Internal Medicine.*)

(To be continued.)

Sympathectomy for Raynaud's Disease.—Mauclaire cites a case of this intervention in the practice of Dr. Ramondi. The immediate result was brilliant, but there was a recurrence in five months.

Miscellany.

NEW BOOKS AND OLD.

XI. THE MEDICAL LIBRARY.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

DR. OSLER used to say: "To study the phenomena of disease without books is to sail an uncharted sea, while to read books without patients is not to go to sea at all." Books then are the charts of medicine. There is to me no more fascinating study than comparing the charts of the early mariners with those of today and of yesterday. By so doing we can trace the history of the world, the rise and fall of empire, the voyages of discovery and of conquest. Gradually the outlines of the coasts become more accurately charted, but the constant change requires from time to time corrected charts, for currents deviate and coast lines vary so that no matter how true a map it was a hundred years ago, the mariner of today wants the present day chart when he sails out for some distant port. But the charts, the maps, show not only the configuration of the land but the artificial boundaries of nations, with the constant change, the eternal human ebb and flow, never to be fixed until the end of man. In medicine, countless mariners course up and down the broad highways of the sea searching for the promontories of truth. Little by little we have acquired a reasonably accurate chart of a fairly wide domain. We know the outline of much of the coast, the higher hills and mountains, some of which brave and undaunted souls have climbed, whilst others have sailed far up the broader rivers. Like the earth, the territory of medical truth has been and is occupied by a restless, uncertain people, and the scars of many wars and conflicts have left their unmistakable traces. The medical books are the maps of these countries by which we can follow the early adventurers. Some have sailed for commerce and some for discovery and some for mere adventure, and many are the strange trophies and stranger tales the travelers bring home. The domains of medical knowledge have been ruled and dominated by many great minds and schools. These kings and nations of the intellect have arisen, made converts, ruled and fought and vanished by hundreds and thousands, leaving, as a rule, no imprint; but there are some who charted the domain as they found it, or thought that it was, and today we can look back and, in part, say with Browning:

> "This rage was right in the main,
> This acquiescence vain."

The Medical Library is a school, a very important school, where one may commune with all the old medical worthies for the asking. What a furore it would create if it were announced that Laennec, or John Hunter, or William Harvey, or any other of the great men of the profession, would be present at our meeting. How the hall would be crowded! How eager each to hear what the great man had to say! And yet how unmindful are most of us of the fact that the best that Laennec, that John Hunter or William Harvey did and said are with us constantly, on the shelves of our Library. Any day we may wander at will with Louis through the wards of the Hôtel Dieu and listen to the wonderful descriptions of typhoid fever, or with Trousseau through the Hôpital St. Antoine, or again at the Hôtel Dieu and learn at first hand how to tell infantile tetany or gastric vertigo—to mention only two of the things to which his name is forever linked. Would you walk five miles to hear Hippocrates read his writings on malaria or his crisp description of mumps? Of course you would, or travel half the continent over; but how painfully few take the trouble to listen to the greatest of all medical teachers. Have you imagination? With the aid of a few volumes you may travel to the temples of Æsculapius at Cos or at Pergamos, where, on some wooded mountain side, trained priests will show you how the old Greek ministered to the sick, and find that it is not a far cry from there to the modern mineral spring or some of the places where they heal by faith, prayer, and ritual. You can slip easily across to Rome and listen to Celsus on surgery, or if you are interested stop to hear Soranus of Ephesus on midwifery or obstetrics, or the diseases of children, or call on Aretæus the Cappadocian and at first hand get descriptions of pneumonia, elephantiasis, tetanus, or diphtheria. He would tell you that he was the first to differentiate cerebral from spinal paralysis and to describe the decussation of the pyramids. As on a magic carpet one at will can visit Iba Sina the "Prince of Physicians," commonly called Avicenna, or listen five minutes to the Ladies of Salerno, or slip into Montpellier to be charmed by the alchemists, or as far as Basel to see Paracelsus burn the books of Galen and Avicenna. Endless the journey, and we may choose at will the great souls who have labored and left their best for our delectation. And we close the book and we are at home again.

The Library is not only a place where are garnered the best work of the masters of the times that are gone, but it holds equally as well the best thought of the present age. In the new books, and particularly in the monographs and journals, one finds an ever changing store of information: what the best men are doing the world over for all the different diseases and conditions. Woe unto the man who fails in his duty of keeping up with the times! Only too often are his sins of omission visited upon the heads of his patients. Sometimes, indeed, they may descend upon his own as in the case related by Sir William Osler of the physician who brought his cretin son for diagnosis. For years the misshapen, grotesque dwarf sat directly under his father's eyes, and for years the journals and later books had featured the results obtained by the use of desiccated thyroid and had pictured the cretin with its unmistakable appearance. Both passed unnoticed, and when asked why he had not recognized the condition himself the poor father answered that he was too busy practising medicine to read books about it. The lesson is obvious.

Unless one takes advantage of the best modern thought much is missed. Take for example the hypertrophic stenosis of the pylorus—that terrible condition first clearly described by Hezekiah Beardsley of Connecticut, in 1788, and which formerly largely claimed its victims. Unless one reads the books it might escape diagnosis, or if

it did not, might have the rather unsatisfactory operation of gastroenterostomy suggested as a cure. If the surgeon or pediatrist was up to date of course he would suggest the simpler and far safer operation of Rammstedt, or, perhaps even better, that suggested by Strauss of Chicago, and but recently described, and who knows but that some far better method of treatment may be forthcoming tomorrow. Only by continuous and persistent reading of journals and the use of the Library can the physician know the latest and best.

We can only give the profession the opportunity to use the splendid collections of books at their disposal. We cannot drive them to the Pierian spring, much less make them drink and drink deeply of it; but those of us who have labored in the interest of the Library, and of medical libraries in general, at least have the great satisfaction of knowing that we have paved the way for the profession, and if they persist in straying in the bypaths, instead of on the broad highway of knowledge, we can only point again and again at the sign board with the finger pointed to *success*. For it means success to be well informed. Look about at the most successful medical men, successful in the real sense of the word, and you at once see that they are successful because they know.

The users of libraries are an interesting lot, and the most indefatigable are book worms and the authors. The latter raise the number of loans and readers tremendously. An old truth, as Boswell reports Dr. Johnson saying: "A man will turn over half a library to make one book." It is indeed these readers, who are also writers, that esteem books at their true worth, as Sir William Osler has phrased it: "Only a maker of books can appreciate the labors of others at their true value." These readers are, as a rule, trained and know how to find what they want, but the average reader needs help which only the specially trained librarian can give. Without such help he is like a visitor in an unlabeled art gallery without a catalogue. To quote Dr. Johnson again, "Knowledge is of two kinds. We know a subject ourselves or we know where we can find information about it." Now almost any doctor knows that medical information can be found in a medical library, but there are but few men who really know how to go about extracting it.

And here it is that the trained worker comes in. Thanks to the Library Schools and the American Library Association it is now possible for library workers to learn the essentials under competent supervision. The special medical training comes only by working in the medical library. The trained worker should know where to find information of all kinds, and so save the time and energy of the reader who does not know. With books in book stacks, and only a card catalogue, many become discouraged and give up the task of seeking knowledge on some important topic because they do not know how to go about it.

It has been a dream of mine, for a long time, to have a special course of a week or two at some large library where the medical librarians could teach each other, and be taught by special instructors, in how best to use the library and how to help others. However useful collections of medical books are it does not seem that they fulfill, as yet, their highest function.

There was a time when libraries were largely presided over by chauvinistic book lovers, as jealous of their charges as an anxious lover. Their happiest days were those in which there were the fewest readers to disturb them. There is the well known story of one of the former librarians at Harvard, who was seen one day at closing time with a smile of satisfaction on his face. On being asked why he was so happy he replied that every book except two was standing in its place on the shelves, and that Agassiz had the missing ones and he was going over to his house to bring the vagrant volumes home.

Happily this attitude has passed, or is rapidly passing, and the modern medical librarian counts his happiest days those in which the greatest number of volumes have been consulted and loaned.

The modern medical librarian should be well trained in general library work, and of necessity familiar with the latest and best in cataloging and on the other technical features of the work. The monumental labor of Billings, of Fletcher and others in the Index Catalogue of the Surgeon General's Library and in the Index Medicus, now so ably carried on by Garrison, have lightened the labors of the medical librarian. Given these two aids, time and assiduity, one can bring together the literature of any given subject. The ideal librarian should be able to do more. He should be able to help the busy practitioner who wants a few authoritative articles on some subject together with the latest expression of opinion. With comparatively little aid from specialists in various lines, it should be possible to keep listed on catalogue cards the most important contributions on the subjects most liable to be inquired about; and a small medical library society, or committee composed of two or three members of each specialty, by meeting once a month for an hour could keep the matter well in hand to their own satisfaction, and that of everyone else. With an authoritative leader this altruistic work could be carried out. And what a comfort and help it would be to be able to get at a moment's notice the latest and the best without wasting time and without tiresome search. There are not so many record breaking contributions, nor so many with really good bibliographies, so that the catalogue, while large, would not be formidable. The size could be kept down by deleting older articles in favor of better or more recent ones.

Library Committees have to pick and choose carefully, and in the great stream of books that comes ceaselessly from the presses only the most useful can be chosen. Billings, in his address entitled "Our Medical Literature," says:

> There will be a certain number of medical books and papers printed next year, just as there will be a certain number of children born; so we can within certain limits predict the number of these births and the proportion of the sexes, or even of monsters; so we can within certain limits predict the amount and character of literature that is to come, the ideas that are yet unborn.

This plethora of printing renders the choice exceedingly difficult when the number of purchases is limited—the difficulty being greater than ever before.

The modern medical literature is more fantastic than that of the past. The field for the imaginations is so much larger, and cheap printing has led fools to write that should otherwise have remained silent. It is impossible to sift all the good from the bad, they are so intermingled, and yet one skilled in interpretation can sort with reasonable accuracy the useful from the useless. Through years of review work one comes to regard much of the modern medical press as not unlike the stream of garbage that some cities pass on endless belts before trained pickers. Here and there a precious gem, a bit of gold or silver, a countless lot of used and tattered truth from other days, useful but not new, and then a vast amount of by-products, ashes and refuse that weary, even if the amount astonishes the beholder. Fortunately for the reader, there are certain sources where the output is not refuse, but the produce of honest toil, and these books and journals are like the output of the workshop, some better than others, but for the most part honest and well intentioned. But even here one must test the wares carefully before he chooses, for there are skillful imitations, and pails that will not hold water, and cracked pots, and perhaps the task is more difficult than with the garbage. But Time, who tests all things, always tells and, in the end, the real is separated from the false.

One should not be too hasty in deciding what is of lasting value and what is of mere ephemeral interest. As Oliver Wendell Holmes remarked: "There comes a time for every book in the library when it is wanted by somebody." Hundreds of examples could be cited of books which have become classics and yet were spurned even by second hand book dealers. Semmelweis' Essay on the Contagiousness of Puerperal Fever once went a-begging at a shilling a copy and a dozen copies of Beaumont's Plattsburgh edition of his researches on the Physiology of Digestion mouldered on the shelves of our own Baltimore book shops until an essay of Dr. Osler's brought the volume to local attention, when a dollar sufficed to claim a copy. Osler, himself, once told how he picked up Auenbrugger's *Inventum Novum*, in Italy, for a lira.

The Medical Libraries of this country have for the most part not received the financial support that their importance to the community would seem to warrant. For bricks and mortar money is always forthcoming, but not so freely does it come for books and journals, which recalls Mr. Dooley's remark that libraries do not concern books but architecture. If one would write his name in more than water, a special fund in a library with its bookplate or inscription furnishes a means of keeping it before the coming generations, perhaps the surest way. The Libraries of the New York Academy of Medicine and the College of Physicians of Philadelphia, have inscribed the names of their munificent patrons and donors on tablets of marble inside the doorway. How many would know about Sir Thomas Bodley were it not for the Bodleian Library, or of John Radcliffe were it not for the Radcliffe Library? One pauses to wonder whether Mr. Carnegie will not be known for centuries hence as a founder of libraries rather than in any other way. Would that a word to the wealthy were as sufficient as it is reputed to be to the wise.

"Les Feux du Couchant."—In *Le Progrès Médical* for April 16, 1921, xlix, 16 is reviewed the latest physiological and medical romance of Michel Corday, with the above title. This has to do with the supposed fact that in the decline of a man's life—say from 50 to 60 years—his passion for the other sex undergoes a sort of reawakening after having first undergone a gradual and considerable subsidence. He makes his medical character, Dr. Madelin, inform the hero, who is his old friend, that at the threshold of old age there is apt to supervene a sudden and intense passion for some person of the other sex. It is the final flare-up of passion. As a rule it is not serious, but at times pursues an acute course. The hero, Faugeat, is not a seasoned hand at the game as was Baron Hulot in Balzac's *Cousine Bette*. He is a magistrate of unblemished character, father of a family. His age is fifty-eight. His senses no longer respond to the attractions of his wife which have faded. None of the other women whom he encounters has roused his passion. At last through a theatrical director friend he chances to meet an actress twenty years of age and beautiful. A miracle happens and in falling in love with her he feels that rejuvenation has occurred. She is his complement, his affinity. For producing this transformation in him nothing is too good for her. Desperately enamoured he performs one foolish act after another. He begins to dissipate his fortune and his children's fortunes, until he learns that the innamorata has played him false; this discovery with an opportune illness brings him back to reason. The book, unlike many romances, really has a moral.

Sydenham's Recognition of Epidemic Encephalitis.—Attention was called long ago to Sydenham's description of a fever which first appeared in Great Britain in 1674 and which might have been an episode of epidemic encephalitis. According to Grenier de Cardenal (*Journal de Médecine de Bordeaux*, March 25, 1921, xcii., 6) it has escaped the attention of the profession that the same author described a return of the same ailment in 1685, not long before his death. Of two French editions of Sydenham's works, only one contains the account of this recrudescence of the disease. The latter appeared in the month of February and persisted for about a year, being disseminated throughout England. The author himself recognized it as a return ten years later of the earlier disease and moreover it appeared in the midst of an influenzal epidemic.

There were two leading cerebral symptoms, coma and delirium, the latter wholly of the tranquil kind. It was dangerous to allow these subjects to sleep and the author apparently kept them up and about as far as possible. He speaks of certain motor phenomena, chorea-like and convulsive, which may have represented the myoclonic form and attributes to them a bad prognostic significance. These, however, may have been purely terminal phenomena. Most singular is a mention of convulsive hiccough. This, as well as the motor phenomena and delirium, appear to have distinguished the second from the first visitation, which was lethargic throughout. The hiccough was neither severe *per se* nor was it of bad prognostic significance.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 8.
Whole No. 2650.

NEW YORK, AUGUST 20, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

ON THE PREVENTION OF VENEREAL INFECTION.*

BY THOMAS E. SATTERTHWAITE, M.D.,

NEW YORK.

LAST summer I called the attention of medical practitioners to the great increase of late in the ratio of infection from venereal diseases among the British, our own military forces in Europe, and also the Canadians, contemporaneously with the recent war activities. I also called attention to the fact as mentioned by Dr. Joseph E. Moore, one of our military officers stationed in Paris, that at one time 70,000 prostitutes plied their trade there unmolested by the police. I also stated, on the authority of Morel, formerly a member of the English parliament, that wholesale infection of girls and women, in the occupied enemy zone, was caused by some of the French colored troops. This matter found its way at various times into the public prints and led to public discussion which resulted, after a time, in amelioration of these conditions, if we are to accept newspaper reports. Further, in an article published last autumn I stated that the incidence of venereal disease in Paris at the time above mentioned, was, according to Moore, about 330 per thousand, among our troops there, or about one in three, while among the British troops, there at the same time, the incidence was said to be about 200 per thousand. Now assuming that the British rate among their military in time of peace was about 50 per thousand, a pretty fair estimate, I think it is quite evident that venereal disease in Paris had at that time assumed the character of an epidemic.

But more than this, we have been told by Sir Archibald Reid, in his "Prevention of Venereal Diseases," 1920, that "nearly all the troops from France and Germany which came to him in the early part of the war were infected (p. 133), while after the American troops landed in France, 104 infections out of 100 were noted in some units (p. 272). In occasional instances, of course, two or more infections at different times, in the same individual made this otherwise impossible ratio possible. Moreover, he stated that so far as Great Britain was concerned, when he was writing his book, something like every other person in the United Kingdom had suffered or was suffering from venereal disease (p. 329). This statement is, one would think, too broad for acceptance. At any rate, I believe the loss to a nation from these diseases in health, in happiness, and in efficiency far transcends the loss from any other source, even tuberculosis, which was once held to be the most fatal scourge of the world.

But when we come to think that syphilis and gonorrhea, or at least the affections to which they may give rise, are apt to be incurable, their dangers become more apparent. Indeed, we must not forget that gonococcus infection, once thought to be a comparatively mild affair, may actually effect directly or indirectly disease in any part of the body in either sex.

That these manifestations may also be incurable or lead to fatal results, will be admitted at the present day by medical practitioners generally. Gowers once said of syphilis, and his name should carry great weight with us, "it is an incurable disease. No treatment," says he, "however thorough, will bring syphilis as a disease to an end. Syphilis," he also added tersely, "is unrivaled in its total capacity for wrecking human happiness and health and life by any other disease." As to prevalence of syphilis in these latter days, Riddell, a Canadian government official, has told us that in 1920 there were more than half a million syphilitics in Canada, and 40,000 in Toronto. How large a percentage of the belligerent troops were infected is a matter as yet indeterminate. I have thus far seen no satisfactory statistics on the matter, nor have our own statistics impressed me as to their accuracy.

But Miss Ettie A. Rout (now Mrs. Hornbrook) has stated that probably no European country had less (in 1920) than three or four more times the amount of venereal disease it had in 1913 or 1914. Incidentally, I may say it is my impression that the colored races were largely responsible for its recent dissemination. In some parts of Africa, such as Egypt, or territory adjacent to it, such as Madagascar, the incidence is, I am inclined to think, greater than in any other part of the world. It is endemic in some of these places. Reid has charged his own nation with being most active in spreading it. But I think, he may not distinguish the native Anglo-Saxon from the Colonial. The degree of infection in some colored races was alluded to in a recent public discussion that took place in England, when Viscount Knutsford told of a call of two vessels at a West India island, where he said venereal disease was "frightfully prevalent." On one ship with 650 aboard, 160 cases of syphilis were found after the vessel had left the port, the inference being that the disease had been contracted in this particular island.

Since my article appeared Miss Rout has writ-

* Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 347.)

ten commenting on my opposition to the so-called "preventive treatment," stating that as the result of it between Nov. 8, 1917, and March 30, 1918, the ratio of infection was reduced from over 20 per cent. to less than 3 per cent. She stated also that the licensed houses in Paris, "made the least dangerous provisions for the normal sexual needs of the men," and that they were "infinitely preferable to the unlicensed house system of London." She said in fact, "This French system, supplemented by our own issue of portable disinfectants to Anzac soldiers (Australians and New Zealanders), and aided by the American Red Cross Dispensaries and the American Army Prophylactic Stations (all of which made our soldiers welcome to their medical benefits), was responsible for the fact that Paris gave us the lowest rate of infection in 1918, whereas London gave us the highest." There was evidently great danger outside of these French houses, for she says she found that in one haul by the French police, of 100 prostitutes, 91 per cent. were infected with venereal disease. In a foot-note, however, we are naively told by Miss Rout not to put too much confidence in the figures given as to the ratio of infection in Paris, for one of the officers at the Red Cross Conference in April, 1918, said he believed a number of officers were not reporting themselves, and that in other ranks the ratio of incidence should be doubled. One reason for the lack of value in these statistics was stated to be that, after the armistice at least, it was feared infected persons might be detained during demobilization. Apparently to some extent these diseases were concealed. One must note that the friendly aid of our American Red Cross Dispensaries and American Army Prophylactic Stations to their co-belligerents was duly appreciated by Miss Rout.

According to our Surgeon General's report we are told by Miss Rout also, that "During the fifty-three weeks ending September, 1918, there have been 178,204 venereal disease cases reported under treatment in the United States Army in France. But the reports indicated that approximately eighty-five per cent. of this number entered the army already infected, that approximately only fifteen per cent. of all cases reported were contracted after enlistment." From which we must draw the obvious conclusion that our examining officers admitted to active service infected men, and in very large numbers. This would naturally, if true, shift the onus of permitting infection from the officers in the field and throw it back on the enlisting officers. It is, I think, an established fact that incidental to departure, men going into active service were often examined very superficially. In fact Miss Rout maintains that of 44,167 cases of infection in France among our men, 96 per cent. were contracted prior to their entering the service. If this be true, we evidently have to accept some of our official statistics with grains of salt.

Of course, where these venereal diseases were contracted and who is to blame for the infections will probably never be determined in a satisfactory manner for obvious reasons. And yet these diseases that are being spread all over the world bringing affliction, misery, and even death into hundreds of thousands, perhaps millions, of our families, could in the great majority of instances have been prevented. For usually they were produced by immoral practices that could have been avoided. The accidental examples of infection represent only a very small percentage of the whole.

But what has been done in the way of prevention during these fateful years? The action of the British Royal Commission of 1916 is an example of what was suggested by one association in the way of prophylaxis. It passed a series of recommendations, such as that greater opportunities should be given for treatment of the infected; medical men and students should be afforded better chances to study the diseases; there should be better cooperation between associations undertaking to care for the infected; and courses of lectures should be given showing the dangers of infection. This might be called the Soci-educational Plan. The main issue was avoided. In fact it has been alleged that the incidence of infection increased under the plan. It probably was so. The disinfectant method, however, was largely recommended and to some extent put in practice by men such as Sir Archibald Reid and others. It was recommended by the British Society for the Prevention of Venereal Disease, though opposed by the British National Council for Combating Venereal Disease. Various disinfectants were used, such as calomel in ointment form, solutions of the bichloride of mercury and of protargol, and permanganate of potash, also green soap. The disinfectants were put in vials or collapsible tubes. Also there were furnished pledgets of absorbent cotton, syringes, nail brushes, and towels. These comprised the contents of the prophylactic packets made extensively for the use of the soldiers. This method might be called the Prophylactic or Direct Method. Unfortunately for its efficiency the outfits were often used after, not before exposure. After the horse had been stolen the stable door was locked. But the men were willing to take the chances. Women of the prostitute class, however, the most dangerous, seldom, it has been said, would take prophylactic treatment, and for various reasons. Sometimes they did not realize they were infected; perhaps they were unwilling to take the time for disinfection; or perhaps they knew that effectual disinfection was very difficult and not always possible even by experts. In this connection it may be said that the examination of public women as practised abroad, has sometimes been so improperly done that noninfected women have been infected, the reckless carelessness or indifference of the examiners actually carrying the disease sometimes from one to the other. Even in New York City our Venereal Disease clinics have not been what they should be as to cleanliness and other requisites. We have among us now a class of individuals, and it is not small, who look with indulgence on promiscuous intercourse, at least in so far as that they advocate chiefly methods in which disinfection before or after exposure is the cardinal point. This plan is practised in both our military and naval forces and those of Great Britain, though in the case of the latter it has met with considerable opposition, notably in clerical and legislative circles.

The other side of this question was ably seconded during his life by Sir James Paget, who said in an article on sex hypochondriasis (p. 286),

"Chastity does no harm to mind or body," and Paget's influence in his day in medical circles was second to none. Sir George M. Humphry, the famous anatomist and surgeon of Cambridge, England, has also stated that the functions of the testicle "may be suspended for a long period, possibly for life, and yet they may be sound and capable of being roused into activity," (p. 151) and Sir Thomas Bryant in quoting this clause adds (p. 754) speaking of the testicle that "unlike other glands, it does not waste or atrophy for want of use."

I had the pleasure of knowing these three gentlemen personally and they represent to me examples of the highest type of our profession.

Also the famous neurologist, W. R. Gowers, previously alluded to, has said "One method and one alone is possible in man, and that one is open to all. It is the certain prevention secured by unbroken chastity" (p. 126).

Max Huhner, one of the latest of the contributors to this subject, has confirmed this view, stating he has seen no harm in continence, but rather that it is one of the keys to a solution of the problem (p. 261). Herein is the truth. It is a key and at present the best key at hand. But there are others. One is quarantine. It was my privilege once, while in military service abroad in France, to be put in sanitary control of a small town, within the area of hostilities. The officers and men were becoming infected in increasing numbers. I was given the requisite authority and had the public prostitutes sequestrated. As a result there was a prompt abatement in venereal diseases among the military. In fact no new cases came to my notice. This incident I have alluded to already in a previous article. Such a method may be successful in military circles but cannot well be applied in civil life under our present laws in this country. But there is already a new move in the proper direction in this respect. Recently a District Court of Appeals in California upheld the right of a local health officer to detain and quarantine persons having a venereal disease.

Such legal action is not an infringement on the liberty of the individual any more than the quarantining for other infectious diseases. In the face of impending danger to society, the individual should yield his individual rights. It is done in tuberculosis and in various other diseases and the same rule should apply in venereal diseases, which, as I have said, are much more dangerous to our life and well-being.

But there is a third method. It is also a legal way. Take the Swedish venereal disease law, which went into effect Jan. 1, 1919. It provided in effect that: (1) every person with venereal disease was to be treated appropriately and so prevented from infecting others; (2) the source of the contagion was to be sought and suppressed, and (3) penalties were to be imposed for exposing others to contagion. In these matters, all were made to stand equal before the law. Individual rights must be subordinated to collective welfare. At first the returns from this Lex Veneris showed hardly any reductions from preceding figures, but against 3,355 cases at the end of 1919 there was a drop to 2,495 in 1920 in one locality. In Denmark, also, there has been a move for betterment. If, for example, a citizen should undertake now to keep a public brothel or rent rooms for immoral purposes he would be liable to a prison sentence. In our own country, too, the Supreme Court of North Carolina has approved a judgment in favor of a wife who has asked for punitive damages because her husband infected her. Since then two other State courts have held that the wife has a right to recover damages for injuries to her, as in the case just cited.

It can hardly, therefore, require much vision to see that woman, being no longer a chattel, may demand protection by the State against conjugal infection and that this needed protection will be afforded her eventually by the country at large. But it is the fashion of the day, as I have said, to advise other methods. And yet I do not believe that much has been accomplished by such efforts as have been made in the way of prevention by the United States Public Health Service, boards of health, and private or semiprivate associations to combat venereal diseases through the instrumentality of public lectures, posters, and publicity in general. These methods have some value, I admit. Some of them emphasize, however, a popular fallacy that prophylaxis can effectively *prevent*. Even the friends of disinfection do not seem to realize that it is effective so far as we can learn in only about two-thirds of the instances where it is employed. Assuming, as we may, that disinfectants kill the gonococcus and the spirochete in vacuo, this is a very different affair from destroying the germ in the living person. Miss Rout, indeed, has told us, and one may very well believe it, that "wherever prophylaxis was properly applied, at least two-thirds of the cases of venereal disease were eliminated." But what about the one-third of failures?

Now with the exception of accidental cases, chastity and the strong hand of law do offer chances that we may eventually master this worst of all international plagues now threatening the whole civilized world, just as Europe was threatened by syphilis, the "great pox" of the middle ages.

Disinfection undoubtedly has its place as a precaution against contagion, and as a curative measure, but it should always be remembered that the so-called prophylactic methods protect to a limited extent only.

Also it should be realized that limitations of the danger do not tend to discourage improper relations with their attendant dangers. In fact, they encourage it. Infection is always possible and probable so long as promiscuous intercourse is practised with women, whether prostitutes or others.

7 East Eightieth Street.

Postencephalitic Mental Disturbances.—Guinon states that these are far from rare and comprise excitation and change of personality—once indeed for the better. Comby found these disturbances especially common in children and anticipates that the ranks of the insane will be recruited from this source.—*Bulletin Médical.*

Is Sodoku Transmitted by Insects?—If, as is mentioned by Frassit, the socalled ratbite disease is also transmitted through bloodsucking insects this name will have to make way for another, based on the particular spirochetosis involved. The course of the disease and its control by salvarsan bespeak this kind of origin, even if the particular spirochete has not been isolated. There is no apparent reason why the rat might not behave as a reservoir for insect transmission.—*Revista Espanola de Medicina y Cirugia.*

SOME PRACTICAL OBSERVATIONS ON ENDOCRINE THERAPY.*

BY J. M. ANDERS, M.D., LL.D.,

PHILADELPHIA, PA.

IT may be premised that a summary of the more practical phases of endocrine therapy is much needed by the present-day clinician. That the subject occupies a commanding position at present no one will deny; but it is equally true and of signal importance to recollect, that some of the claims advanced by certain writers for hormonopoietic products are not supported by undoubted facts. Apparent advances in certain directions have too often proven to be kaleidoscopic. The chief weakness of glandular therapy has lain in our inability to discover and interpret the functional interrelations of the various endocrine organs.

With the progress, which we owe to the labors of Sajous, Ord, Kendall, Janney, Osborne, Goetch, and others, of exact knowledge of the subject, the limits of usefulness of animal extracts are gradually being settled; and the time has arrived when a broad line needs to be drawn between those endocrine remedies which are practicably worthless in certain conditions at least, for which they have been vaunted, and those that are worthy of general employment to meet certain, definite indications. This can be done only by subjecting each glandular preparation and its uses to critical analysis, interpreted in the light of experience and experimental investigation. Pure empiricism in the use of animal extracts, be it remembered, is incompatible with medical standards of progress in therapeutics. Again, individual experience is, as a rule, too small to base thereon reliable inferences as to their value.

Disregarding the centuries spent in unprofitable speculation and fruitless investigation foreign to the purpose of this presentation, attention will be directed only to the more recent acquisitions to our knowledge of opotherapy and its application to the treatment of disease. It is regrettable that firms manufacturing these products issue pamphlets which purport to give the scientific investigations on which the claims set forth with respect of the extracts are based. Whilst this historic information may be accurate, in some cases, it needs to be verified by reference to scientific literature in all, before it is accepted as authentic and complete. True it is, however, that certain firms will be found to publish reliable information in every detail.

In addition to the clear clinical indications for the use of glandular extracts we must also concern ourselves with their supplementary effects. Moreover, we must not be unmindful of minor degrees or earlier stages of dysfunction, when it is difficult in the extreme to recognize any of the features which ordinarily make up the characteristic syndromes. These, however, call for and are readily amendable to appropriate specific organotherapy. In this connection the fact that primary hyper- or hypofunction of a ductless gland will in its course alter the functional activity of others is to be stressed, so that indications may be presented at times for the use of multiple extracts. Polyglandular preparations, however, must not be resorted to until clear and convincing evidence that more than one of the several glands are deranged as to function. It is always worth while to attempt to identify the gland solely or principally at fault, and to make trial of a single extract at first, if the promotion of our knowledge of glandular syndromes and their treatment is, as it obviously should be, desired. An accurate diagnosis by exclusion of the primary involvement of a single gland, therefore, must precede successful endocrine therapy whenever practicable. Cases, however, are met with in which a diagnosis can be made only tentatively. In such, the cautious employment of corresponding glandular extracts which are to be advised may serve to confirm the diagnosis.

In no case, however, of a mild or ill defined form of glandular dysfunction should these agents be resorted to after a superficial examination, but only in those in which a close scrutiny of the history, clinical data, and laboratory aids has been made and carefully weighed. Lawrence[1] has emphasized the value of a careful history which gives more valuable evidence in the earlier stages of any disease than all other methods of examination. He well says "Physical examination will exclude organic disease, and laboratory tests are extremely useful in determining the degree of abnormal function, but the history, if the symptoms are properly elicited and valued, not only discloses the nature of the derangement present, but gives a measure of its effect upon the patient. If properly analyzed, the evidence it affords is not indefinite, but affords, especially in the case of the internal secretions, a definite basis for differential diagnosis."

It is particularly important to note the basal metabolic rate in suspected thyroid or pituitary involvement. For example, there is no better criterion of slight though positive deviations from the normal either toward hyperfunction on the one hand or hypofunction on the other of the thyroid gland than the rate of metabolism. This, then should serve as a guide to endocrine therapy, if the history and symptoms presented are confirmatory. A complete diagnosis embraces the stage of dysfunction encountered in the individual case. In treating cases of glandular derangement, the clinician must also meet the hygienic and therapeutic indications of the predisposing factors as well as any associated diseases in the given case. The writer has learned from personal experience to appreciate the fact that the beneficial effects of the class of products under discussion are more limited than certain enthusiasts would have us believe.

If the sufferer be the subject of disease of the heart or kidneys, preparations of the thyroid and pituitary glands are not without danger and may be fatal. The writer recalls a patient with advanced myxedema and associated mitral regurgation, which occurred at a time when a cautious increase of dosage was not generally observed, and a maximum of 5 grains t.i.d. suddenly proved fatal. We know too little about the subject of endocrine diseases and their etiology and associated pathological states to warrant the indiscriminate, not to speak of the reckless, use of animal extracts.

Again, the clinician has to deal with the so-called "ductless gland neuroses." Hemmeter,[2] Friedman,[3] and other writers have, with justice,

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 349.)

claimed that all ductless gland disturbances may manifest themselves clinically without macro- or microscopical alterations of these structures. W. Langdon Brown[4] discusses the relationship of the sympathetic nervous system to the endocrine glands and strongly emphasizes the interdependence of the latter and the vegetative nervous system. In this connection the following quotation from his paper is of special interest: "Designed as an intensive preparation for action or defense, the sympathetic response may be so dissociated, perverted, or prolonged as to produce through the thyroid gland Graves' disease with its danger to life, through the pituitary body, diabetes insipidus with its attendant discomforts, through the pancreas and other endocrine glands, excessive mobilization of the blood-sugar, which is the first stage of the metabolic disorder that culminates in diabetes; it may disorganize digestion by exciting spasm and atony in stomach and bowels, and inhibiting the secretion of digestive juices; it may keep blood pressure at a level which is inappropriate for the task of the heart and the arteries. These effects are not necessarily distinct—thus, intestinal stasis from sympathetic inhibition causes poisons of putrefactive origin to be absorbed, which in their turn lead to vasoconstriction, and hence an unduly raised blood-pressure." Obviously, a knowledge of visceral neurology is essential to the successful management of diseases of endocrine origin.

Langley and Elliot claim that epinephrin in all its actions on any organ behaves the same as electric stimulation of the afferent sympathetic fibres of that organ. Moreover, it is well understood that if the organ extracts contain any protein, there is an added protein therapy effect. There is much evidence available to show that both suprarenal and pituitary extracts increase the immune reactions, as shown by their effects upon the agglutinins in typhoid and other fevers. Again, in this power to promote the functional capacity we have an explanation of the hemostatic action of organic preparations and, similarly, of the benefits from transfusion of blood.

Whilst hitherto the application of these principles has been largely empiric, recent advances in our knowledge of organotherapy enable us to command "a substituting hormone therapy, as in thyroid treatment of myxedema; a symptomatic hormone therapy, as in thyroid treatment of obesity; a ferment therapy, as in supplying the finished pepsin or a hormone which stimulates some special secretion; a hormone therapy seeking to utilize the reciprocal and antagonistic action of the endocrine glands, and finally, we have the protoplasma activation therapy as in parenteral protein therapy." (Borchardt.[5])

Treatment of Individual Syndromes.

Acromegaly.—Opinions differ widely as to the effects of pituitary extracts in acromegaly, which is due to overactivity of the anterior lobe of the hypophysis. Kuh and Favorsky[6] have noted distinct improvement in the subjective and even the objective symptoms, while Landois and Cesbron[7] used various preparations and for extended periods, and were led to the conclusion that they are entirely ineffective. My own personal experience of the use of pituitary extracts in this disease has not been encouraging. Without doubt, a recognition of the early symptoms of pituitary dysfunction, including commencing skeletal overgrowth, offers opportunity for achieving the best results obtainable from the use of the desiccated gland. Among these are undue somnolence, aversion to muscular effort, and altered carbohydrate metabolism, as shown at times by anaphylaxis or slight glycosuria or both.

The synergistic functional relationship existing between the ductless glands is nowhere better shown than in acromegaly. For example, both myxedema and Basedow's disease may form part of the hypophyseal syndrome, as indicated above, the former during the more advanced stages of disease of the pars anterior, as a rule. In cases of acromegaly in which symptoms of myxedema are associated—an expression of functional insufficiency of the pars posterior—the utilization of thyroxin in the treatment in small daily doses, is attended with strikingly favorable results. In two cases of this combination occurring under personal observation, distinctly curative effects were observed from the use of this agent. Not only were the more characteristic myxedematous deposits removed, but also other distressing manifestations, were in great part relieved, such as the headache, irritability of temper, and insomnia. In the treatment of these two cases, the thyroid preparation was used alone, commencing with small doses which were slowly and gradually increased as the efficiency of the remedy became demonstrated by the results.

In this connection the fact is to be stressed that the use of ready-made combinations before two or more single products have been tried is illogical and tends to hinder rather than to promote progress in organotherapy. In diabetes insipidus, the administration of pituitrin (1 c.c. night and morning) is usually followed by a urine which is normal as to amount and concentration. Per contra, high blood pressure presents a contraindication to the use of extracts of this lobe.

Myxedema.—For cases of hypothyroidism there is, as is well known, a sovereign remedy. The necessity for employing thyroxin, in small dosage (gr. 1 80) so as to avoid toxic effects needs to be constantly impressed upon the mind of the medical profession. Suitable measures must also be directed to the relief of any complications and near and remote etiological influences in the individual case. There is a group of cases in which the symptoms entering into the syndrome are less obvious than in typical cases of myxedema. It is sometimes with difficulty that the significant features can be culled from the mass of data at hand, but so-called myxedema fruste presents several at least of the following features: "Irritability of temper, malar flush, apathy, neuralgia, headache, impairment of memory, tinnitus, especially on lying down, slight deafness, slowness of the mental processes, undue susceptibility to cold, weak digestion, constipation, swelling of nasal mucosa, yellowness and slight thickening of the skin and subcutaneous tissues, often confined to certain regions of the body (lower eyelid), early fatigue on exertion, and a moderate degree of anemia. The thyroid is usually smaller than the normal. It is to be recollected that in this variety cutaneous eruptions, such as

eczema, psoriasis, and urticaria may be present."

In these mild and earlier stages of thyroid insufficiency, it is not only possible to effect a symptomatic cure, but also to bring about, by enjoining absolute rest, a generous diet and the judicious use of thyroxin, a restoration to normal function of the endocrine gland at fault, in some cases at least. Such cases often follow infections or prolonged overstrain and the like.

Exophthalmic Goiter.—There is no glandular extract that has a well established reputation in the treatment of chronic hyperthyroidism. Hoppe,[9] however, has shown to his own satisfaction that corpus luteum is highly serviceable and that the patients can thus be kept in a comfortable condition. Careful dietetic, hygienic, and symptomatic treatment should be carried out while this agent is being exhibited. This method of treatment is based on the assumption of the interrelation between the thyroid and the ovaries in the female and the interstitial glands of the testicle in the male.

In my view a trial should be made of the posterior lobe of the pituitary in selected cases of hyperthyroidism. The thyroid may be observed to diminish in size and the symptoms of the disorder sometimes subside, wholly or in part, as the result of the administration of infundibulin. The effect on the metabolism is noteworthy, slowing the rate, thus favoring the storage of lime salts.

Here it is well to recollect that exophthalmic goiter and myxedema are not, as formerly believed, diametrically opposed to one another in their pathogenesis and symptomatology. Janney and Isaacson[10] have shown that similar metabolic disturbances may be present in both hyperthyroid and hypothyroid states and also that their blood-picture is practically identical. Clinicians should be constantly on the lookout for certain symptoms of myxedema in association with those characteristic of the hyperthyroid syndrome. For example, the presence of some of the features mentioned above may be noted and should lead to the judicious use of a thyroid gland preparation. The effects produced in carefully selected cases are truly remarkable in my experience.

Hypoadrenia.—The syndrome associated with both acute and chronic adrenal insufficiency has received much recent attention. The former manifests itself suddenly in diphtheria, typhoid fever, influenza, severe measles, malaria, scarlatina, and other acute infections in "rapid syncopes, with hypothermia and asthenia resembling shock." Maranon[11] has found small suprarenals with little adrenalin and cholesterol at autopsy. In these cases in which collapse is found adrenalin extracts of the whole gland, 3 mg. four times daily, should be administered. In severe types, adrenalin administered hypodermically (dose 0.5 mg. every 2 hrs.) is to be used. In the collapse of an etherized individual or one who has lost blood, larger doses than are usual, 5 to 6 mg. administered subcutaneously, are demanded.

In chronic types of hypoadrenia of suprarenal origin, 5 mg. of adrenin per day is indicated. The drug should always be administered in fractional doses at regular intervals throughout the twenty-four hours. "The injections should never exceed 0.5 mg. at any one point, though as much as 2 mg. can be given at one time." (Sergent). The writer has found the use of the desiccated gland administered *per os* without effect in some cases and in such advises a trial of adrenalin by the subcutaneous route.

In conclusion it is desired to state clearly that there are many uses of the glandular extracts in as many widely different conditions in regard to which our knowledge rests on sure foundations, but these do not fall within the scope of this article. I have considered in detail only certain aspects of substituting hormone therapy and the antagonistic or reciprocal therapeutic application of the glandular extracts. I have also endeavored to suggest principles, which should govern us in making use of these medicinal agents, rather than a complete discussion of all phases of the subject, which would be impossible within the time limit of this paper.

REFERENCES.

1. Lawrence: *Boston Med. and Surgical Jour.*, Aug. 5, 1920.
2. Hemmeter: *New York Med. Jour.*, 1914, xcix, p. 101.
3. Friedman: *New York Med. Jour.*, 1921, cxiii, p. 870.
4. Brown: "The Sympathetic Nervous System in Disease," London.
5. Borchardt: *Jour. Am. Med. Assn.*, July 24, 1920.
6. Kuh and Favorsky: Cited by Landois and Cesbron.
7. Landois and Cesbron: Sajous's Analytic Cyclopedia of Practical Medicine, 7th Edition, Philadelphia, 1912, i, p. 827.
8. *Amer. Jour. of the Med. Sciences*, December, 1920, No. 6, Vol. clx, p. 801.
9. Hoppe: *Ohio State Medical Journal*, October, 1920
10. Janney and Isaacson: *Arch. Int. Med.*, August, 1918, p. 761.
11. Maranón, G.: *Medicina Ibera* (Madrid), 1920, 145, 353-357.

1605 Walnut Street.

THERAPEUTIC USES OF PITUITARY GLAND SUBSTANCE.*

By BEVERLEY R. TUCKER, M.D.,

RICHMOND, VA.

PROFESSOR OF NERVOUS AND MENTAL DISEASES, MEDICAL COLLEGE OF VIRGINIA.

DURING the last few years the study of the pituitary gland has advanced with extreme rapidity, and, as is usual when this is the case, there has been a great deal of misconception, physiologically and pathologically, regarding the gland, and considerable looseness and inaccuracy in its therapeutic administration.

That the pituitary gland is probably the leadhorse of the endocrine system seems to be indicated by the fact that it is necessary to life, that it is of major importance in the regulation of stature, of adolescent change, of carbohydrate metabolism, and that it is the most protected, in situation, of all the organs in the body.

It is not the purpose of this paper to go into the anatomy and physiology of this gland except to say that when we consider pituitary therapeutics we must bear in mind that the secretion of the anterior lobe has, physiologically, to do with skeletal and genital development, and the posterior lobe,

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 349.)

including the infundibulum, with carbohydrate metabolism and unstriped muscle-fiber tonicity. The whole gland combines these functions. There are many other subsidiary functions which may be attributed to one lobe or the other.

When we consider the pituitary secretion we must ascertain whether an especial lobe, or the whole gland, is oversecreting or undersecreting. We must divide secretory changes of the anterior lobe, which has to do with osseous and genital development, and also of the whole gland, because the anterior lobe is implicated, into preadolescent and postadolescent changes. In considering changes in the posterior lobe secretion this division is not necessary because the posterior lobe, including the infundibulum, does not control the adolescent changes of skeletal and genital growth. We should also try to determine whether any change in secretion is chronic or transitional in character.

Certain tests are useful in the consideration of pituitary cases and we may be aided by a sugar tolerance test and blood sugar estimation. Another test, known as the pituitrin test, is used, but it has not been done over a sufficient period of time to draw definite conclusions.

Radiography of the sella turcica is of very definite importance. In all cases in which the pituitary is radiographed it is well to take both the flat and stereoscopic plates. The changes found vary greatly in the normal cranium but there are certain changes quite indicative. Hypopituitary changes consist of clubbing and enlargement of the posterior clinoids and, at times, they may actually bridge across the sella and meet the anterior clinoids. There may be seen in some cases roughening and filling in of the dorsum sellæ. Thus we have space-restricting encroachment of the sella, limiting, we believe, the secretion of the gland. In the *hyper* cases the sella is enlarged, the floor is smooth, the processes are often spread out, and, not infrequently, the processes are partly absorbed. The sphenoid and frontal sinuses in the hypo cases are usually small and in the hyper cases large. There are also various changes in the hand and other bones which we will not take time to consider.

In the investigation of abnormal pituitary states we should not forget that the gland must not be considered alone, and that the sugar disturbance of pituitary states is related to, and may be confused with, the carbohydrate metabolism of the pancreas. We know that the posterior lobe has to do with blood pressure, but this must also be considered with the state of the suprarenal glands, and the cardiovascular apparatus. Body hair distribution is partly a pituitary function, but the suprarenals and the gonads are also concerned with hair distribution. The pituitary helps to regulate body growth, but so does the pineal gland. We should remember that both pituitary and thyroid states have to do with moist or dry skin, oily or dry hair, loss and gain of weight, and with nervous poise. We must also realize that when the pituitary gland is affected other of the endocrine glands may be disturbed because of its affection, while, on the other hand, some other gland may be affected and alter the pituitary secretion. Hence, any endocrine gland disturbance is, through hormonic action, polyglandular. Much confusion disappears if we can satisfy ourselves by clinical and radiographic evidence that the pituitary is the gland paramountly affected.

I approach the subject of the details of pituitary therapy with a considerable degree of hesitancy because it is still in the formative stage, but, on the other hand, unless our views and experiences are disseminated they can neither be controverted nor adopted.

The physiological importance, and hence, by inference, the therapeutic potency of pituitary gland substances may be imagined when we consider that a few drops of pituitrin will precipitate the birth of a human being into the world from an inert uterus, while the internal secretion of this gland determines whether the man is to be a dwarf or a giant, changes him from a youth into an adult and may make an individual an effeminate man or a masculine woman. It may deform our features, alter our personality, upset our emotions, blight our mentality, throw us into convulsive seizures, or destine us to be a corpulent and jovial Falstaff or a hairy, aggressive Esau.

In conditions of *over*secretion our therapy is blocked, unless there proves to be some value in treatment by *x*-ray flashes which is being tried out, save by surgery or the administration of other ductless gland substance which would tend to maintain an hormonic balance. In the case of surgery sella decompression has been practised, but its indication is not definitely determined. It is true, of course, that Cushing, and others who have followed him, have made the removal of pituitary tumors a comparatively safe brain operation, but this paper is concerned only with the medical aspect of the subject. In the case of the antagonistic action of other gland substances, we have not advanced, as yet, far enough in our understanding of endocrine hormones to lay down definite rules of therapy.

It is in the study of states of *undersecretion* of the gland that we may speak with more positiveness, and, in certain instances, confidently predict our results. Among the less frank hypopituitary states may be placed acromegaly and the pituitary adolescent psychoses.

Acromegaly, as we know, is accompanied by hyperplasia of the bony parts, especially the zygoma, superciliary ridge, hands, and feet. The soft tissue, in certain places, is enlarged, the hair is coarse and dry, the complexion is sallow, the hands are spade-like in shape, and polyuria, polydipsia, glycosuria, and various subjective sensations are frequently present. Acromegaly is sometimes a symptom of pituitary tumor, at other times there is a hyperplastic condition of the gland itself. Acromegaly is usually seen in the adult, and the writer feels that there may be present an over-activity of the anterior lobe and normality or under-activity of the posterior lobe. Pituitary therapy in these cases is chiefly symptomatic and confined to the administration of the posterior lobe extract.

The psychoses of hypopituitarism usually occur during adolescence and may be preceded by a preadolescent hyper-, normal, or hypo-pituitary state. During adolescence, frequently due to illness or injury, a marked diminution of pituitary secretion takes place and the patient has so much psycho-

motor retardation that the condition resembles dementia præcox. Repetition of movement is common, as are drowsiness, slovenliness, and inability to concentrate attention. Some patients show truancy, wanderlust, bizarre behavior, and at times hallucinations.[1] Whole gland pituitary extract has cleared up some of these cases.

The frankly hypopituitary states should be divided into two classes, the chronic or static, and the transitional. In the static cases there has been evidence of undersecretion of one or the other of the lobes, or the whole gland, since early childhood, and in the transitional cases, usually following illness or injury, there is a more or less sudden let down in the pituitary secretion.

Pituitary Epileptic States.—In 1914,[2] 1916,[3] and 1919,[4] I published papers on pituitary epilepsy. In these studies it was found that convulsions, in no way distinguishable from those of so-called idiopathic epilepsy, occur from undersecretion of the pituitary gland. To make the diagnosis of pituitary epilepsy three essentials must be borne in mind: (1) The convulsions must make their appearance during the period of adolescence. (2) The case must present clinical evidence of hypopituitarism. (3) Radiographic evidence of pituitary undersecretion must be present. Of seventeen static cases of this character which have been studied over a period of years we find that in nine of them no attacks have occurred for over three years. Four cases have been taken off of all medication for several years and the attacks have not returned. Two of the remaining cases seem definitely controlled by pituitary feeding, four were improved to some extent, one was not improved but had a bad family history, and one was lost track of. Of the eleven transitional cases reported in 1919 the results were not nearly so striking and it was found that they did not take the medicine as regularly. However, definite improvement occurred in eight of the cases. As a rule the whole gland extract was given in doses of from six to twelve grains daily. In certain cases of genital and skeletal developmental delay the anterior lobe is more effective. At times oral feeding is reinforced by hypodermic administration.

Obesity.—Obesity should be treated, after a pituitary diagnosis is established, by careful pituitary feeding of the posterior lobe, or at times of whole gland in those cases which have also skeletal and genital underdevelopment. In these cases it is often necessary to combine either thyroid or ovarian extract with the pituitary. Pure pituitary obesity gives breast-girdle and flank fat and a rounded contour over the pelvic girdle, while ovarian obesity is marked by excessive trochanter fat. Under the heading of pituitary obesity may be placed the condition known as adiposis dolorosa which occurs during postadolescence and is characterized by rolls or cakes of fat that are painful upon pressure. These cases do not respond so well to endocrine therapy as those of simple obesity.

Pituitary Headaches.—These are deep seated, bitemporal headaches, the location of which is frequently described by the patient with the gesture of putting the forefingers to the temples and pointing them toward each other. These headaches may be transient or continuous. The patient may feel as if a marble or some other object is moving about at the base of his cranium. Pardee described these headaches in 1919.[5] At times the sella turcica is constricted, or the gland may swell and stretch the capsule, and pressure may even be exerted upon the cavernous sinus. An upper temporal quadrant restriction of the visual fields may be found. The headache usually ceases upon feeding whole gland pituitary extract. These headaches not infrequently follow some infectious disease and may be due to a toxic condition or inflammatory congestion of the gland.

Diabetes Insipidus.—Barker and others have called attention to the relation of the syndrome of polydipsia and polyuria to undersecretion of the pituitary gland. These symptoms are usually promptly relieved by daily hypodermics of posterior lobe liquid. Pituitary whole gland extract by mouth has been used, but is not generally considered satisfactory.

Dysmenorrhea, scanty menstruation, amenorrhea, and *menorrhagia* are frequently relieved by the administration of whole gland pituitary extract; or at times a liquid preparation of the anterior lobee is more effective, especially in early adolescent cases. This therapy is often rendered more efficacious when conjoined with the adminstration of ovarian extract.

Constipation due to loss of bowel-wall tonicity is helped by the administration of a posterior lobe preparation. The same is true of inertia of the bladder.

Enuresis, due to weak bladder walls, is often of pituitary origin and may be controlled by whole gland feeding or the administration of posterior lobe liquid.

Backward genital and skeletal development may be helped by the administration of anterior lobe extract or liquid. If the case has obesity in addition it is best to give the whole gland.

Reversion of sex characteristics is usually a combination of pituitary and gonad difficulties and has to be treated according to the physical and metabolic characteristics of the individual case.

Cases of true *dwarfism* and *gigantism* are not usually influenced by pituitary therapy.

Arterial Hypertension.—Englebach of St. Louis[6] suggests the use of posterior lobe pituitary extract, in combination with other ductless gland therapy as indicated, to reduce the blood pressure in cases of vascular hypertension not due to cardio-vascular-renal conditions, acute infections, etc.

In conclusion, we may feel that while much pituitary therapy is undetermined, there are many definite conditions known, in which, when clinical, radiographic, and laboratory evidence is present, pituitary administration accomplishes what nothing else will. On the other hand, the habit of giving pituitary and other ductless gland substances carelessly or empirically should be vehemently interdicted.

REFERENCES.

1. Tucker, Beverley R.: Pituitary Disturbance in its Relation to the Psychoses of adolescence, *Journal of the American Medical Association,* August 3, 1918, Vol. lxxi, pp. 330-32.

2. Tucker: A Preliminary Discussion of Pituitary Disturbance as Related to some Cases of Epilepsy, Psychosis, Personality and Other Obscure Problems, *Southern Med. Journal,* August, 1914, vii, 8, p. 608.

3. Tucker: Hypopituitarism in its Relation to Epilepsy, Virginia *Medical Monthly*, April 7, 1916.
4. Tucker: The Role of the Pituitary Gland in Epilepsy, *Archives of Neurology and Psychiatry*, August, 1919, ii, pp. 192-200.
5. Pardee, Irving H.: Pituitary Headaches and their Cure, *Archives of Internal Medicine*, February, 1919, xxiii, p. 174-184.
6. Englebach, William: *Journal of the American Medical Association*, June 12, 1920, lxxiv, pp. 1619-1624.
212 West Franklin Street

MORBIDITY AFTER OPERATIVE TREATMENT IN ABDOMINAL SURGERY.*

By W. WAYNE BABCOCK, M.D.,
PHILADELPHIA, PA.

THOSE who take the trouble to reexamine patients from time to time after abdominal operations must be impressed by the rather large percentage in which there is no relief from the symptoms. After operations upon the stomach, duodenum, and biliary system persistent symptoms are distressingly frequent. After operations for chronic appendicitis pain and tenderness in the right lower quadrant are not unusual, and operations for displacements of the kidneys and uterus not infrequently fail to relieve the backache and supposed reflex symptoms for which they were performed.

Three facts stand out as one contemplates these failures of operative treatment: (1) The cause of the original symptoms was extraabdominal and operative treatment was a therapeutic mistake. (2) An intraabdominal lesion giving symptoms was present, but was not recognized by the operator and the wrong operation was performed. (3) The operation was a technical failure, because it either failed to do what was intended, or added new pathological conditions that caused a continuation of the old or implanted new symptoms.

Especially important are the cases falling in the first group in which abdominal symptoms leading to operation originate without the peritoneal cavity. Much has been written about the acute peritoneal symptoms produced reflexly in disease of the thorax. An acute right lobar pneumonia with pleuritic extension causing a reflex spasm of the muscles of the right abdominal wall with pain referred to the abdomen is a not uncommon picture. In a central pneumonia with extension to the diaphragmatic pleura, the physical signs of the pulmonary disease may be difficult to elicit; but if we recall that appendicitis begins with diffuse abdominal colic, followed by nausea and later by localization of pain, with tenderness, and elevated temperature appearing as the last symptom, while chill, increase of temperature, and pain are initial symptoms in pneumonia, we will often avoid error; while the disproportionately rapid breathing, the expiratory grunt, and the early thoracic signs should immediately counteract the impression produced by the associated rigid abdominal walls and possible vomiting. Unfortunately, the nerve reflexes in the abdomen have been unduly emphasized. We must remember that pneumococcic or streptococcic peritonitis is a not infrequent accompaniment of pneumonia or pleurisy. The primary rigidity of the abdomal wall disappears to be soon followed by recurrent vomiting, tympany, intestinal obstruction, evidence of free fluid, perhaps without muscular spasm. Operation or autopsy shows an often unsuspected diffuse purulent peritonitis in these cases. In chronic irritation of the pleura, and in non-inflammatory transudations in the pleural cavity, the chief pain may be referred to the upper abdomen on the affected side. Without an examination of the chest the consultant may be led to consider biliary, gastric, or some other form of upper abdominal disease as the cause of the symptoms.

Of the more chronic affections, the gastric symptoms of pulmonary tuberculosis have led to many useless operations, especially for gastric ulcer. Frequently the chief complaint of the patient is gastric distress, often apparently increased by taking food and associated with vomiting. Not infrequently the patient says he has vomited quantities of blood, and the cough and other respiratory symptoms are so slight as not to attract the attention of either the patient or consultant. In young women especially and also in young men who give symptoms of a chronic or subacute gastric ulcer, the thorough study of the chest is much more important than a fractional meal, and well made radiograms of the chest are often more illuminating and less subject to error than the roentgenological study of the stomach. Someone has said that we may depend upon the *x*-ray evidence as to ulcer of the stomach in 10 per cent. of the cases. Personally, I have found that ulcers apparently shown by the *x*-ray plate or fluoroscope, but not clearly confirmed by the associated clinical symptoms, can rarely be demonstrated by operation. Unless the roentgenologist has unusual skill, is a good clinician, or is a lucky guesser, you will often find that hearing and not seeing is believing, that the history tells more than the fluoroscope. If you ignore the chest and depend on the average roentgenologist for your diagnosis, you may operate in many cases for gastric ulcer when the lesion is pulmonary tuberculosis.

Besides the evidence from the thoracic examination, the patient with pulmonary tuberculosis usually has a true anorexia, an aversion for food, while the patient with ulcer has hunger and eats to obtain relief or to satisfy his appetite, or refrains from eating because of symptoms, such as pain or vomiting that he knows will follow. Mayo Robson estimated that 20 per cent. of patients with gastric ulcer develop tuberculosis. Probably it is more correct to say that in over 20 per cent. of the cases the gastric symptoms indicate pulmonary tuberculosis.

I find I have been prone to forget that attacks of severe epigastric distress occurring often at night with nausea and at times vomiting may indicate a serious myocardial lesion, an aortitis, or disease of the coronary vessels, rather than gallstones or cholecystitis. As a rule, the patient is of middle or rather advanced age, usually obese, and on casual examination the heart sounds heard indistinctly through the thick walled chest may be considered normal or nearly normal. Often the patient is referred to the surgeon with the history of having been treated for months or years for a

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 350.)

chronic digestive disturbance, often the internist recognizes the existence of cardiovascular trouble, but insists that operative relief for the very evident and distressing gastric symptoms be given. Possibly there is history of a previous operation. And with or without operation the patient's sudden death may occur in a nocturnal attack or the patient may instantly die under sexual or other excitement. When the usual symptoms of angina are present, the diagnosis is more obvious. If an operation, such as a cholecystostomy or cholecystectomy is done, the patient may greatly improve, due to the rest in bed and perhaps also the other restrictions that follow a serious abdominal operation. Unfortunately, with the resumption of the usual mode of life, the old symptoms recur and an excuse is sought—"Adhesions, too short a period of drainage, failure to remove the gall-bladder"—for the poor surgical result. Robert H. Babcock has pointed out how the myocardium may suffer from a septic focus in the gall-bladder or appendix. The converse is perhaps more frequently true—that with a passive congestion of the liver and stomach from a failing myocardium, abdominal changes with at times associated infection involving the bile and gall-bladder are not uncommon. We believe that myocardial disease advanced enough to give marked upper abdominal symptoms will rarely be permanently relieved by operation on the gall-bladder or appendix. This is not asserting, however, that a cholecystectomy or appendectomy fifteen years before might not have eradicated a septic focus and might not then have prevented or relieved the myocardial disease.

Gastric attacks due to endocrine dyscrasia or general metabolic disturbances, such as that commonly described as "bilious sick headaches," or as acute bilious attacks, are not amenable to the usual abdominal operations. Likewise, backaches due to toxemia, faulty static conditions, spinal disease, sacroiliac relaxation, will not be relieved because a retroverted, or fibroid uterus is corrected, or because ptosed kidneys are decapsulated and sutured. Neurotic patients, many of whom have merely the toxemias of an unrecognized pulmonary tuberculous, or other infection, of course will not be benefited by an abdominal operation, when the causal element lies without the abdomen. While we are more careful to avoid operations on the stomach for symptoms produced by lead colic Pott's Disease and tabes, it is not generally known that the early root pains in encephalitis lethargica may result in the admission of patients to surgical wards for acute appendicitis or cholecystitis.

In the second class of patients, where the predominant abdominal lesion is not recognized, or treated at operation, we find a sufficient number of patients to emphasize the importance, when operating, of examining and recording the condition of each organ in the abdomen as often as the exigencies of the case will permit. Too often reoperation is rendered necessary by the carelessness or error of the first operator. Gastric symptoms, reflex from an encapsulated pelvic abscess or old ectopic pregnancy, will not be relieved by a gastroenterostomy. An appendectomy will not help ureteral colic, nor will the removal of small uterine fibroids cure an annular carcinoma of the splenic flexure. A careful intraabdominal exploration with the gloved hand may save the patient from being sutured after the removal of an innocent appendix, when gallstones or gastric ulcer are present. It is to be recalled that a slight evening elevation of temperature and progressive loss of weight and strength may be the only symptoms elicited from a hypernephroma of the kidney. A mobile cecum and ascending colon are frequently overlooked and may cause persistent distress after an appendectomy or other abdominal operation.

The ascending colon should be a fairly fixed standpipe, for here 80 per cent. of the water of the food is absorbed. If it develops a mesentery and slumps down, its capacity is reduced and its attachments are such that it tends to drag down the right kidney, the gall-bladder, and the duodenum. Thus, as has been emphasized by Waugh, appendiceal, renal, biliary, and gastric symptoms may follow. We are inclined to think that neglect of this portion of the bowel has given us a considerable postoperative morbidity. It is not difficult to restore the fixity of this portion of the colon, or by plication to shorten and decrease in size redundant portions of the bowel.

In the third class, among the operations that fail to do what was intended, we would mention the removal of epiploic appendices in mistake for the vermiform appendix; the partial removal of the appendix with retention of an infected stump or of overlooked fecal concretions that have escaped from the appendix; operations for visceroptosis that fail to hold or give symptom producing adhesions; incomplete removal of sources of infection, as a simple amputation of the Fallopian tubes when there is chronic gonococcic infection of the endometrium. The drainage of a diseased gall-bladder is often followed by symptoms, as is a cholecystectomy, with obstruction of the common bile duct, or a choledochotomy with retention of a stone in the ampulla of Vater.

Too often we fail to individualize in our operative treatment and instead of doing the logical thing for the particular case blindly follow our own method or that of some brilliant teacher. How many of us take into account when we attempt a gastroenterostomy that the operation tends to lower acidity, motility, and the emptying of the stomach, and to increase greatly the irritation of the jejunum and the likelihood of jejunal ulcer, and that with an open pylorus, it is to a very limited degree a drainage operation. It is true that there are exceptions like the "dumping stomach" from gastroenterostomy described by Andrews, but such exceptions also produce troublesome pathological changes. Surely a chronic ulcer with wasting of the peptic glands, low acidity, and low motility is not to be treated like an acute ulcer with high acid values and marked motility; yet do we discriminate as we operate?

We are now constantly trying to eliminate the pathological results of such makeshift abdominal operations as gastroenterostomy. We must turn from pathology-producing operations to a more earnest attempt to restore physiologic function in our surgical treatment.

2033 WALNUT STREET.

THE PRO-MORAL CENTER:

ITS PRACTICAL RELATIONS.

By WILLIAM BROWNING, Ph.B., M.D.,

BROOKLYN, N. Y.

PROFESSOR OF NEUROLOGY, LONG ISLAND MEDICAL COLLEGE.

IN connection with the facts and conclusions presented in a former paper (MEDICAL RECORD, June 18 and 25, 1921, it is in order to call attention to the natural corollaries and to bring them, as far as practicable, into relation, if not harmony, with current views. Desirable at least is a tentative outline of the directions in which knowledge of such a center should be of use.

The aim here is withal not simply to point out its relations, important or otherwise, but to connect up this center and give it a functional setting.

What bearing or importance have these cases beyond the casual interest of clinical observations? The few commentators have been unable to get far with an unlocated center, or have regarded such cases as mere anomalies. Yet the chemist and the physicist have long noted that it is the exceptions that carry significance, that indicate something in need of further elucidation.

The new basis offers some attractive propositions and a better interpretation of various psychic and allied matters of wide interest. It seems to fit in well, and, from citations given, even to be opportune. A technical psychologist might extend warrantable inferences much further than will here be attempted. So many queries are raised and so many new viewpoints established that their adjustment will require time and cooperation. It seems wiser to present in the simplest manner a few of the more patent applications, and thus forestall early confusion.

1. *In Cerebral Localization.*—Here the value of the sign, when it occurs, is apparent. It will become more widely available when all the relations and anatomic limits of this and subsidiary centers become more exactly defined. If injury of this center is a sufficient cause of moral defect, it is warrantable in cases of like symptomatology to conclude that there is at least a functional failure of the center to act.

The principle of a moral center can also find application at times in medicolegal work.

In addition, the knowledge of this center can be of service in the working out of other functions of the frontal lobes. Especially applicable here are the two main divisions of mental activity, to be noted under Psychology (*vide infra*), as aides in the allocation of functions. A much surer basis is also afforded for determining the selective action of drugs that affect the higher cerebral functions.

2. *In Obstetrics.*—According to obstetricians consulted, a majority of forceps injuries are of other parts of the skull. Yet there were five such in the present series. The serious results of such damage to the brain evidently may not appear until late in the child's development. The relation of these facts to methods in midwifery can of course best be estimated by the workers in that field.

3. *In Psychiatry.*—Anyone who has to deal with morbid mental conditions in much variety, and who has in mind the teaching presented, will soon realize the aid it affords in the understanding of many cases. For example, part of the old monomanias, that have been batted from post to post or disowned, can here find a last resting place. Take pyromania as an illustration. Every child, certainly every boy, dotes on bonfires. Remove restraint, and he is a potential pyro of the morament type. This represents the largest class, at least in youth. Very different from this are occasional cases. The writer well recalls the string of black chars for miles on the crest of Connecticut hills, left by the pyromaniac raid of a vengeful paranoiac.

The question is continually asked: Are these persons insane? In reality this is a matter of secondary importance. The first thing is to determine what constitutes suitable provision for them, and then to see if it can be supplied. Some of these cases are committed as insane. But State hospitals do not look with much favor on this, and seem inclined after a little to let them go. Nor is it advantageous for either the morament or the certainly insane to be associated. Some other or separate system of commitment and care is required.

The much discussed theory of schizophrenia bears a very suggestive resemblance to the cleavage of mentality, noted below.

The psychiatric relations of this center can likewise best be developed by the authorities in that field.

4. *In Genetics.*—Moral abilities are heritable in the same way as intellectual. A structure is inherited, which can be of service for certain purposes up to a certain limit.

The prevention of morament troubles presents two separate problems. As the acquired condition, including the obstetric form, is due to injury, it is a question of avoiding accident, or of proper surgical care after that has occurred. The hereditary and more frequent form presents the same problem as hereditary mental defects of all kinds, with a possibility of special endocrine or other factors of its own. "I am inclined to think that this moral perversion is often hereditary" (Tredgold, "Mental Deficiency," 1920, p. 340).

Where the condition is of hereditary origin the individual should not be permitted to procreate. But in acquired moramentia the risk can be discounted.

5. *In Criminology.*—Naturally many of the severer cases of this kind land in the courts, and most of these are at some time sent to institutions. If young moraments are not favorably situated and subject to wise guidance, they take the nearest and easiest path and gravitate into some form of criminal or wild life. They constitute a favorable recruiting ground for criminals.

A better understanding of the psychology of crime is desirable. With the recognition of a separate center for control of morals it becomes possible to construct a tangible theory of criminality. A general glance at the subject must suffice.

For the present it is well to recognize that in principle there are two sources of crime, or in a general sense two kinds of criminality.* One is irresponsible and a sequence of organic imperfection in the brain; the other an outcome of bad environment. Though the latter form seems much the more

*Tredgold (*Practitioner*, 1917, 99, p. 45) evidently has this in mind when he distinguishes "defect of the moral sense" and "defect of the will."

frequent, we can but suspect that it rarely occurs without some organic basis on which it can thrive. At least we can be sure that in a large number of criminal cases in actual life there is a combination of these two elements. Many chronic criminals show in their histories a close relationship to the morament class. "Very many professional criminals present the symptoms of moral imbecility to a marked degree" (Defendorf's Kraeplin).

Are these two forms of criminality so absolutely distinct, and is it practicable for the courts to distinguish them? While this may not be entirely possible as yet, some attempts to do so have been made, in England at least, and doubtless the problem can be worked out when the necessity is felt.

If there are these two classes of criminality, they call for variant lines of treatment. If there is but one class, then that can be only the organic form given in this paper; and that form in any event is not amenable to our present punitive system. There is a general agreement of those most familiar with this type that if it is to be reached it must be in some other way than by ordinary punishment. Sense rather than sentiment is a sufficient guide here.

For the congenitals of this unmoral group, can we adapt the old jibe and say a thief is born and not made? Not wholly, as will appear from the context. But we can say that they are born with an abnormal weakness, or in medical phrase a lack of normal immunity.

For whatever reason the theory of such a center has failed to secure steady recognition. This may have been largely due to a failure to locate it. But some may have been deterred from accepting the principle of a moral center by an idea that it entails fatalism or abrogation of responsibility. Such objectors, however, accept insanity as a defense for wrong acts, and consequently need not feel their scruples taxed by this parallel instance.

If good results are possible in mild cases of this organic predilection to error, at least in the young, then there is hope for the many with less definable anatomic impediment. The establishment of the organic form is an initial step toward a scientific handling of criminality. It gives precision and definiteness, for this one type, to the continual agitation for better methods and results in combating criminality.

Here it is certain that all sentences and commitments should be indeterminate as to time. Such individuals should be restrained and treated as a special class of invalids until they can be freed as cured, or put under permanent control. It is an opportunity to try out that plan on a scale not apparently so far attained.

Certain conditions are a preliminary to success in any legal attack on this problem. No change should be made even in bad laws without at the same time putting other and supposedly better in their place.

No one should have uncontrolled authority to pardon such refractories. If the wrongdoer escapes prison on the score of insanity, that fact should automatically consign the individual to the permanent care of authorities for the insane. Or, if new evidence tends to relieve the accused of responsibility for supposed acts, this should not be put up to the Governor, President, or Pardoning Board, but to the courts that convicted, for their action. Otherwise final discharge from care should be left to the decision of their institutional guardians or equivalents.

One of the first principles, of course, in the wise management of crime is to prevent it, and an initial principle here is the exclusion of all laws that put a special prize on the commitment of forbidden acts.

An inconsistency appears in the customary dispensation of justice. Political or other crimes of intellectual origin, and hence responsive, if any are, to punitive treatment, are the forms most commonly condoned; while those more distinctly due to organic defect, and hence unamenable to retributive justice, are the ones subjected to punitive treatment. The reason for this is doubtless the uniformity of primary moral standards in contrast to the conventional which vary with race and place. The Elmira institution has, of course, long been known as the leader of efforts to correct this anomaly, with regard to one class.

6. *In Sociology.*—It is evident that a normal, *i.e.* a perfect-brained person, has a great advantage in realizing when he errs at least against fundamental morals. He is conscientious, thanks to the possession of a guiding center. Of the imperfect-brained there must be all degrees.

There are apparently amenities not included in the repertoire of these defectives, as listed above. These can be conveniently termed conventionalisms. We can thus see that there is an organic distinction between fundamental and conventional morals. The collective errors of the unmoral group, so far as due to imperfect action of the right frontal lobe, belong to the former, while those arising otherwise belong to the conventional. In fact, conventional moralities should be separated under some other head, as ethics or the "higher morality" of our courts and press. That the philosophers have felt the necessity for such a distinction is indicated by Bain's statement that "The moral at one time coincides with the ethical, at other times is coextensive with the voluntary." We can foresee a time when proposed changes in laws, ethics or customs will be identifiable as based on solid ground or on fallible human fancy.

As many moraments promptly heed a patriotic call, it can be concluded that patriotism is an intellectual and not a moral attribute.* The most advanced modern countries recognize "the right of asylum" in the case of political refugees. And similarly Lombroso recognized that political differed in character from other transgressions. It is now clear what these ideas are based on. Political strivers are intellectuals in contradistinction to the ordinary or moral transgressor whose conduct is dictated or not controlled by his moral center.

Disturbance of this center gives an intelligible explanation of certain cases (not all) of gross moral misconduct, where the individuals, lay and clerical, are nevertheless specially prominent and active in religious affairs. This crass inconsistency is a matter of such common observation as to be a subject of jest by the public, or of deep distress to the

*Cf. here, "War Patriotism in a Michigan Prison," by Hon. James Russell, in *Mich. History Magazine*, 1920, October, p. 776 *et seq.*

devout. It is easy to see that these leaders take their course without the aid of a moral center, and hence are in a sense unwitting hypocrites.

7. *In Religion.*—While the relation of this center to religious feeling, thought, and activity is of great interest, a word on its general relation thereto must suffice. All religions may have a common object. But some apparently seek to utilize the intellectual in advancing their cause, while others make chief avail of the fundamental morals.* This would give it a bipartite character, in consonance with the idea that there are two forms of the religious sense.

8. *In the Military.*—Whether or not the army attracts this contingent in peace times, entrance regulations are now calculated to exclude them. But the war call is their chance, and most of them promptly slip in—to the notable relief of the community at home! It is quite in keeping that many of them make a very favorable record at the front; especially in acts of marvelous daring and reckless bravery do they show themselves so superior as to gain merited recognition. Their success here is not due to physical bravery, as most of us understand it, but to their incapacity for fear. The late "Monk Eastman," long and but too well known about New York, as the ablest leader of the underworld, was evidently of this caste, and correspondingly misunderstood. He promptly enlisted for the late war, made an exceptional record for fearlessness, was of course, in consequence, thought to have "reformed," just naturally was fascinated by the new game of whiskey-running, resumed the only life open to his qualifications, and in December, 1920, was finally shot up by one of his associates.

Selected individuals of this class, under suitable management, can fill an exceedingly useful role in the world, aside from war. Unfortunately they are never recognized for their true worth, too often fall into the class of hunted criminals, and come to a tragic end.

In organizing bandit chasers everywhere it is an old rule to make use of all the ex-outlaws available. This plan is often best because these rovers were in the first place recruited largely from the class that is relatively or absolutely unable to fear.

9. *In Psychology.*—Here the bearings are quite as radical and perhaps more far-reaching, at least as regards the organic basis of psychology. As elimination of the moral center does not necessarily cause loss of the intellectual faculties, it follows that they are centered elsewhere than in the right frontal region. Nor is there any evidence or claim that the remainder of that hemisphere plays any larger role in that respect. It can hence be inferred that the asignment of intellectual leadership to the left or active hemisphere is correct.

From this it is apparent that the higher or emissive phases of mentality fall into two distinct groups separated anatomically by a deep vale, the longitudinal fissure, but with commissural connections. One group centers in the right and the other in the left hemisphere, with accessory qualities in affiliation with each. To the right belongs the control of morals, including criminality and sexualism,* while to the left hemisphere inferentially belong the intellectual reasoning and creative faculties with their subdivisions.

As the mental qualities on the right center definitely in that frontal lobe, it is a reasonable inference that those on the left have a somewhat analogous adjustment. Or, to put the matter physiologically, it might be said that in a very general sense, the left frontal is an activating and the right frontal is an inhibiting lobe.

This cleavage of mentality into two grand divisions has long been recognized in practical affairs. Anyone can recall illustrations. One has been mentioned under Sociology. Morris notes (*cf. first article*) that conduct is a balance between impulses and inhibitions. And in so recondite a field as psychiatry the general consensus can be summarized by Wholey's statement that, "We differentiate here the moral and the intellectual fields in mental life" —thus recognizing these as the main divisions of mental activity.

Exactness in the use of language and of many technical terms can be greatly aided. For instance, fear and timidity, tending to abate with years, belong to the organic or inhibitive, while caution and circumspection increase with the years and are evidently intellectual.

Some light is thrown on such matters as duality of mind, double personality, tales of the Dr. Jekyl and Mr. Hyde kind, etc. And the long discussion over instinct versus reason may also find some elucidation on this basis. The so-called humane instincts were referred to above. The maternal instinct certainly belongs here also, though no mention of it in this connection has so far been found.

Some things suggest a special relationship of this lobe to bodily functions and personal welfare—in which case our athletic devotees can come in for a share of recognition.

The everyday question of right and left handedness, so long a puzzle, thus proves to be a simple result of cerebral function, the intellectual and activating side very naturally taking the lead.

Cases that have improved so far as to recognize the bad character of their acts after they are done, remind one of the old quip about hindsight being better than foresight. This is like the spendthrift who sees the folly of his past expenditures, and yet if he gets more he proceeds to squander it as promptly as before.

10. *In Education.*—If the central control of morals is anatomically separated from the intellectual functions, this fact immediately assumes an important relation to education in general, quite aside from the special class of cases considered. Though this may seem an uncalled-for expansion of the subject, it serves to make the relations of the pro-moral center more real and intelligible.

The new knowledge should tend to an improved understanding of educational needs and to greater

*Fear, the psychic quality of feeling, and the control of impulse, emotion, and passion appear, from various items in the histories, to be centered here also. While some of these individuals are very irritable, in manner they are unemotional. As C. B. Burr says, "The emotions lie close to the organic (bodily) functions." "*Moral imbecility* . . . is characterized by the absence or weakness of those feelings which inhibit the development of marked selfishness." (Defendorf.)

Moraments may be suicidal, not because of regret at their misdeeds but from their lack of resistance to impulse on coming to a realization that they are badly handicapped.

scientific accuracy in methods. Different and complementary programs must prevail if the two sides of mentality are to be evenly trained.

To be versed in the subject of morals is an intellectual accomplishment. But such knowledge requires the cooperation of an efficient pro-moral center if it is to exert its proper influence on the possessor's conduct.

The necessity of developing both the moral and the intellectual is demonstrated many times in the course of history. While it is impossible here to fully dissociate conventional from fundamental morals, the facts are worth summarizing.

Viewing nations at large, it is generally recognized that those with the higher morality take the lead in the long run. It is therefore evident that morality is an indispensable part in any program of vitality and progress. But when we examine further it appears that this of itself is not all-sufficient.

For, so many times it is related that a noble, honest, humane people—a people who in moral things had advanced infinitely beyond the primitive savage and animal—had been unable to cope with all conditions. Many of these had moral standards far above those we follow to-day; they did not even dream of guile. But they succumbed. If the moral progresses chiefly the nation or people become the prey of others. This may not be creditable or ideal, but it is a recognizable fact.

And it is a matter of old observation that a community or person exclusively devoted to goodness becomes a pillar of salt—devoid of vitality. From all this it is evident enough that the moral alone, however essential, cannot suffice.

Hence if we view the world simply as to the effect of morals we come to an impasse. It is evident there must be some other and equal factor that plays a complementary role in general advance.

The other side of mental activities, as has been pointed out, is the intellectual. We therefore turn to see what that has accomplished. It is clearly a necessity for self-preservation and progress. Yet when the intellectual is predominant we see whole nations misled by over-weening and intolerable arrogance, or by a babel of unbalanced thought. Both from the present division of mentality and from the fact noted under Sociology regarding patriotic and political striving, the blame for war as an aggressive act can always be debited to the intellectual side. (To avoid misunderstanding, it may be stated that the writer has no relation to so-called peace propaganda, nor can he claim any to religious thought). Actual intellectual superiority proves to be a one-wing power and leads to their undoing. It is a matter of common homily that peoples reach an intellectual zenith, and then disintegrate through moral deficiency or decay. So here again we come to an impasse.

Whether the facts referred to are a sufficient illustration, they at least call attention to the significance of the center in this relation. We can therefore but come back to the original proposition (Rooseveltian in tone) that both phases must be cultivated if steadfastness and certainty of progress are to be accomplished. Other claimants (as hygiene, eugenics, law, etc.) may represent essentials, but all these fall under the main heads. To gain and preserve this balanced mentality must be a supreme object of civilization. And it must apply not to the few but to the many.

The object is clear; but the methods of accomplishing it are beyond the scope of this paper. It may be pointed out, however, that ordinary educational systems apply only to the intellectual side of the brain, and cannot be expected to have any direct influence on the moral. The personal control of morals cannot be integrated by any system of mere scholarly discipline. A vast amount of energy is steadily expended in moral "drive," but as improvement is sought almost exclusively through intellectual agencies, the results are not up to expectations or may even prove, on the contrary, to increase "the powers of evil."

To accomplish anything direct new ways must be devised or old ones adjusted. A couple of possibilities are noted above (*sub* Treatment). And even Rush offers ideas that may prove suggestive. This field, as a structurally independent psycho-gene, has necessarily so far been unrecognized. Tests of the moral stamina, especially in children, can doubtless be devised.

From this too brief outline it is clear that the question of moral training or education (if it be compassible) is of prime importance at this juncture. In some cases little or nothing new may be called for.* Again and more often it it as essential as intellectual development; and because of its neglect it is in greater need of consideration.

Our mentality has two wings. We cannot maintain progress when either too far overbalances the other.

54 Lefferts Place.

THE TREATMENT OF FUNCTIONAL DISORDERS OF THE COLON BY MASSAGE.

By ROLFE FLOYD, M.D.,

NEW YORK.

During the latter years of my association with Dr. Francis Delafield, 1910-1912, we became much interested in the treatment of constipation and other colon disturbances by massage, and since that time my interest in the subject has continued. While there is nothing new about the method it has yielded such satisfactory results that it is perhaps permissible to direct the attention of the profession again to it.

It is the business of the large gut to receive the fluid contents of the small intestine, to increase their consistency by the abstraction of water, to transmit them through its length, and extrude a part of them from the anus once a day as a formed stool. These results it accomplishes chiefly by mus-

*The Quaker is a concrete example of basic morals. And true to this he is non-resisting and anti-military. He is saved because he is at pains to develop the intellectual (cr. as some say, is saved by associates).

And, if popular repute has any warrant, the true New Englander has less need of intensive moral training than have some other descendants of Adam. Some think the Yankee stock decadent, or riddled with exceptions, or too much scattered to be a distinct element. But, granting them a large claim to basic morality, it may account for their ability to stand intellectual training (on the line of balanced mentality), and as a net result their concededly large influence on the life of the land.

cular activity and the absorption of fluid. Secretion of mucus from its wall probably also helps to control the consistency of the contents and facilitates their passage along the gut.

A normal large gut, moreover, contains gas, whose amount varies within wide limits. There is usually more of it after 40 years of age, and it is especially apt to collect in the caput coli. It may be derived from three sources: (1) It may be received from the small intestine; (2) it may be produced by fermentation of the contents of the large gut, or (3) it may come from the colon wall. I am inclined to believe that the latter method is more important and fermentation less a factor in its production than is usually supposed.

Functional derangements of the activities of the large bowel are matters of every day occurrence. When a person fails to have a formed stool once a day or if the daily stool is too hard or if it is too small he is said to be constipated. Such conditions are due to inefficient motor activity, or to the absorption of too much fluid by the colon wall, or to a deficiency of fecal matter, and perhaps also to an insufficient secretion of mucus.

Analysis of the feces shows that they are composed chiefly of non-digestible matter taken in with the food, of undigested food, of chemical by-products of digestion, of products of the alimentary canal and its glands, such as mucus, bile, digestive juices, exfoliated epithelium, etc., and of enormous numbers of bacteria which have been estimated by Strasburger to compose one-third of the total weight of the feces.

With this complex composition it is not surprising to find other factors than diet operative in determining the amount of fecal matter passed, and it is a fact that individuals in health produce different amounts of feces on diets very similar in quantity and quality. Under abnormal conditions wide variations in the amount of fecal matter are frequent. Thus in colitis the rule is that very little or no fecal matter is seen in the stools in the acute stage, and its reappearance in normal amount and consistency is one of the important indications of recovery. On the other hand, in some forms of colitis huge amounts of pasty feces (exclusive of grossly evident serum, mucus, or blood) are passed, so that a patient may fill a bed pan at one time.

A deficient amount of feces also occurs as a purely functional condition. I have frequently seen patients who passed only minute quantities of feces for one or two weeks and yet the whole colon and rectum remained nearly empty. A much more prolonged and extreme example of the same condition in a private case of Dr. Delafield's follows:

CASE I.—Boy, seventeen years old, of wealthy parents, living under the best conditions. In January, 1890, he had influenza and a second attack in February associated with nausea and anorexia. He began to improve in March and was taken to the country in April. His convalescence was slow and his bowels moved only once in four to six days, though he took many cathartics. In June he went to the seashore. He was gaining a little all the time. In July he could get about and play tennis. On July 28 he was caught in a squall out sailing and had to work hard. He had headache, nausea, and vomiting when he got home.

From August 4 till September 27 (fifty-four days) his bowels did not move in spite of many cathartics. On September 27 he passed a little hard feces. He next passed some hard feces on October 10 (thirteen days), and next on November 5 (twenty-six days). During this period of ninety-three days with three small hard stools he was taking constant cathartics. He was eating small quantities of bread, butter, milk, eggs, meat, and vegetables. He could go about but had headaches, sleeplessness, nausea, and occasional vomiting.

November 6 he came to Dr. Delafield for advice. He was thin and pale. The intestines were empty and it was evident that the bowels had not been moving because there was so little fecal matter to come away. He was put on a combination of mild cathartics and oil enemata. His diet and mode of life were carefully regulated. By the end of December he was passing feces nearly every day and had gained four pounds. He made a complete recovery.

This case has previously been reported by Delafield in his "Notes on the Practice of Medicine with Cases and Charts."

The ordinary method of treating constipation which cannot be corrected by exercise or diet has been to give cathartics, enemata, suppositories, or rectal irrigations, or to mix agar-agar with the food, with the purpose of increasing the motor activity of the colon or of making the feces softer.

There are many patients in whom such measures work perfectly. There are, for example, old ladies who take a pill every night and have a normal formed stool without discomfort every morning; if they omit the pill they don't have the movement. In other patients the bowels move normally most of the time but occasionally some slight change in the routine of life induces constipation which can be entirely relieved by a proper laxative dose. To such people massage has no benefits to offer.

The disadvantages of the plans of treatment outlined above are that it is a not infrequent experience that the bowels become more and more dependent on these artificial measures and will not move properly without greater and greater stimulation; that the increasing doses of cathartics and larger enemata cause explosive movements, abdominal discomfort, pain, and other unpleasant symptoms; and that they do little to remove the feeling of ill health which these patients so regularly experience.

During the last two decades great emphasis has been laid on the absorption of poisonous products by the large intestine and this organ has come to be regarded and spoken of as a sewer; the repository for "the lees of the wine of life." Many people, both doctors and others, believe that it is seriously deleterious not to have a copious movement of the bowels every day and that the emptier a large gut is kept the better for its owner. On this theory it would be an advantage for a person to have a continuous stream of feces running from the anus were it not for the inconvenience and difficulty of disposing of them.

Those who hold this faith ascribe a great number of the ills of existence to autointoxication, resort frequently to active catharsis, and irrigate the rectum daily for long periods of time; measures which often produce a good deal of discomfort and ill health in addition to the original difficulty.

In order to inform myself on the amount and condition of the feces in the colon I examined a number of colons at autopsy and kept careful notes of 35 of them. They all contained fecal matter, 5 were loaded with it, 19 contained a moderate amount, and 11 comparatively little. The cecum and ascending colon were never totally empty and

regularly contained as much or more than any other region of equal length, a finding corresponding to Cannon's[1] demonstration of antiperistalsis in this region. The transverse colon, descending colon, sigmoid, and rectum, on the contrary, were each found empty from 6 to 10 times. Most of these autopsies were on hospital patients who, presumably, had been more or less thoroughly purged and yet their large guts all contained feces. Six of the cases, however, were in persons who died suddenly by violence in apparent health; in three of these the entire length of the colon contained a large quantity of pasty fecal matter, in all of them there was a liberal amount present, and in none of them was the fecal matter fluid anywhere in the large gut.

These observations are neither extended, scientific, nor new, but they served to convince me of three things: (1) The colon almost always contains feces whether active catharsis has been employed or not; (2) autointoxication does not depend on the presence of feces in the colon, for then it would be a universal disease; (3) in health the quantity of feces in the colon is large and of a consistence greater than fluid.

It seems to me therefore, that the proper object of the treatment of constipation is to restore the normal activities of the gut; that a large intestine which is moderately full of feces and which discharges a formed stool once a day is less likely to cause symptoms and less likely even to absorb poisonous matter than one which is being kept in an unnatural condition by repeated cathartics, enemata, or irrigations; and that a great many symptoms have been incorrectly ascribed to autointoxication which are due to disturbed motor and glandular action and to variations in the contained amount of gas and feces, quite independent of the absorption of poisons.

Case II.—Mucus due to irrigations. A physician, thirty-three years old. In October, 1908, he complained of a bad taste in his mouth. Though his bowels were regular, he suspected mischief in the colon, so he took daily saline enemata for six months. Strings and masses of mucus, sometimes more than a cupful at once, came away with the enemata confirming his suspicions. As soon as he stopped the enemata he also stopped passing mucus. In November, 1910, he felt definitely sick, so he had his feces examined, but they were reported normal. Then he had his rectum looked into, but there was nothing wrong with that either.

In December, 1910, he again took a chance on the saline enemata and again discovered mucus in his rectum. He went on a milk diet and lost eighteen pounds. In February, 1911, he once more felt poorly, resumed his enemata and rediscovered the mucus. He kept on with the enemata for five months and took phenolphthalein also, though his bowels had never been costive. He was then told to stop washing out his rectum and again the mucus vanished.

When any important organ, such as the heart or brain or bladder, fails to act as it should the person does not feel well, and the same rule will apply to the large intestine without inevitably introducing absorption as the only cause of the resulting symptoms. I do not mean to say that absorption of poisons by the colon never occurs or that it is of no importance, but I do believe that undue emphasis has been laid on it and that this explanation of symptoms has often been erroneous and has led to much futile and even harmful treatment.

Massage of the abdomen has been used for many years to relieve constipation but only lately has it been done to any extent by physicians who alone are likely to have the knowledge of structure and function requisite for obtaining the best results. In the last ten years I have given over one thousand rubbings for various disorders of the colon in some 100 patients and have records of over 40 cases of constipation so treated. In three of these only was I unable to make the bowels move by this procedure alone. Some cases were lost sight of as soon as the treatment was over, but in 20 I have later reports; in 4 the constipation returned after an interval ranging from one week to four months; 14 reported their bowels moving regularly without medicine at the end of one month to two and a half years, the average date of such reports being one year after the cessation of treatment; two patients suffered a return of their constipation but reported themselves cured after a second course of rubbings.

The plan I have employed is to rub the abdomen over the line of the colon and in the anal direction for ten minutes every day for three weeks. In easy cases two weeks is sometimes enough. One difficult case was rubbed for eight weeks. Skipping a day now and then makes no difference but repeated interruptions interfere seriously with success. The first stool was usually passed the day after the first rubbing; sometimes on the second day; in one case not till the fifth day. When the bowels began they usually went on passing one normal stool a day. In some cases they would skip a day now and then, and one patient had one formed stool every other day, which was apparently her normal state.

The effect of this treatment on the general health was most satisfactory. Almost everyone who is constipated suffers some abdominal discomfort and does not feel as well as he should. On this plan, however, such symptoms disappear promptly and do not recur so long as the bowels move.

It is essential to success to stop cathartics at the first rubbing. When a cathartic or large enema was taken by mistake during a course of rubbing the bowels missed moving from one to three days after it. One of the most successful cases, Case V, illustrates the importance of this matter.

If the stools are hard or the patient's anxiety at going 24 hours without a movement is uncontrollable, an ounce of warm olive oil may be put into the rectum at night.

Case III.—Constipation after the first pregnancy, five weeks' duration; easily cured. Woman, twenty-four years old, never costive before; since her first child was born five weeks ago her bowels will not move without cathartics. The abdomen is soft and natural; nothing abnormal can be made out about the colon. She was rubbed thirteen times. The bowels began to move regularly and normally at once and have continued to do so ever since, which is now nearly two years.

Case IV.—Constipation, seven years' duration, following pregnancy; cured. Woman, thirty years old, habitually constipated since a pregnancy seven years ago, she suffers from a heavy feeling in the head almost all the time. Her abdomen is firm but not rigid. The colon contains more gas than normal. She was rubbed twenty-two times. The first stool came on the third day. After this the bowels moved regularly and well. She experienced a prompt, complete, and permanent relief from her feelings of heaviness. One year later she reported herself "very well ever since."

Case V.—Severe chronic constipation for twenty-two years; cured. Woman, fifty-two years old; for twenty-two years she has not had one movement of the

bowels without a cathartic or enema. These means often fail and on some occasions she has gone a week without a stool in spite of vigorous measures. She habitually passes one or two drams of mucus after the stool and now and then a little blood in it. She does not have pain, but is flatulent unless the bowels move well. Her appetite is good and she has nausea only in the periods of obstinate constipation. Her general health is not good and she is tired most of the time. She has had nervous prostration, and took a rest cure once. She does not have headaches and has not lost flesh. She has known for some years that she has a dilated stomach, which was not relieved by a course of lavage.

She has tried everything for her constipation, including massage three times: (1) Five years ago by a successful Swedish masseuse for about five weeks, with no benefit. (2) Two and a half years ago by a physician at Carlsbad for three weeks, who rubbed her very hard, continued her cathartics, and accomplished nothing. (3) One year ago by a physician in Paris for two months, who rubbed her gently and reduced but did not stop her cathartic. She was able to get along on the reduced cathartic dose for three months after the treatment ended and then had to resume her previous dosage.

She is a small, fairly nourished woman. The abdominal wall is firm but not at all rigid. There is a distinct thickening of the caput three inches long and one inch wide, which is tender. There are no masses in the transverse or descending colon, nor are these portions of the bowel distended or dilated. The right kidney is moderately movable.

Cathartics and enemata were stopped at once and daily rubbing begun. On the second day after, she had the first stool without medicine in twenty-two years. After this the bowels moved naturally and regularly, only missing twice. Sometimes the stools were small for two or three days, then she would pass a large one. She was rubbed thirty-two times, and taught to rub herself pretty effectively. Seven months later I saw her again; her bowels had not missed a day. She had taken no cathartic or enema, and she said her general health was better than it had been in years.

In most people the caput coli and the ascending colon contain gas enough to allow of their being mapped out by percussion.

This is the place to introduce some peculiar ideas about gas in the colon. It does not need an autopsy experience to learn that nearly every adult has gas in the caput coli and often in other segments of the large gut. It seems, however, to be the almost universal belief of practitioners and physiologists that this gas results solely from fermentation of the gut contents or from swallowed air, that fermentation is at least an unfortunate if not an actually harmful and abnormal incident in colonic digestion, and that a person would be better off if he had no fermentation and no gas. Now Cannon[2] has shown that the gut wall has to be stretched in order to contract rhythmically, and elastic gas is an ideal substance to stretch it for this purpose, especially if the solid contents are a little deficient in amount. The fact that gas increases after middle life might be due to the fact that the gut muscles then need a little more stimulation than in early adult life. The large collections of gas above an obstruction might be an attempt on the part of the body to stimulate the gut wall to greater efforts. If there were any truth in these ideas, the secretion and absorption of gas by the gut wall would produce a far more effective physiological control of the gas content than if it depended solely on increase through fermentation and diminution through passage of flatus.

Woodyatt and Graham[3] wrote a paper on "Alimentary Respiration" in 1912 which deals with this question and brings out the following facts. After analysis, early in the last century, had shown the gases in the alimentary canal to be Co_2, N,O,H, CH_4, H_2S, etc., the idea was that gases were diffused or actually secreted by the alimentary mucosa. Gerardin and Magendie tied off emptied loops of gut in dogs and observed them to distend with gas, but failed to analyze it. Planer in 1864 repeated their experiment but found no gas produced. The fact that nitrogen and oxygen were prominent components in the upper tract and CO_2, and the inflammable gases were proportionately increased below gave rise to the idea that the former were swallowed while the latter group resulted from fermentation. In any case Planer's work resulted in a general renunciation of the secretion and diffusion idea.

Certain fishes can be kept alive for many hours out of water by passage of oxygenated water through the alimentary tract. Bert kept kittens alive for 20 minutes after ligation of the trachea by inflating the gut with oxygen. After diagnostic inflation of the stomach and bowels, whether with air or CO_2, certainly most of the gas may disappear without being evacuated or expelled from the rectum. Shierbeck in 1894 proved by experiment that the stomach can secrete CO_2 and Woodyatt and Graham repeated his experiments and confirmed his results.

They then discuss the question of gastric flatulence, and acute dilatation of the stomach. Here the rapid production of gas and the results of analysis (CO_2, 24 per cent.; O, 4 per cent., and N, 72 per cent.) show that the gas cannot all come from swallowed air, and fermentation does not occur in the removed and incubated contents. They reproduced this condition in animal experiments.

I have quoted the paper rather at length to show that there is a real basis for the belief that the colon wall may give out and absorb gas. Certainly the lung does so, and so do the gills and the respiratory swim bladders of fishes. In fact, all the respiratory organs in vertebrates arise as pouches of the front end of the alimentary tract. So there is nothing inherently impossible in the idea that other parts of the canal may, to some extent, give out and take in gases.

One thing is certain, the production and absorption of gas by the gut wall furnishes a far more intelligible explanation of the colon conditions which the clinician encounters daily than can be afforded by fermentation and swallowed air alone. In my ignorance, I strongly incline to the belief that these processes of gas secretion and absorption are constantly in operation.

It not infrequently happens that there is a great deal more gas than usual. If the colon wall gets into a state of tonic contraction around it, not only is the tympanitic note characteristically resonant and drum-like over it, but the gut can be felt more or less distinctly, sometimes so plainly as to make one suspect a tumor or extensive inflammatory thickening. Such a condition usually causes constant or paroxysmal pain but not inevitably. Swellings of this nature and the attendant pain can completely disappear with a few rubbings.

CASE VI.—Evanescent tumor of caput coli with pain and constipation; cured. Woman, thirty-five years old.

Six years ago had a miscarriage, pelvic peritonitis, curettage. Three years ago she suffered from inflamed right ovary, and since then has had pain in the right lower quadrant and intermittent constipation. There is a hard mass in the right iliac fossa, 2½ inches in diameter, apparently adherent to the posterior abdominal wall, which we both took to be a thickened caput surrounded by adhesions. After one rubbing the mass was noticeably smaller and less firm; after two rubbings it completely vanished and did not recur and nothing could be felt in the iliac fossa. This woman came with a diagnosis of appendicitis, for which she expected to be operated on at once. Her constipation and pain disappeared after nine rubbings.

Tonic contraction over contained gas may also occur in other parts of the colon, but not so as to produce palpable tumors in my experience. It is a peculiar fact that a colon in this state frequently causes a secondary rigidity of the overlying abdominal wall. It is also very likely to cause reflex head symptoms such as headache and vertigo.

Case VII.—Nervous and general symptoms from a distended colon; cured. Male, twenty-eight years. In the spring of 1910 he began to have some headache and vertigo on and off. At first these symptoms were temporarily relieved by purgation, but they grew worse and more persistent. After three months he went to a stomach specialist, who put numerous restrictions on his diet and gave him laxative medicines. He got steadily worse with persistent headache, vertigo, and prostration. His abdomen felt full, though he never had any abdominal pain. He kept at work, but spent his evenings and Sundays in bed.

After nine months he came under my care. He was a powerfully built and vigorous young man, very anxious about his health. The percussion note indicated that a large part of the colon contained too much gas under abnormal pressure. The abdominal wall was decidedly rigid. I stopped his cathartics and let him eat liberally. After three rubbings he was much better; after seven rubbings he was well, his abdomen was soft and nothing abnormal could be made out about the colon. For two years he has been in excellent health except that from time to time he will be taken suddenly with fullness in the abdomen, vertigo, headache, and prostration. At such times the colon is always found distended with gas and the abdominal wall more or less tense. In half an hour after the rubbing the symptoms let up, the abdomen softens, and he passes a lot of flatus.

I do not believe his symptoms were due to absorption, but to a nervous reflex induced by a colon contracted and motionless over an increased content of gas.

Case VIII.—Colon contracted on gas with headache, simulating toxemia of pregnancy; cured. Woman thirty years old of costive habit. Three months pregnant for the first time. She has had a lot of nausea and has had to take cascara every night and even then her bowels move infrequently and with great difficulty. She is having abdominal pain and discomfort and sick headaches. Her face is drawn and she looks quite sick. The abdomen is a little enlarged, quite tender and markedly rigid. The percussion note indicates a colon containing somewhat too much gas under pressure. No splashing or rumbling and apparently no peristalsis is taking place.

Medicine was stopped and rubbing begun. The bowels moved next day; the rigidity was less and she felt better. At the fourth rubbing the abdomen was much softer, the colon less flatulent, the bowels moving regularly, and the headache gone. After nine rubbings she was relieved of all the above symptoms and suffered no return of them during her pregnancy.

True thickenings of the caput, probably chiefly due to perityphlitic adhesions, are not rare and do not feel quite the same as the gas tumors described above. Sometimes the thickened and palpable bowel is contracted into a banana or cord-like mass. Such caputs are not tender unless full of gas, but they seem to predispose to chronic constipation and other functional derangements, and seem to interfere with the success of rubbing. In two of the three failures to relieve constipation this condition was present, but, on the other hand, so it was in one of the most successful cases (Case V).

When a caput becomes flatulent, painful, or tender, with or without true thickening, the condition is often diagnosed subacute or chronic appendicitis. I have been able to cure several such cases promptly by rubbing. Others, however, with a true thickening can be relieved at the time but show a persistent tendency to recur, and in them I believe it probable that there is a real typlitis with exacerbations, probably involving the appendix as well.

Dilatation of the colon with relaxation of the muscular coat occurs and involves the ascending, the transverse, or even the whole length of the colon and can be usually recognized by splashing sounds on palpation as well as extensive areas of tympany. Such guts are met with in chronic constipation. Reflex head symptoms may occur with them, but they do not cause abdominal pain. When the condition is extreme it interferes seriously with the general health.

Case IX.—Dilated and relaxed colon. Woman thirty-nine years old. For eight years she has been constipated and now takes a cathartic every night. For five years she has had attacks of abdominal pain, diarrhea with mucus in the stools occurring three or four times a year and lasting about two days. She has abdominal discomfort and general lassitude much of the time. She has lost fourteen pounds in weight. The abdominal wall is soft. The caput, ascending and transverse colon, as shown by the enlarged tympanitic area and the extensive splashing sounds, are much enlarged, relaxed, and contain gas and fluid. Lavage shows the stomach to be neither enlarged nor inflamed. She was rubbed eighteen times; the bowel began to move regularly at once. The colon steadily diminished in size until it could no longer be made out at all enlarged.

It is well known that fecal masses may lodge in the colon, apparently in the sacculi, without occluding its lumen. They cause inflammation of its wall, resulting in localized pain and tenderness, and, in old people, nausea, vomiting, and diarrhea in addition. This condition merges into true diverticulitis, but the conditions amenable to massage are probably fecal accumulations in shallow pockets with wide mouths, not in the true flask-shaped diverticula. I have encountered these masses only in the transverse and descending colon. They may be removed by massage.

Case X.—Fecal mass on wall of colon; cured. Woman forty-five years old. Constipated since girlhood; takes as little cathartic as possible and often misses two or three days. For five months she has had pain in the left flank not severe, but enough to disturb her sleep. She is bothered by bloating and flatus. She is an usually robust woman. Her abdominal wall is muscular, but not tense. A firm, tender mass can be felt in the left flank, 2½ inches long, in the line of the descending colon. The rest of the colon is normal. The day after the first rubbing the bowels moved and the mass had almost disappeared; the next day it was gone for good. Her constipation was cured in twenty-two rubbings.

Fecal concretions of this kind on the colon wall may be very large and may remain for months and years, causing pain but not seriously interfering with the passage of feces through the bowel. If large, they cause very severe pain when finally passed.

CASE XI.—Large fecal concretion passed after two years. Woman sixty years old. For two years she had attacks of colic. I saw her in one and could make out no mass. Her abdomen was very large and hard to examine. Her bowels moved regularly with the assistance of occasional cathartics. At the end of this time (two years) she had an attack of obstinate constipation and abdominal pain. With cathartics and enemata she passed a lot of hard, dry, rounded fecal masses. One month later she was taken suddenly with a very severe colic and soon began to pass hard feces mixed with some mucus and much blood. This continued for several days, when she finally expelled a large round, hard mass nearly as large as her fist. After this she was well.

The passage of mucus with the stools is by no means infrequent in habitual constipation, but it is difficult to determine how much of it is due to the constipation and how much to the treatment. At all events, it regularly disappears under massage (see Case V). That the mucus can be produced by enemata and irrigations is beyond question (see Case II).

Some people have more or less continuous abdominal pain, sometimes localized, sometimes general, unassociated with constipation or any appreciable abnormality in the colon. Certain such cases can be cured by colon massage, the trouble being probably caused by irregular contractions of the muscular coat.

CASE XII.—Pain in the colon with no other disturbances; cured. Woman forty-five years old. Health always good and her bowels regular. For two weeks quite severe pain all through her abdomen and loins. Bowels move every day. Has taken no medicine. The abdomen is soft and natural. There is a little more gas than usual in the colon, but no evidence of any other abnormal condition. After seven rubbings the pain was gone and there was less gas in the colon. The same condition returned a year later and was again cured by the same plan.

Though convinced that the majority of head and general symptoms associated with these disorders of the colon are not produced by the absorption of poisons, a few cases have come under my care in which this factor seemed unquestionably present.

In conclusion, I may state my beliefs:

1. A considerable amount of fecal matter and an appreciable amount of gas are normal contents of the large intestine, and marked alteration in the quantity and character of its contents cause perversions of its normal function.

2. Pronounced departures from the normal activities of the muscular coat, either relaxation with dilatation or tonic contraction over increased contents, give rise to both subjective and objective symptoms.

3. Treatment should aim to restore the normal contents and activities of the colon rather than to keep it empty and overstimulate its muscles and glands.

4. Abdominal massage is an excellent means to this end when less cumbersome methods fail.

REFERENCES.

1. Cannon, W. B.: Movements of the Intestines Studied by Means of Röntgen Rays. *Am. J. Phys.*, 1902, vi, 251; Reaction of Tonus to Antiperistalsis in the Colon. *Am. J. Phys.*, 1911, xxix, 238.

2. Cannon, W. B.: The Importance of Tonus for the Movements of the Alimentary Canal. *Archiv. Int. Med.*, 1911, viii, 417.

3. Woodyatt, R. T., and Graham, E. A.: "Alimentary Respiration." *Ohio State Med. J.*, 1912, viii, 497.

129 EAST SIXTIETH STREET.

A NOTE UPON THE IODINE-PHOSPHORIC ACID REACTION IN THE URINE IN SYPHILIS.*

BY ROBERT A. KILDUFFE, A.M., M.D.,

PITTSBURGH, PA.

DIRECTOR, LABORATORIES, PITTSBURGH HOSPITAL; DIRECTOR, LABORATORIES, MCKEESPORT HOSPITAL; SEROLOGIST, PROVIDENCE HOSPITAL.

AMONG the numerous "short cuts" proposed for the diagnosis of syphilis is a urine reaction originated by Gray.[1]

Two reagents are required: A 10 per cent. solution of phosphoric acid and a solution of "resublimed iodine in chloroform or carbon tetrachloride."

In the series herewith reported the iodine was used as a saturated solution in chloroform because it was found that solutions of less concentration gave invariably "positive" results.

The urine, to be suitable for the test, must be fresh, with a specific gravity of less than 1.016, of acid reaction, and free from sugar. The presence of sugar, the recent ingestion of alcohol, or polyuria due to diuretics or the excessive ingestion of fluids all interfere with the test, so that the reaction is restricted to such cases as comply with the above restrictions.

The technic is as follows: To 6 c.c. of urine in a test tube add 1 c.c. of the iodine reagent and shake. The chloroform, after settling to the bottom, is either a pearly white (negative reaction) or pink or purple, which may be a positive reaction. If there is color in the chloroform layer, add 1 c.c. of the phosphoric acid solution and again shake. If the chloroform layer is decolorized the reaction is negative.

Gray, reporting the results obtained in a study of 200 cases comprising syphilis, normal controls, and a variety of medical and surgical conditions, found the reaction positive in all cases of syphilis tested (52), all cases also being Wassermann positive. With the exception of pneumonia, glycosuria, and polyuria, none of the other conditions, including the healthy controls, gave the test.

Because of these results and because, as noted by Klauder and Kolmer,[2] apparently the same reagents were placed on the market as a commercial preparation, it was thought of interest to try out the reaction in these laboratories.

The plan adopted was to make the test on every urine entering the laboratory which was found suitable, checking up the results by a blood Wassermann, and also to secure a specimen of urine, whenever possible, from every case in which a blood Wassermann was made.

The conditions investigated included cases of syphilis in varying stages, treated and untreated, and a variety of medical, surgical, and gynecological cases from the wards of the Pittsburgh Hospital, in addition to cases from the wards of the McKeesport Hospital and the genitourinary dispensary. A total of 352 urines was found available for the test.

The statements of Gray in regard to "positive"

*From the laboratories of the Pittsburgh and McKeesport hospitals.

reactions occurring in pneumonia, glycosuria, and tuberculosis were fully corroborated.

In the series tested there were 56 positive urine reactions, excluding the fallacious "positives." The Wassermann test was positive in 10 of these cases only, the serum being anticomplementary in one other. In the remaining 45 cases there was neither history, clinical signs, nor laboratory evidence of syphilis.

There were 32 cases of syphilis in the series, the Wassermann and history being positive. The urine reaction was negative (Wassermann four plus) in 19 and positive in 13.

Owing to the comparatively few specimens found suitable for the reaction and the discordant and unreliable results obtained, the investigation was not carried further.

Conclusion.—The urine reaction described is unreliable and valueless as a means of diagnosis in syphilis.

REFERENCES.

[1]Gray, C. D.: Urinary Test for Syphilis and Its Comparison with the Wassermann Reaction. MEDICAL RECORD, N. Y., lxxxix, 821, May 6, 1916.

[2]Klauder J. V., and Kolmer, J. A.: The Urine in Syphilis, *Jour. Amer. Med. Assn.*, lxxvi, 2, 1921, p. 102.

Medicolegal Notes.

Insufficient Evidence of Negligence in Diagnosis, Treatment, or Premature Discharge.—In an action for negligent treatment of an injured knee there were three specifications of negligence: Negligence in making a diagnosis that the injury was the result of a torn muscle and not a broken patella, as turned out to be the case; negligence in the treatment, and negligence in a premature discharge of the plaintiff as cured. The opinion of the court on these points, reversing a judgment for the plaintiffs, the patient and her husband, is as follows: "1. As to negligence in the diagnosis: The strongest point in the plaintiff's favor was the statement that there was an indentation on the knee that followed the break in the bone, and large enough to hold the finger. There was undisputed evidence, however, that a torn muscle would have produced the same depression. The evidence is all one way—that an injured knee presents difficulties of diagnosis that mislead the most skilful physicians. When Dr. Fuller (who subsequently took the case) was on the witness stand, he was asked: "Q. Would the average practising physician, who knows enough to practise, have had any difficulty in making a diagnosis? A. I do not know what the average man would be able to determine." That was the question as to negligence. The fact that the assistant of Dr. Fuller, who made a careful examination under the most favorable circumstances, did not believe the patella to be broken, negatives the charge of negligence in the diagnosis. When the testimony of the other witnesses, uncontradicted, is that mistake in the diagnosis of the injury to a knee is liable to occur with the most skilful, is added, then negligence in a diagnosis goes out of the case.

"2. As to negligence in treatment: All the doctors said that the figure 8 bandage (with which the defendant bound the knee) was a well-recognized method of treating this kind of injury, even where the patella was broken. It may be better to operate, but even operations are not always successful. There is no evidence from which negligence of treatment can be inferred.

"3. As to premature dismissal: The plaintiffs testified that the defendant told them that Mrs. Dillishaw was cured and could walk; that this statement was untrue, and she could not walk at all. The appellant denies this, and states that he quit the case when he learned that Dr. Fuller had been called in, and that is the proper practice. If this statement is material, the case should have been sent to the jury. It is not material. There is nothing in the case to show that they have done or refrained from doing anything to their injury on account of the untrue statement. The operation was not performed for months after they knew that the patella was broken. More than this, even if Dr. Bell did tell Mrs. Dillishaw that she was cured and could walk, she knew better than any one else that she could not walk a step and was not cured. There are some treacherous diseases, where visible manifestations disappear; but the skilled physician knows that the danger is not at an end. The ordinary mortal does not know it, and may be misled to his injury by a false statement. This is not such a case. No injury did or could have resulted from the false statement, even if it was made. Hence it is immaterial. A verdict should have been directed for the defendant, and the judgment appealed from is reversed."—Dillishaw v. Bell, S. C. Supreme Court, 105 S. E. 410.

Insufficient Evidence of Negligence in Setting Fractured Leg.—In an action against three physicians, charging negligence in setting and treating a compound fracture of the plaintiff's right leg "and in attempting to set and reduce the broken and fractured bones to their proper positions and place," it appeared that the injury was caused by the plaintiff's being thrown from a buggy, and the evidence showed that two hours elapsed before treatment could be given; that there was necessarily a certain amount of dirt and leaves which stuck to the bone, and that several pieces of loose bone remained in the plaintiff's leg. The other essential facts are stated in the opinion of the Missouri Court of Appeals, affirming a judgment for the defendants, as follows: "Not a single witness for the plaintiff, expert or otherwise, testified that the treatment of the injury by the defendants was done in a negligent or unskilled manner. The only question upon which it could be contended that there was any negligence shown was that the result of the injury and the treatment in and of itself showed an unskillful and negligent treatment, and the principal fact relied on in this respect is that some thirty days after the doctors had begun to treat the case, and after a serious infection had set up and pus was being emitted from the wound, a piece of leaf the size of a thumb nail came out. It is further shown that small slivers of bone came out of the wound from time to time. The testimony of the witnesses for both sides goes to show that an injury of this kind, where the bones break through the flesh and come in contact with leaves, dirt, and foreign substance, will in all probability cause an infection to set up, and that the proper treatment is to first treat the infection until it has been reduced and then treat the fracture. At no place in the record do we find any witness who testifies, stating that the treatment this plaintiff received was different from that which the ordinary physicians would have used in the case. On the other hand, it shows that in cases of this class infection is almost sure to set up, that they are very difficult fractures to properly cure and set, and that very often after the infection subsides the bones must be reset and treated. The evidence shows in this case that something like sixty to sixty-five days after this injury defendants told the plaintiff his leg should be rebroken and set properly, and that he told them he was not strong enough to stand this. This injury was very serious, and an unfortunate occurrence for this plaintiff, as he must go through the balance of his life with practically a useless limb; but there is a failure of proof in this record to show that his misfortune was added to by any negligence or unskillfulness of his physicians. To hold otherwise would base a finding on conjecture pure and simple. The trial court should have granted the demurrer to the evidence at the close of the case. For this reason the judgment will be affirmed."—Connelly v. Cone (Mo. App.), 224 S. W. 1011.

Contracts for Compensation—Capacity of Patient.—The Arkansas Supreme Court holds that where a patient, at the time of entering into an agreement with a physician as to compensation for the latter's services, was not of sufficient mental capacity, by reason of his illness, pneumonia, to transact business, the physician could recover only the reasonable value of his services, and not upon the express contract.—Butler v. Oldham (Ark.), 224 S. W. 985.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, August 20, 1921.

THE PROTECTION OF THE PATIENT IN SURGERY OF THE THYROID.

FOR many years Crile has insisted upon the value of what he has called anociassociation and the technique of its application, or anociation. Although these theories at first evoked but little enthusiasm among prominent surgeons, the principles which he enunciated have now been accepted more or less by the great majority of competent surgeons. Crile found that his results were much better when the patient was protected as far as possible from mental as well as physical traumata both before, during, and after operations. Hence, fear and other emotional disturbances are minimized by the use of preoperative narcotics which promote mental and bodily rest; in some cases harmless inhalations in small doses are administered at a stated time each day for some days prior to the actual administration of sufficient nitrous oxide to accomplish complete anesthetization, so that the patient does not realize that the time for operation has arrived; and in various other ways the patient is protected as far as possible from all which might tend to excite or alarm; while during operation the patient's nervous system is likewise protected from shock by nerve blocking, by the employment of nitrous oxide-oxygen anesthesia, and by rapid operation with sharp dissection and gentle handling of tissues. Crile has become convinced that the complete exclusion of both traumatic and emotional stimuli will wholly prevent the shock of surgical operations.

In no field of surgery are the beneficial results of the employment of the methods championed by him more clearly shown than in operations for toxic goiter. It seems almost unbelievable that a consecutive series, still unbroken, of 322 thyroidectomies and 139 ligations of thyroid vessels could be performed without a death; yet, under anociassociation, that is the record achieved by Crile and his confrères, according to his report in *Surgery, Gynecology and Obstetrics*. Of course not all of these goiters were of the toxic type, but a large percentage were. The elaboration of a preoperative, operative, and postoperative technique which made such results possible was based upon experimental researches and upon a clinical study of a personal series of 821 ligations and 2,771 thyroidectomies, 1,315 of the latter being for exophthalmic goiter.

What are the measures which have made such results possible? or, as Crile says, "Against what is the exophthalmic goiter patient to be protected?" He answers this by saying that he should be protected against the fatally excessive metabolism which the operation tends to induce, against failure of the already weakened myocardium, and against acidosis. "In brief," he says, "these patients must be guarded against psychic, traumatic, biochemical, and anesthetic stimuli; and, in addition, against the effects of the secretion of the thyroid itself. Whether the operation is to be performed with the patient in bed or in the operating room, on the day of operation he should see no surgeon, should see no preparation, should see no operating room, but should see only the already familiar anesthetist, the already familiar anesthetic apparatus; should experience only the already familiar odor of the gas and oxygen and the already familiar sensation of this type of anesthesia."

The patient operated upon must also be protected against suboxidation; and since all inhalation anesthetics cause suboxidation in extreme cases, deep surgical anesthesia, especially ether anesthesia, is ruled out. Crile considers that gas and oxygen anesthesia, combined with local anesthesia, is entirely free from this serious objection. He finds that a weak myocardium or a decompensated heart leads to serious suboxidation because of the diminished blood supply; and that against this condition the patient is best protected by one or two courses of digitalis, each consisting of 30 minims of the tincture every four hours for fifteen doses, repeated as may be required until edema disappears and the tone of the heart is as good as its condition will permit. Next, the patient must have plenty of water, by mouth if possible, otherwise, under local anesthesia, subcutaneously. The danger of too sudden withdrawal of thyroid secretion may be avoided by giving two grains of thyroid extract the night before and two grains on the morning of operation. The occasional necessity for serial operations (one or more ligations followed later by thyroidectomy) is emphasized. Among other measures are the preoperative narcotic, usually morphine and scopolamine; the protection of the patient from postoperative pain by the injection of quinine and urea hydrochloride; protection from excessive absorption of thyroid secretion by proper drainage, even to the extent, if necessary, of leaving the wound entirely open temporarily; and the reduction of excessive temperature by a sufficient number of ice bags or the ice pack.

ARSENIC IN MODERN THERAPEUTICS.

ARSENIC is a normal component element of the human organism, retained in the structures in correlation with cutaneous functions and organs of reproduction. The leucocytes are the agents of elaboration and assimilation of arsenic normally

ingested with food or for therapeutic purposes. The skin and its adnexa and the menses are the natural routes for its elimination. The excess of arsenic is eliminated in the urine in the form of an organic combination, and this elimination is already manifest fifteen minutes after the ingestion of sodium methylarsenate and lasts for a month, although 66 per cent. of the drug is eliminated in the first twenty-four hours. It does not appear that a fundamental distinction need be made between medication by mineral and that by organic arsenic, the ultimate action of the active products being essentially identical in both. Arsenic acts on the general nutrition like a ferment; that is to say, it does not create new energy, therefore is not dynamogenous, but it directs the already existing potential energy and realizes the maximum utilization of the reserves of the organism according to the manner of reaction of the living being in its defense against pathological processes.

Its action is first made manifest by an increase of the body-weight, stimulation of the appetite, return of strength, and a rapid and progressive amelioration of the patient's general condition. Arsenic causes the maximum of oxidation of organic waste products and tends to regulate the respiratory exchanges, at the same time decreasing the frequency of respiration. It lowers the temperature slowly and progressively in cases of mild fever and causes a temporary diminution in the total amount of urine, although without any untoward action on the kidneys. The arsenical preparations—especially the organic products—increase the number of red blood corpuscles with great rapidity, and this continues for a time after withdrawal of the drug. The percentage of hemoglobin also progressively increases.

As arsenic can be eliminated only very slowly a certain amount must accumulate in the body, and after a variable lapse of time, it will set up symptoms of intolerance preceding those of true intoxication. The organic preparations themselves, if given for a long time, are not entirely innocent of causing these accidents. Hence the practical indication to exhibit the drug in progressively increasing doses with intervals of rest, these doses always being calculated upon the content of the product in arsenic. In the case of the organic preparations the therapeutic doses average between two and ten centigrams. The hypodermic administration is always to be preferred, especially for the exhibition of the cacodylic compounds.

Generally speaking, arsenic is indicated in every case where it is necessary to raise the energy of the organism progressively and regulate the cellular nutrition. In pulmonary tuberculosis arsenic is particularly indicated in the prolonged torpid forms, in which case it acts as a tonic and not as an antimicrobic agent. It is also useful in other varieties of human tuberculosis and in subjects with adenoids. In diseases of the respiratory tract other than tuberculosis, except for its general stimulating action, the effectiveness of arsenic is debatable. Although of value in the treatment of chorea, arsenical medication is not a specific; it is likewise useful in other neuroses, such as neurasthenia and Basedow's disease. Arsenic is indicated in all forms of anemia, especially associated with iron. It is absolutely indispensable in cases of severe anemia and in the progressive pernicious anemias. Its action is certain in the varieties of the lymphogenous diathesis, but the medication must be persevered in in order to maintain the good results obtained. Finally arsenical medication is excellent in the cachexia of malaria, but in the other infectious diseases—syphilis excepted—the action of arsenic is not clear. In diabetes, arsenic decreases the amount of sugar in the urine as well as other normal or abnormal fixed matter contained in it, and hence exerts a real effectiveness in phosphatic diabetes and the phosphaturia of rickets. Internally, arsenical preparations give good results in certain dermatoses, notably lichen planus, psoriasis, and the various forms of dry eczema. In syphilis arsenic controls denutrition, while combined with mercury its toxicity seems to be lessened.

The chief contraindications to the use of arsenic are hepatic insufficiency and the diarrhea of tuberculosis. The organic preparations of the drug should be carefully watched in cardiac subjects or those presenting a tendency to congestion or to pulmonary or intestinal hemorrhage.

POSSIBLE ROLE OF THE HELMINTHS IN THE CAUSATION OF RAT CANCER.

A DISCUSSION of the part played by certain worms in the etiology of cancer is limited in ordinary literature to the experimental work of Fibiger of Denmark and the conditions under which the experiments were made were highly artificial. The rat was the animal concerned and the parasite had the cockroach for a host. When the animals ate the insects in question they were said to have developed cancer of the stomach with metastases. But these were not the earliest experiments along this line (Joyeux, *La Presse Médicale* for June 1, 1921, xxix, 48), for Borrel had previously shown that the cat tapeworm may cause malignant tumors in the livers of rats. Fibiger's cancerogenic worm is a nematode which has become known as the *Spiroptera neoplastica*. The use of an insect host, which serves to complicate the experiment, is not absolutely necessary, but in order to obtain the parasite in its larval state the passage through such a host is very convenient. While the so-called bakery cockroach was used, other insects may also answer. The roaches obtain the parasite through feeding on the dejecta of the rats and mice of the bakery and hence are very convenient as a reservoir of the worm. The rats in turn devour the insects. The pied rat of the laboratory is very easily

infected by eating the roach of the bakeries—much more so, apparently, than the wild rat of the bakery.

The lesion is usually set up in the cardia, where the worm is apt to lodge, and is a fibroepithelioma of decided malignancy, which may perforate the gastric wall and set up purulent peritonitis. The worms which exceptionally are fixed at the base of the tongue are known to cause a glossitis and sometimes cancer of the tongue, which agrees with the form seen in mankind. Metastases of these growths may be limited to the regional lymphnodes or may appear in the lungs as well. Fibiger has also been able to inoculate other rats with these tumors. The metastatic nodes are free from worms, which certifies that not the worm itself but some unknown *x* is the efficient cause of the neoplasm. In fact, even in the parent growth they are to be seen only at the outset. They are known to succumb and vanish utterly, while the cancer pursues its evolution without their aid. Clearly the *materies morbi* is some product of the worm but what is as yet unknown. It is rather singular that only one species of these nematodes is able to produce rat cancer. The animal harbors a number of other nematodes which are quite innocuous and at the same time the pied laboratory rat shows a much greater susceptibility than any of the free rodents. Perhaps his captivity has caused a constitutional change analogous to that which civilization produces in man whereby he acquires a tendency to the cancer disease. This brings to mind the factors of highly individualized irritants and highly specialized soil in cancer genesis. Something analogous is seen in tar cancer of mice in which the tar is a special irritant and the white mouse the special victim: and, by the way, the latter is highly refractory to infection by the *Spiroptera*. Man does not harbor this particular worm but neither does he suffer from the so-called cancer of lower animals. Primitive peoples, said to be almost immune to cancer, certainly harbor nematodes of various kinds; so that as far as worms are concerned they have evidently played no rôle, or at most a very indirect one by affecting metabolism, in the evolution of human cancer.

Symptoms of Syringobulbomyelia Mistaken for Acromegaly.

That a felon may mask the existence of the disease syringomyelia has long been recognized, but the latter affection does not usually require differentiation from acromegaly with associated mental disease as in a case reported by Benon and Daveau in the *Gazette des Hôpitaux* for May 3-5, 1921, xciv., 35. The patient, a man of twenty-six and ex-soldier, was referred to a psychiatric service for mental symptoms and with the presumptive diagnosis of acromegalic deformity of the head and hands. He was of sound stock and had never been ill. The first symptom had been noted four years before—a felon of the painless type which opened spontaneously. Its seat was the left medius. The affected finger and other digits were hypertrophied, hard and livid, and as a suppurating ulcer had formed the member was amputated with the diagnosis of *spina ventosa*. Four years later, on admission into the psychiatric service, he presented numerous symptoms. There were muscular atrophy of the left hand, thinning of the forearm, and suggestion of atrophy in the shoulder muscles. In the opposite extremity conditions were parallel, although the hand was not so far atrophied. The lower extremities were almost normal, although there were evidences of a beginning radicular amyotrophy. The tongue showed atrophy, especially to the right. There was an abundance of evidence to justify the diagnosis of syringobulbomyelia. The mental state was one of slight primary debility affecting the memory and judgment, which was puerile. There had been no progressive or secondary mental impairment. The hypertrophy of the digits and hands was of the acromegalic type and there was dorsal and high shoulder scoliosis. This, in association with overdevelopment of the cranial vault, had been responsible for the diagnosis of acromegaly with secondary involvement of the mental functions.

The Surgical Treatment of Pulmonary Tuberculosis.

The relative silence of medical periodicals on this subject since the beginning of the World War in 1914, has doubtless given rise to the belief that artificial pneumothorax has not been holding its own in three years. Such an opinion is possibly premature. Dr. Carlos Jaeger, who has recently sojourned at Munich, at Sauerbruch's surgical clinic, has contributed a very interesting article on the subject to the *Revista Española de Medicina y Cirugia* for April, 1921, iv, 34. After a brief historical outline of thoracic surgery, the author leads off with artificial pneumothorax which he terms the Forlanini-Saugmann operation, making no mention of the revolutionary work of Murphy in this field. The name of Saugmann is interjected because of the cannula which he devised in this connection. The combination of this operation with sanatorium life in Alpine stations has given Sauerbruch permanent recoveries in 68.5 per cent. of cases treated. The author gives an account of the operations of Brauer-Friedrich and Wilms, but it does not appear that Sauerbruch has made any use of them, as his own procedure was sharply individualized before the war, and he already was far in the lead of his competitors in operations and results. Despite some obscurity on the part of the author we understand that the figures to be quoted refer entirely to the Sauerbruch operation. The total has considerably more than doubled the figures published before the war, and now amounts to nearly 400 cases (381). Of this number of patients no less than 134 are said to have recovered, which amounts to 35 per cent. The mortality during the first few postoperative days was 2 per cent. and during the entire postoperative period 12 per cent.

Amblyopia ex Abusu.

This clinical entity owes its existence largely to the fact that its victims are almost always addicts of both alcohol and tobacco. The patient complains of inability to "see off." Paradoxically

he sees better when illumination is poor, often best at twilight. Thus his visual disturbances have a hemeralopic component. In cases with central scotoma this improvement at twilight is not paradoxical, for the coming of sundown causes pupillary dilatation just as the noon sun causes miosis. There is a curious inability to tell the colors of small objects, especially when green or red is concerned. The victim also makes mistakes in changing coins. Often these visual troubles are associated with psychic alterations, so that confusion may arise in the mind of the medical man. Ophthalmoscopic finds are usually negative, although there may be a paling out of the optic disk. Naturally we have to exclude the possibility of methyl alcohol poisoning and the ophthalmoscope enables us to make this distinction since the latter intoxication is attended by rapidly supervening atrophy of the optic nerve. Of prime diagnostic and therapeutic value in amblyopia ex abusu, according to Terson (*La Presse Médicale*, May 21, 1921, xxix., 41), is abstinence from alcohol and tobacco, which is usually followed by prompt return of normal vision. The teetotalist Turk suffers from simple tobacco amblyopia. Generally speaking, alcohol amblyopia occurs often when least suspected. The author has seen cases in drinkers of cologne water and tooth washes who were presumably abstainers. In fact pure alcoholic amblyopia (without coincident tobacco addiction) is apt to occur in the secret or innocent drinker, as in the case of a youth whose fond aunt stuffed him with wines and dainties. In such cases the odor of the breath may be decisive. Curiously the frank drunkard often escapes, while the man who drinks and stays sober suffers. Here it seems to be the cumulative action of the small but ever repeated dose which determines the result.

News of the Week.

Smallpox in State Hospital.—Discovery of ten cases of smallpox at the State Hospital for the Insane at Waterbury, Vt., was announced by officials of the institution on August 8. The disease was brought to the institution by a new patient. The infected persons have been isolated and the hospital put under quarantine.

German Physicians Boycott Allied Commission.—In Oppeln a German physician considered that he had been insulted by a French officer a few weeks ago, and accordingly arranged with his confrères to boycott the Allied Commission. After a time he relented so far as to consent to attend British and Italian members of the Commission, but continued, and still continues to refuse to attend a Frenchman. In the circumstances, the French have been obliged to employ doctors from Lower Silesia and Breslau. The Upper Silesian Union quickly took action, and now the Lower Silesian Union has issued orders that members are to support the Oppeln boycott of the French.

Medical Staff of Berlin Hospital Strikes.—It is reported that all the members of the medical staff of the Charité Hospital of Berlin have gone out on strike for higher salaries. About 160 Berlin physicians and surgeons are involved in it.

Hospital Notes.—Ground has been broken and work started on the erection of the new $200,000 wing to the Good Samaritan Hospital in Portland, Ore. A feature of the new wing will be the Clark memorial, which will have six main operating rooms, all thoroughly equipped.

Plans are being prepared for a new $2,000,000 city hospital on Walton Avenue, between 166th and 167th streets in the Bronx, New York. The building will contain accommodations for 500 patients, and it is expected that it will be ready for occupancy by the spring of 1922.

The Jewish Memorial Hospital, now housed in the former home of the Magdalen Benevolent Society of Dyckman-on-the-Hudson, has purchased additional plots of ground, 80 by 115 feet and 136.7 by 100 feet, at the northeast corner of Dyckman Street and Bolton Road.

A new $100,000 hospital at Pasco, Wash., built by the Sisters of St. Joseph, was opened for the reception of patients on July 30. The new institution will be formally dedicated in September.

The Speedway Hospital in Chicago, erected at a cost of $10,000,000, and which Mr. Edward Hines has donated to the Government in memory of his son, who fell in France, received its first quota of war veterans on August 8. Disabled soldiers will be transferred there from other hospitals.

Protection for Vacationists.—A communication from Dr. Edward Goodwin, sanitary supervisor of the Jewish Agricultural and Industrial Aid Society, has succeeded in organizing what is known as the Farmers' Sanitary League, in the district around Ellenville, N. Y. In order to obtain membership in the league a farmer or boarding house keeper must subscribe to and rigidly observe a sanitary code regulating sewage, garbage and refuse disposal, and laying down rules for fly prevention and a pure water supply. The code must be posted in a conspicuous place in the farmhouse, and periodic inspections are made by Dr. Goodwin to insure compliance with this self-imposed code, and to give advice and counsel on all problems relating to healthful conditions on farms. The officers of the New York State Health Department have co-operated with this activity. Every farmer who complies with all the requirements of the sanitary code receives a certificate good for a period of one year. This movement is commendable not merely because it makes a country locality more healthful, but because it gives assurance to the great army of vacationists that they have protection from communicable diseases in such communities.

Twins Total Twenty-eight Ounces.—Local doctors believe that Billie and Jack Adams of Bogalusa, La., are the smallest living babies. At birth Billie weighed eleven ounces and Jack seventeen. The midgets appear to be in perfect health. Six brothers and sisters are of normal size.

New Milk Regulation.—At a meeting of the New York City Board of Health, held July 25, 1921, resolutions were adopted amending Regulation 5, governing the production, transportation, and distribution of milk, to read: "No milk or milk products shall be graded or designated in a manner hereinbefore provided in these regulations until the source of supply of such milk or milk products shall have been, in each instance, approved by the Board of Health and graded and

designated in accordance with such approval. No person shall bring into the City of New York any milk or milk products, nor shall any person have, keep, sell or offer for sale at any place in the City of New York any milk or milk products, the source of supply of which has not been approved by the Board of Health.

Post-Graduate Course for Ship Doctors.—The Broad Street Hospital, New York, announces that it will open a Graduate School of Medicine on October 15, 1921. One of the chief features of the new school will be a course in tropical diseases, under the direction of Dr. Charles E. Sibley, who has had eight years experience with tropical diseases in the Philippines. The Broad Street Hospital is located near the docks and receives a goodly number of cases of malaria, typhus fever, and other tropical diseases. Special facilities are also offered in other lines of medicine and surgery. Each course will last one month and will be repeated indefinitely, so that a ship's doctor who is in town for a week can take a part of his course and drop in again when he is in New York to continue it. The officers of the Graduate School are: Director, Dr. A. J. Barker-Savage; president, Dr. W. H. Dieffenbach; first vice-president, Dr. Robert T. Morris; second vice-president, Dr. Lefferts A. McClelland; third vice-president, Dr. Walter Gray Crump; secretary, Dr. Maximilian Stern.

To Dedicate the Medical College in Pekin.—John D. Rockefeller, Jr., Dr. George E. Vincent, president of the Rockefeller Foundation, and Dr. William H. Welch of Johns Hopkins University have started for China to attend the dedication of the buildings of the Pekin Union Medical College, erected by the China Medical Board of the Rockefeller Foundation. They sailed from Vancouver, where they were joined by a party of distinguished medical men and educators, on August 18.

Dr. Irving D. Metzger of Pittsburgh has been elected chairman of the State Bureau of Medical Education and Licensure to succeed Dr. J. M. Baldy, who has been appointed Commissioner of Welfare.

Dr. Charles W. Selover of Canandaigua, N. Y., has been appointed superintendent of the Ontario County Tuberculosis Hospital, in the place of Dr. William A. Bing, resigned.

Dr. Francis O'Brien has been appointed superintendent of the Hampshire County Tuberculosis Sanatorium at Leeds, Mass., to succeed Dr. Charles E. Perry, who resigned recently to take charge of a government tuberculosis hospital in California.

Dr. P. H. Aaser, director of the Norwegian State Hygienic Laboratories, Christiania, is visiting prominent laboratories in the United States for the purpose of studying their organization, equipment and functions.

Dr. Murayama of Japan is visiting laboratories and hospitals in this country.

Dr. W. H. McGregor of Wilkinsburg, Pa., is the Republican nominee for coroner of Allegheny County.

Dr. E. William Abrahamowitz has removed his office to 235 West Seventy-first Street, New York City.

Jury Acquits Doctor.—Dr. Fred VanVliet of New York, who was tried before Judge Rosalsky on a charge of having attempted an illegal operation, was acquitted on Aug. 12. The jury expressed its disapproval of the police method of obtaining supposed evidence against Dr. VanVliet.

United States Public Health Service Training School for Nurses.—A training school for nurses of the U. S. Public Health Service is to be established by the Surgeon General which will offer to women desiring to take up the profession of nursing a three years course of study leading to a diploma and an opportunity to assist in caring for disabled military patients. The headquarters of the school is in the office of the Surgeon General, Washington, D. C. Training will be given in certain hospitals in the service. Schools will open on Sept. 1 at Fort McHenry in Baltimore and at Fox Hills, Staten Island, N. Y. The service hospitals provide experience in surgical nursing, including orthopedic, eye, nose and throat; medical, including communicable, nervous, and mental diseases; *x*-ray and laboratory technique; experience in the diseases of children, and public health nursing. Gynecology and obstetrics will be provided in the second or third year of the course through affiliations with civilian hospitals. No tuition fee is required and a monthly allowance of $30 is provided during the first two years and $50 during the third year. Candidates should make application in person or writing, to the Surgeon General, U. S. Public Health Service, Washington, D. C. Special consideration will be given to candidates who have taken the course in Elementary Hygiene and Home Care of the Sick with the Red Cross or who served as nurses and aides in army or civilian hospitals throughout the war. Candidates must be between 21 and 35 years of age, must pass satisfactory physical examination, and must be graduates of a recognized high school or present evidence of an educational equivalent.

An Appeal for Help by Bronx Physicians.—The group of medical practitioners of Bronx Borough of this city, constituting the newly organized Bronx Physicians' Club, are seeking assistance to enable them to erect a building, to be called the Bronx Academy of Medicine, at a cost of half a million dollars. The building will contain a library, a laboratory, room for medical meetings, an auditorium for public lectures on medical subjects, a gymnasium, swimming pool, bowling alley, restaurant, tennis court, nurses' room, and rest rooms. In order to obtain funds for carrying out this ambitious project it is proposed to have a bazaar on October 15-22, to seek donations from philanthropic laymen, and also to ask every physician in this and neighboring States to contribute at least $1 each. The committee soliciting donations consists of Drs. Isaac Rich, chairman, B. A. Kantrowitz, vice-chairman, and G. A. Rueck, secretary.

Joint Meeting of Medical Associations.—The following medical associations will hold a joint meeting in Kansas City, Mo., beginning Monday, October 24: Medical Veterans of the World War; Medical Society of the Missouri Valley; Medical Association of the Southwest; Mid-Western Association of Anesthetists; Central States Orthopedic Club; Southwestern Branch, American Urological

Association. The medical societies in Kansas City have united to furnish an ample clinical program for the mornings and the afternoons will be occupied with scientific sessions.

Obituary Notes.—Dr. CHARLES R. MAHADY R. Rome, N. Y., a graduate of the Baltimore Medical College in 1897, and for thirteen years health officer of Rome, died on August 8, at the age of forty-nine years.

Dr. SANDERS R. TOOMBS, formerly professor of clinical medicine at the University of Tennessee, Nashville, died in Lexington, Ky., on July 15, at the age of seventy-seven years. He was for seventeen years president of the Mississippi State Board of Health.

Dr. FRANK H. TODD, a graduate of the Western Reserve University School of Medicine in 1876, died at his home in Cleveland, Ohio, on July 17, at the age of seventy-two years.

Dr. WILLIAM E. DOWNIE of Minneapolis, a graduate of the University of Louisville Medical Department in 1912, died suddenly on July 21 at the age of thirty-seven years.

Dr. FRANK HURLOCK of Philadelphia, a graduate of Jefferson Medical College in 1881, died at his home on July 24 at the age of sixty-two years.

Dr. WILLIAM B. COGSWELL of Stratford, Conn., a graduate of Bellevue Hospital Medical College in 1881, died on July 28 at the age of sixty-six years.

Captain GEORGE A. LUNG, medical officer at the Naval War College at Newport, died suddenly on July 26 at the age of fifty-nine years. He was graduated from the University of Pennsylvania School of Medicine in 1886. He entered the Navy as assistant surgeon in 1888 and was made surgeon in 1900. He served with Samson's squadron at Santiago and in many capacities both ashore and afloat.

Dr. WILLIAM H. COX, a retired physician of Sandy Creek and Syracuse, N. Y., died at Sandy Creek on July 18 at the age of eighty-two years. He was a Civil War veteran.

Dr. GEORGE DE FOREST SMITH, formerly of New York City, died at his home in Kingston, N. Y., July 30, at the age of sixty-nine years. He was graduated from the College of Physicians and Surgeons, New York, in 1876. He was a member of the New York Academy of Medicine.

Dr. CLOVIS ADAM of Jersey City, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1877, died at his home on July 28. He was formerly connected with the staffs of the French Hospital, the Manhattan Eye, Ear, Nose and Throat Hospital and the Orthopedic Hospital in New York City.

Dr. SAMUEL C. SIMS of Memphis, Tenn., died after a lingering illness on July 14 at the age of fifty-nine years. He was graduated from the Vanderbilt University Medical Department, Nashville, Tenn., in 1893.

Dr. FREDERICK W. LAKE, a graduate of the University of Pennsylvania Department of Medicine in 1901, died at his home in Omaha, Neb., July 10, at the age of forty-five years.

Dr. JEFFERSON DAVIS FENTON of Portland, Ore., a graduate of the University of Oregon Medical School in 1889, died suddenly about March 19.

Dr. CHRISTOPHER DEAN MOWRY of Aurora, Ill., a graduate of Rush Medical College in 1876, died in a local hospital on July 6 at the age of seventy-five years.

Dr. HOWARD A. FEHR, a graduate of Hahnemann Medical College and Hospital, Philadelphia, in 1894, died of nephritis at his home in Allentown, Pa., on July 16, at the age of fifty-one years. He was a former president of the Lehigh Medical Society.

Dr. H. N. GRAVES, a retired practitioner of Dallas, Tex., died on June 23 at the age of seventy-five years. He formerly practised medicine at Gonzales, Seguin and Georgetown.

Dr. EDWIN R. SMILEY of Philadelphia, a graduate of Jefferson Medical College in 1881, died after a lingering illness on July 19 at the age of sixty-one years. He served as coroner of Camden County, N. J., from 1890 to 1893, and was chief clerk and deputy coroner of Philadelphia from 1906 to 1909.

Dr. FREDERICK N. BEARDSLEE, a graduate of the Boston University School of Medicine, formerly assistant physician of the Norwich, Conn., State Hospital, and more recently practising in Manchester, N. H., died at Rye, N. Y., July 22, at the age of forty-six years. During the World War he was surgeon on an ocean liner and later had charge of a section engaged in fighting typhoid fever in Serbia.

Dr. ROBERT SELDEN of Catskill, N. Y., a graduate of the Western Reserve Medical College in 1869, died in a hospital in Troy, N. Y., July 23.

Dr. WILLETT SPURGEON CONNORS of Boston, Mass., a graduate of Dartmouth Medical College in 1891, died on July 31, at the age of fifty-two years. He formerly practised medicine in Brooklyn.

Dr. MARY ELIZABETH H. SHIPP of Salt Lake City, Utah, licensed to practise medicine in 1894, died on July 23, at the age of sixty-eight years.

Dr. MARTIN G. MEEHAN, a graduate of Rush Medical College in 1885, died at his home in Chicago on July 25, at the age of seventy years.

Dr. MARY ANN MCCAY of Sunbury, Pa., died in a local hospital on July 26, at the age of sixty-four years. She was graduated from the Woman's Medical College, Philadelphia, in 1887.

Dr. FLORENCE HALE ABBOTT, formerly of Newton, Mass., died in a Brookline hospital on August 1, at the age of fifty-four years. She was graduated from the Woman's Medical College of the New York Infirmary in 1891. She was a member of the American Medical Association, the New England Society of Psychiatry, and the American Medico-Psychological Association.

Dr. ALONZO M. MORRISON of Louisville, Ky., died in a local hospital on July 31, at the age of eighty-three years. He was a graduate of the University of Louisville Medical College in 1859, and served as a surgeon in the Union Army during the Civil War.

Dr. JOHN F. CROSTON of Haverhill, Mass., a graduate of New York University Medical College in 1881, died of heart disease on July 30, at the age of sixty-six years.

Dr. WILLIAM B. COGGSWELL of Stratford, Conn., a graduate of Bellevue Hospital Medical College in 1881, died in a Bridgeport hospital on July 28, at the age of sixty-seven years.

Dr. JOSEPH ALPHONSE LORRAINE, a graduate of the Montreal School of Medicine and Surgery in

1896, died on July 26 at the age of forty-eight years. He served in France as officer in charge of the radiological service of the Laval medical unit, and since the war had occupied the position of chief of the radiological clinics at the Bruchesi Institute.

Dr. DAVID DANDIE BROUGH of Boston, Mass., a graduate of Harvard Medical School in 1893, and formerly city Deputy Health Commissioner, died suddenly July 31, at the age of fifty-five years.

Dr. EDWIN W. MOORE, a retired physician of Franklin, Pa., died in the Memorial Hospital, New York, July 31, at the age of seventy-three years. He was a graduate of the Charity Hospital Medical College, Cleveland, in 1867.

Dr. ELLEN WOODWARD HOWELL, formerly of Middletown, N. Y., died in Philadelphia on June 7, at the age of fifty-three years. She was graduated from the New York Medical College and Hospital in 1892, and was recently connected with the staff of the Women's Southern Homeopathic Hospital.

Dr. LEONARD O. BUZZELL of Standish, Ore., a graduate of Dartmouth Medical School in 1882, died June 6, at the age of sixty-one years.

Dr. JAMES M. SLIGH, a graduate of the Detroit College of Medicine in 1881, died in Long Beach, Cal., on June 8, at the age of seventy-six years. He formerly practised medicine in Grand Rapids, Mich., and later in Anaconda, Mont., serving in the Montana Senate for several years. He was aide to General George E. Thomas in the Civil War.

Dr. NELLIS CLEMENT SATTERLEE of Williamfield, Pa., a graduate of the New York University School in 1889, died of carcinoma of the liver on May 15, at the age of fifty years.

Dr. THOMAS L. F. ARMITAGE of Princeton, Minn., a graduate of the Medico-Chirurgical College, Philadelphia, in 1893, died on June 3, at the age of fifty-nine years.

Correspondence.

TREATMENT OF FRACTURES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the issue of THE MEDICAL RECORD of July 9 appears an article from Dr. Ethan H. Smith on the treatment of fractures. It is a very readable article, but I take exception to some portions. In regard to plaster-of-paris bandages, preparing one's own is the only way to have them right. I failed to get the results Dr. Smith claims to have had with absorbent cotton. I have used everything that came out, beginning with ordinary cotton batting, then sheet wadding, then absorbent cotton, and finally I have used stockinette; this I find is the best. Have the surface washed clean with hot soap and water then, after drying apply sterile petrolatum, then the stockinette. After the plaster has set I divide on both sides so the top can be lifted off. This permits the inspection of the limb and one can note if anything is going wrong. One reason so many get such bad results from the use of plaster is that they are content with the bandages obtained from the drug store; then they leave the plaster on for days and weeks before it is opened, and they wonder why they fail and do not get union. In over five decades, where I have had the case from the start, I have not had a failure to get union and serviceable limbs. Dr. Smith objects to the use of anesthetics in the reduction of fractures. I have found that when they were used the muscles were relaxed and one did not have that involuntary contraction and resistance. His objection is there will be unnecessary manipulations. If one has not the tactus eruditus he should let such cases alone. In his treatment of fractures of the hip, he hangs on to that relic of the Spanish Inquisition, the sand bag, large and heavy. If he can handle them he does better than the most of us. I have used them in the days gone by and I now wish to forget it. For many years I have used a modification of the Hodgen splint as recommended by Dr. George S. Brown of Birmingham, Ala. With this and a wire splint that will fit around and grasp the joint the limb is swung up and the patient left happy. Dr. Smith especially condemns the use of anesthetics in the reduction of a Colles' fracture. I have been in out of the way places where I had to reduce them without anesthetics and I know it is painful in the extreme, besides making it more difficult.

Then Dr. Smith extends the plaster from the hands to the axilla, and leaves it on for four weeks, without removing it. The only thing he recommends is to cut it along the back. Why he carries the plaster to the axilla is beyond my comprehension; if that is correct I have, for fifty odd years, been treating my patients wrongly. The way I do is to use an anesthetic, then when the patient is perfectly relaxed reduce the fracture. The only way you can unlock the fragment is by grasping the injured forearm with the corresponding hand, then grasp the other above the fracture, and swing it up to right angle, this unlocks the fragments; then as you bring it down with a twist to the ulnar side you dislodge and restore the tendon of the extensor carpi ulnaris. When you have executed this let go the hand, and if it stays in place you are all right. Then apply the stockinette from the fingers to above the elbow, and apply the plaster roller. Begin around the wrist. Have one assistant hold the arm, another grasp the thumb with one hand, the ends of the fingers with the other, and hold firmly. In applying the plaster I begin around the wrist, carry it around the hand to the base of the fingers, then back up to the elbow. Put on about five layers, then after smoothing it, take it in your own hands, pressing the thenar eminence of the corresponding hand into the concavity above the upper end of the radius while the other presses on the posterior surface; thus you mould and make a perfect fit at the point of fracture. Then as soon as it is set, divide around the thumb and half of the thenar eminence, trim along the fingers so they can be flexed, then divide along on both sides. This enables one to lift off the top and inspect the condition, sponge and apply alcohol, and massage gently the exposed portion. This should be done every day; at the end of a week one should remove the splint, give the limb a hot bath, massage it, and feel the joint.

At the end of the second week we should begin manipulation, and at the end, of at longest, five weeks take off all and permit gentle motion. Have the patient bathe the arm three times daily, fol-

lowed by cold saline shower. I have no trouble in getting results that the patient is ashamed to show. Why Dr. Smith wants to keep the elbow flexed and inactive so long I cannot understand, as the only thing he gains is a joint that will annoy the patient as he tries to get it working again. With the elbow so it can be flexed and extended I have no trouble.

In fractures of the leg Dr. Smith says flex the leg if you want to relax the muscles. If he will divide the tendo Achillis he won't have any trouble, as that puts out of commission the muscles of the calf, and then if one has finger sense the fragments can be put in place without skidding.

The *x*-ray is all right but if you can't make out the average fracture without it you had better leave the job to some one else. Where you need the *x*-ray is after you have put it up, then see if you have it right.

These remarks are the result of the worry and experience of many years. A ready to fit splint is like the ready-made shirt, and gives as good satisfaction.

GEO. F. BEASLEY, M. D.

LAFAYETTE, IND.

CONFIRMATION REPUDIATED.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Emulating the politeness of your correspondent, Dr. Ernest S. Bishop, in his little letter of eight lines published in the MEDICAL RECORD, August 6, 1921, thanking me for my support and confirmation (*sic!*) of statements previously made by him, kindly permit me to express my sincere gratitude to Dr. Bishop for thus furnishing to your columns the most concise and clean-cut example one could possibly desire to illustrate what is meant by propaganda of the misleading type. Dr. Bishop therein "kindly and ably, though perhaps unconsciously," makes a valuable contribution to our knowledge of the gentle art of propaganda, conveying an entirely erroneous impression to persons unfamiliar with the facts.

J. MILTON MABBOTT, M.D.

19 FIFTH AVENUE,
NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, July 18, 1921.

Factors Bearing on Infant Mortality.—Among the many good papers read at the conference on Infant Welfare held recently in London that of Dr. C. W. Saleeby was one of the best. He pointed out that the outstanding fact of infant mortality during the past ten years in Great Britain was the suppression of infant diarrhea. He described the theory that infant mortality is an illustration of natural selection as baseless, completely breaking down even in the one instance, hemophilia, which might be expected to illustrate it, and he considered in turn the genetic, toxigenetic, gestational, and obstetric factors of the problem. Mr. James Stewart of Glasgow contended that many difficulties did not arise through ignorance, but purely and simply owing to social conditions, and until such conditions were adequately ameliorated and every mother had all that was necessary for the well-being and comfort of herself and her child, there would be no good done, even though they held conferences to eternity. Dr. Wynne thought that the more successful they were in their endeavors in reducing infant mortality the more seriously would they have to contemplate what steps they were to take toward reducing the unregulated begetting of unwanted children. Dr. Saleeby, in replying to points raised in the discussion, observed that drinking among young mothers was a peculiarity of Great Britain. As for improvement in social conditions there was nothing more tragic than a mother doing her maternal duty and breast feeding her baby when she herself was badly nourished. The first charge on the state ought to be the mothers and children of the country. Another paper of great interest was that of Dr. H. Kenwood, M. O. H., Stoke Newington, who said that in public health generally the real need of the hour was for more knowledge of the very simple laws of health. Whatever the baby was fed on the parents must also receive the mental pabulum, rendered easily assimilable, peptonized and humanized. In maternity and child welfare work, extended to the school age and followed by medical inspection among school children, they had a guarantee, given reasonably good economic conditions, of an early reduction in the proportion of the C 3 population.

Physical Education in the Universities of the United States.—At a meeting of the Edinburgh Medico-Chirurgical Society, held on July 6 last, Prof. Tait Mackenzie of the University of Pennsylvania described physical education as conducted in the American universities. With regard to the educational part of the course, it was pointed out that exercises correcting the effects of a sedentary life were prescribed. Games designed to occupy many men in a short time were organized and every attempt was made to foster that physical intelligence which had raised man above the brutes. The student was taught the benefit of cooperative effort, he learned versatility. The great athlete was rare just as great genius was rare. In spite of abuses and extravagance the public interest in football was utilized by the state and the crowds who attended the popular football matches provided the dollars which financed rowing and the gymnasium. Intercollege rivalry was so keen that it was necessary to demand a certain standard of scholarship before a student was allowed to represent his college, and to circumvent the peripatetic athlete it was necessary to require a year's residence before a man could represent his university. The physical exercises offered a very wide range of selection. Usually three to four hundred students per annum required constant supervision. The man who grudged the time got concentrated exercise, but all were required to do a certain minimum. Athletic activities outside the college were not recognized and the student had to put in recorded attendances just as in any other course. Dr. Mackenzie ended by drawing attention to the fact that the universities had a great responsibility in connection with physical education, since they

received students from 18 to 23, in the last growing years of life. Logically, physical exercises should begin at school, but the years available at the universities were of special value. In Britain where a great swathe had been cut in the growth of young manhood, it was specially important to have the remainder in an efficient state of health. Sir Leslie Mackenzie, who joined in the discussion, said that if the best intellectual output were to be obtained the physical education of mankind should be cared for from conception onward. The revelations that followed the inquiry after the Boer War showed that out of every nine men from the industrial and general population only three were physically fit and healthy, two were slightly less efficient, the others were practically useless as soldiers. Physical training in the sense of the drill sergeant had a place, but physical education was the ideal. Under a system of physical education the intellectual output would at least be no less. Physical training was really a training of character.

Doctor Cruikshank, describing the physical education in the Scottish elementary schools, said the system was based on the Swedish system, but there were alterations tending to make the exercises more interesting. They tried to teach something more than drill. They inculcated personal hygiene and everything which went to improve the physical well-being of the individual. At Dunfermline there was a central institution for the training of teachers. They were taught anatomy and physiology, besides the more technical exercises.

Sir Montague Cotterill said that it came as rather a shock to him that physical training should take the form of anything approaching a lesson. Physical training was well taught at the public schools, but at the Scottish universities a disgracefully small number took any interest in the athletic side.

Honor to Sir Robert Jones.—Sir Robert Jones of Liverpool has received the Honorary Degree of Doctor of Science from Harvard University.

Meeting of the British Medical Temperance Association.—The primary object of this gathering was to hear an address by Sir Alfred Pearce Gould, who said in part it was a matter of common knowledge that the use of alcohol as a therapeutic agent had, during the past thirty years, rapidly and greatly lessened and it was the agreed opinion of pharmacologists that, in the very limited and lessening field of medical practice in which alcohol was still employed, it was of value only as a narcotic and not as a stimulant. He submitted that the medical profession had a very special responsibility in reference to the very widespread custom of the use of alcoholic drinks as beverages, and that the profession generally had not yet adequately realized and shouldered that responsibility. The alcohol question was really a problem in biology, and human biology was the special province of the medical profession. The speaker stated that the result of wide and long-continued observation, uncontradicted by any opposing observations, was to the effect that total abstinence favored and did not prejudice longevity. The medical profession need not be afraid of using all their influence upon the side of scientific truth in every detail of life, and not least, surely, in the case of a national habit that was the parent of so much failure, so much disappointment, so much sorrow and that marred the beauty of human life as did the drink habit.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 4, 1921, clxxxv, 5.

1. Accessory Sinus Blindness. Differential Diagnosis and Operative Technic. Leon E. White.
2. A Rare Fracture of the Lower End of the Humerus. Luther G. Paul.
3. Reconstruction of Ears. Hilbert F. Day.
4. One Thousand Cases of General Anesthesia. Some Observations and Conclusions. William T. Bailey.
5. Significant Reactions of the Arterial Tension. Manifestations of the Angio-Kinetic Energy Clinically Observed and Interpreted. Claes Julius Ekelusk.

1. Accessory Sinus Blindness. Differential Diagnosis and Operative Technic.—Leon E. White discusses objections and criticisms of his previous articles on this subject and summarizes as follows: (1) A careful differential diagnosis should be made in every case, but in the subacute or chronic forms it is of the utmost importance to rule out central lesions and toxic infections. (2) While a certain proportion of cases recover, either spontaneously or under treatment, permanent blindness may result in others unless they receive prompt surgical interference. The size and position of the middle turbinates determine largely the question of recovery with or without operation, and when found to be blocking the ventilation to the posterior sinuses they should be removed. (3) The opening of the accessory sinuses for the loss of vision, after the exclusion of other causes, has been advocated by many investigators, even with negative nasal findings. The fact that nothing is found either on inspecting the nose or by roentgenograms does not prove that there is no infection in the nose. It simply means that it cannot be detected. If the loss of vision is due to the accessory sinuses, there is pathology, but it may be located so far within the nose as to escape detection. As the inflammation incident to this infection is frequently of the exudative nonsuppurative type, the roentgenograms are practically negative. A more careful timing of the plates has shown a slight cloudiness in some, so it is hoped that the bugbear of negative nasal findings will soon be eliminated. (4) The complete ethmoid exenteration is not only unnecessary, but actually contraindicated, unless there is a sufficient pathology in the ethmoid labyrinth to warrant it, irrespective of the loss of vision. The semiradical sphenoid procedure, consisting of removal of the middle turbinate and opening of the sphenoid and ethmoid, is one practically devoid of danger, and can be performed under local anesthesia. It in no way impairs the function of the nose or needlessly imperils the life of the patient. It sufficiently drains and ventilates the regions adjacent to the optic nerve. Should, however, the visual disturbance be due to toxemia from some other sinus, or from teeth or tonsils, these foci of infection should receive attention. (5) While it is well to emphasize the dangers of this or any other operation in the hand of the unskilled, the fact is this sphenoid operation is frequently performed for much less serious complaints than loss of vision.

2. A Rare Fracture of the Lower End of the Humerus.—Luther G. Paul finds no mention of the fracture he describes after a moderately thorough search of the literature. A girl fourteen years of age was referred to him after having fallen down several steps. The left elbow was swollen and tender over the external part, and motion was much restricted on account of pain. Ether was administered, and after manipulating the part the writer was unable to make a diagnosis of the condition. The bony landmarks were in normal relation, and there was no abnormal mobility or crepitus noticed. On the following day an *x*-ray was taken. This showed a vertical fracture of the lower end of the humerus, in which the anterior part of the

articulating surface had been separated from the rest of the bone, and this fragment had been forced out of the joint, and was lying on the anterior surface of the lower end of the humerus, fully an inch above its normal position. After an unsuccessful attempt to reduce the fracture under ether, an incision into the joint was made on the outer side of the elbow, and the fragment found as the *x*-ray showed it. The only point of attachment of the fragment was by its inner end to a small area of the capsular ligament. It consisted of the capitellum and trochlear surfaces in one piece. Attempts to replace the fragment were unsuccessful until the following method was tried: The forefinger was placed in the wound over the fragment, and between the fragment and the tendons of the biceps and brachialis anticus muscles, the elbow being flexed to somewhat beyond a right angle. The assistant then extended the forearm, and at the same time exerted a pull, thus increasing the space between the humerus and the upper ends of the radius and ulna. The pressure exerted by the tightened muscles on the finger in the wound, together with pressure from the outside, caused the fragment to slip into place. The arm was put up in acute flexion. Three months later the movements of the joint were normal.

New York Medical Journal.

August 3, 1921, cxiv, 3.

1. Some Remarks on the Elements of Diet in Infancy, with Special Reference to the Employment of Czerny and Kleinschmidt's Butter-Flour Mixture. J. P. Crozer Griffith and A. Graeme Mitchell.
2. Diagnosis of Summer Diarrhea. J. Claxton Gittings.
3. Use and Abuse of Drugs in Summer Diarrhea. John F. Sinclair.
4. Dietetic Management of Summer Diarrhea. William N. Bradley.
5. Water Treatment in Diarrhea. John J. Donnelly.
6. General and Dietetic Treatment of Eczema. J. P. Crozer Griffith.
7. Management of Babies and Children Suffering from Summer Diarrhea. A. Graeme Mitchell.
8. Treatment of Nutritional Disorders in Artificially Fed Infants. Charles Herrman.
9. Unemphasized Essentials in Infant Feeding. Jesse R. Gerstley.
10. The Relation of Herpes Zoster to Chickenpox. Walter M. Kraus.
11. Management of Children Presenting the Postepidemic Encephalitis Syndrome. Sylvester R. Leahy and Irving J. Sands.
12. Remarks on Nephritis in Children. A. Hymanson.
13. Artificial Feeding of Normal Infants. William L. Rost
14. Clinical and Therapeutic Observations on Biliary Disorders in Children. J. Epstein.
15. Prevention of Infectious and Contagious Diseases in a Children's Orthopedic Ward. Walter G. Elmer.
16. Intussusception in an Infant Six and a Half Months Old. Solomon Rottenberg and George M. Schwartz.

2. Diagnosis of Summer Diarrhea.—J. Claxton Gittings classifies the summer diarrheas of early life into two main types, one primarily due to infection of the intestinal wall and the other due to a disorder involving the intestinal contents. He acknowledges that it is often difficult or impossible to draw hard and fast lines of demarkation between these two types. The distinguishing feature of type one is that bacteria, usually introduced in food, drink, or by contact with infected articles, invade the wall of the gut and set up definite anatomical changes. Type two may be viewed as a functional disturbance rather than a somatic disease, since the basic disorder involves the intestinal contents rather than the intestinal walls. Infectious diarrhea has two chief synonyms, ileocolitis and dysentery. Both forms of diarrhea may be preceded by symptoms of indigestion, but as a rule the onset in both types is sudden, at least during hot weather. Toxemia will be present in both types, depending upon their severity. As a rule, however, the patient with functional diarrhea will show a higher initial temperature and more severe toxic symptoms than are seen in ileocolitis. The severe toxic cases of functional diarrhea show a suggestive facies, apathetic or stuporous, with dull, sunken eyes. Vomiting is not as common in the infectious as in the functional type. Anorexia is common in both types, but usually is more pronounced and protracted in the infectious type. Prostration depends upon the severity of the toxemia; it is likely to be more severe at first in the cases of functional diarrhea; later it is equally well marked in the infectious type. A distinguishing feature between the two types of diarrhea is that in general the functional type tends to an acute course with recovery or death, while infection of the intestinal wall speaks for chronicity. The characteristics of the diarrhea itself furnish the chief diagnostic points of difference. In functional diarrhea flatulence and foul odor to the stools are early symptoms, but the number of stools soon tends to diminish and blood is seldom seen. In ileocolitis the stools consist in large part of mucus, and the odor may not be especially offensive. Frequency is marked and persistent, blood is a characteristic finding, while abdominal pain and rectal tenesmus are present in the majority of cases. In the functional type the temperature tends to fall and assume a moderate irregular range. In ileocolitis, on the other hand, fever is constant throughout the active stage, tending to range between 100° and 102° or more for at least ten days, and, in protracted cases, simulates the temperature of typhoid fever. Membranous colitis resembles the severe forms of functional diarrhea and is characterized by the pseudomembranous patches sometimes seen on the prolapsed gut or shreds of it seen in the stools. Cholera infantum is a form of functional diarrhea usually given a separate place because of its characteristic symptoms. In making the diagnosis of summer diarrhea several other conditions must be ruled out as failure to recognize them may have most serious consequences. The appearance of blood in the stools in early life and especially in infancy should always suggest the possibility of intussusception. The presence of vomiting should suggest the possibility of meningitis, which often begins with a moderate diarrhea. Pneumonia, pyelitis, and even otitis media also may be ushered in with gastrointestinal symptoms. Typhoid fever may simulate ileocolitis, but in all these conditions the diarrhea is rarely severe enough to cause confusion. In the infectious types of diarrhea, specific treatment may be tried; diet certainly plays a much less important rôle than in the second type, in which it is of extreme importance. The occurrence of dehydration, even in mild degree, at once gives imperative indication for treatment. In the presence of a severe diarrhea, even before dehydration can be recognized clinically, appropriate measures for prevention should be inaugurated. An analysis of 100 cases of summer diarrhea at the Children's Hospital showed that thirteen were of the infectious type and eighty-seven of the functional type. The onset was recorded as sudden in every case in which the history was complete. Vomiting occurred as an initial symptom in 69 per cent. of the infectious cases and 71 per cent. of the functional cases. Blood was present in the stools in all the infectious cases. The mortality was 61 per cent. in the cases of colitis and 24 per cent. in the functional types. In only one-fifth the total number were the patients brought to the hospital on or before the third day of the disease. This may explain in part the excessive mortality in hospital cases.

5. Water Treatment in Diarrhea.—John D. Donnelly has employed sterile solutions of normal saline, five per cent. glucose, three per cent. sodium bicarbonate, and a glucose acacia solution, made up of glucose five grams, acacia ten grams, and normal saline sufficient to make 100 c.c. in the treatment of cases of extreme dehydration. The injections were made into the longitudinal sinus under the strictest surgical aseptic technic. By this method he has not experienced any complications or serious after effects; on the contrary, many of his results have been most striking in their beneficial effects. The only contraindications to this method are the various forms of infectious dermatitis, particularly if the scalp is involved. After having assured himself by animal experimentation that intraperitoneal injections were devoid of serious risk, he began using this method. After excluding abdominal distention and the possible presence of an overdistended bladder, with the child in the recumbent position, the injection is made through the median line just below the umbilicus. Usually 200 c.c. may be given to young infants in this way. The fluid should not be introduced too rapidly or in too large quantities so as to avoid possible embarrassment to the diaphragm and heart. A hypertonic injection of glucose (ten to sixteen per cent.) given intravenously after the intra-

peritoneal injection causes quicker absorption of the saline solution from the peritoneal cavity and urine excretion increases earlier than otherwise. Postmortem examinations on infants who had received intraperitoneal injections from a few hours before death to weeks previously failed to show any evidence of injury or infection of the peritoneum or abdominal viscera. The advantages of the intraperitoneal method of administering fluid to the dehydrated infant are: (1) Administration of large amounts of fluid at one time. (2) The fluid is quickly absorbed. (3) The method is a simple procedure, it is practical, and permits of repeated injections at frequent intervals with minimum risk to life. By this means one can help tide over the necessary period for readjusting the infant's feeding and gastrointestinal tract.

15. Prevention of Infectious and Contagious Diseases in a Children's Orthopedic Ward.—Walter G. Elmer reports that all the children brought for admission to the orthopedic ward of a general hospital in Philadelphia are examined for any evidence of throat infection, rash on any part of the body, and, in the case of girls, a vaginal discharge. The parents are questioned with reference to any recent contagious disease in the home or school or among the child's playmates. Cultures are made from the nose and throat, and specimens taken from all girl children to be examined for vaginitis. If these latter specimens are pronounced negative by the laboratory, the child is admitted to a probation room for five days. If the child has never been vaccinated, that is done during the first three days. Every child is immunized with diphtheria antitoxin during the same period. By the fourth day all the reports from the laboratory are returned. On the fifth day, after a careful inspection of the child's body, the child is transferred to the ward. Vaginal specimens are sent to the laboratory each week during the child's stay in the hospital. Every bed pan is surgically clean every time it is used. This plan has been entirely successful. It was put into effect in March, 1919, and up to the end of June, 1921, the ward has not once been quarantined.

Journal of the American Medical Association.

August 6, 1921, lxxvii, 6.

1. A Plea for the Early Recognition of the Symptoms of Urologic Lesions. R. F. O'Neill.
2. Current Progress in the Science and Practice of Anesthesia. J. T. Gwathmey.
3. The Acapnia Theory, Now. Yandell Henderson, Howard W. Haggard, and Raymond C. Coburn.
4. Ethyl Chloride in General Anesthesia: Its Action on the Cardiovascular System; A Classification of Signs of Overdose. Arthur E. Guedel.
5. How Anesthesia May Aid and Protect Surgery. E. I. McKesson.
6. Anesthetic Units of Measurement. Albert H. Miller.
7. The Conservative Treatment of Cervical Lymphatics in Intra-Oral Carcinoma. Douglas Quick.
8. Gastrojejunal and Jejunal Ulcers: Report of Twenty-one Cases. Richard Lewisohn.
9. Pyrethrum Dermatitis: A Record of Occurrence of Occupational Dermatoses Among Workers in the Pyrethrum Industry. Carey P. McCord, C. H. Kilker, and Dorothy K. Minster.
10. Transperitoneal Cesarean Section: High Operation—Copeland Technic. Gordon C. Copeland.
11. The Incidence of Cancer in the Second Breast After Radical Removal of One Breast for Cancer. Alson R. Kilgore.
12. End Results of Prenatal Care. Alfred C. Beck.
13. The Removal of Bile and Blood from the Urine in Performing the Phenolsulphonephthalein Test of Renal Function. C. Sidney Burwell and Chester M. Jones.
14. Diagnostic and Therapeutic Point in Retrocalcaneal Bursitis. A. L. Nielson.

3. The Acapnia Theory, Now.—Yandell Henderson, Howard W. Haggard, and Raymond C. Coburn present the following argument: Everyone admits that after a prolonged anesthesia and operation the blood alkali is diminished. This low alkali is the result either of the acidotic or of the acapnial process. If the former were involved the patient would have died instead of recovering. For in animals in which the alkali reserve has been diminished by intravenous injection of acid, the administration of carbon dioxide does not recall a normal amount of alkali to the blood. It cannot for the alkali no longer exists in the body. Such an animal when treated with carbon dioxide is overwhelmed by the acidosis, and usually dies. In acapnia the respiration is primarily excited; carbon dioxide is blown off, and the alkali falls secondarily as a compensation. If the blood alkali has been greatly reduced a condition of profound depression may continue for hours before the organism succeeds in reaccumulating the needed carbon dioxide and recalling alkali to the blood. Obviously the natural method of treatment is to assist nature to recover the normal equilibrium by restoring the carbon dioxide. This may be accomplished effectively by an inhalation device which the writers hope will soon be available for general trial and use. By means of it any amount of carbon dioxide may be administered to the patient mixed with the inspired air, but with no appreciable degree of rebreathing. That this treatment works effectively and beneficially affords crucial evidence in support of the acapnia theory.

9. Pyrethrum Dermatitis.—Carey P. McCord, C. H. Kilker, and Dorothy K. Minster report the finding of an occupational dermatitis among the workers engaged in the manufacture of pyrethrum insect powder. Chemical analyses have established various constituents having irritant properties. The lesions noted are, essentially, various forms of dermatitis venenata. They are of mild severity and quickly disappear under ordinary treatment. Reexposure frequently leads to recurrence of the disease. This dermatitis may be prevented by the introduction of trade processes that eliminate the necessity of exposure of workers to pyrethrum dust and powder. In the absence of such machinery scrupulous personal cleanliness of the worker is requisite. On starting work in the morning and at noon, cold cream, petrolatum and the like should be applied to the exposed parts of the body. At night the arms, hands, and face should be bathed in water containing sodium bicarbonate, a teaspoonful to a gallon of water, since the irritating substances are probably acid.

11. The Incidence of Cancer in the Second Breast, after Radical Removal of One Breast for Cancer.—Alson R. Kilgore has studied the records of 1,100 unselected breast carcinomas operated upon in the surgical service of the University of California Hospital. The results in 659 cases were known for three years or more after operation. Only 257 of the 659 patients traced were living at the end of three years. A study of the facts brought out in this series of cases indicate that the patient who has had one breast amputated for cancer is, if she survives five years, from three to four times more likely to develop cancer in the second breast than a normal woman of the same age in either of her two breasts. The majority of cancers in second breasts, arising three or more years after the first operation, behave, clinically at least, like primary new growths—not like metastases from the cancer in the first breast. These facts demand recognition, either in the form of prophylactic removal of the second breast or redoubled care in observation of the second breast after operation on the first. The records in this series suggest that if the 257 women living three years after the first operation had submitted to prophylactic resection of the second breast, twelve cancers and ten deaths from cancer in the second breast would have been prevented. One patient in five had no involvement of the axilla at the time of the first operation, and if these patients had their second breasts excised, three out of four cases of late cancer in the second breast would be prevented. The writer states that the object of his paper is distinctly not to lay down as a surgical principle the prophylactic removal of the second breast, but simply to bring out the fact that the increased incidence of cancer in the second breast is sufficiently interesting to demand attention.

13. The Removal of Bile and Blood from the Urine in Performing the Phenolsulphonaphthalein Test of Renal Function.—C. Sidney Burwell and Chester M. Jones call attention to the fact that bile and blood are two common sources of color in the urine that render the phenolsulphonaphthalein test of renal function inaccurate. The method which they describe removes both bile and blood. It consists of the precipitation of bile and blood by zinc acetate and their removal by filtration. This procedure permits practically 100 per cent. of the phenolsulphonaphthalein to remain in the filtrate. This modification of the usual phthalein test is extremely simple, and should prove particularly applicable to cases of choluria and hematuria in which a study of the renal function is indicated.

The Lancet.

July 16, 1921, cel, 5107.

1. Croonian Lectures on the Objective Study of Neuroses. F. L. Golla.
2. Lumleian Lecture on Some Points on the Etiology of Skin Diseases. Arthur Whitefield.
3. A Note on the Mortality of Premature Infants. Thomas Watts Eden
4. A New Method of Exposing the Supra-and Infra-clavicular Regions. N. A. Dobrovolskaya.
5. Two Cases of Acute Hemorrhagic Pancreatitis and One Case of Pancreatitic Abscess. Alwyn T. Compton and Frank Heber
6. Acute Pancreatitis, Followed by the Development of Pancreatic Cyst, Recovery. Robert B. Carslaw.
7. Maternity Homes. Dr. Janet M. Campbell.

1. Objective Study of Neuroses.—F. L. Golla points to the fact that through our concentration on the cerebral aspect of mental activity we have been slow to perceive that the body partakes in the movements that express this activity, and that by ignoring these bodily signs the possibility of establishing an objective standard in our interpretation of neurotic disturbance is, to a great extent, lost. The point of view that he deals with in these lectures has for its object an attempt to define in objective terms the chief data that may lead us ultimately to formulate the nature of the physical disturbance of mechanism that constitutes the primary factor in the neuroses. That such a physical disturbance is the cause of the neuropathic condition and precedes its manifestation he holds very strongly. One fact emerges from all the investigations that have been conducted in recent years by the methods of analytic psychology, and that is that in the vast majority of cases the experiences of the neurotic differ in no way from those that fall to the lot of ordinary healthy men. The data furnished by the war are cited to the contrary, but they really furnish irrefutable evidence that an organic disturbance or failure of organic equilibrium preceded the neurotic symptoms and could not have been caused, however much it may have been aggravated, by the individual experiences, because millions of men were exposed to the same conditions, yet only a small number were brought to our hospitals suffering from a neurosis. Thus Golla thinks we are justified in assuming that an organic disability exists as an antecedent to every neurosis, and in employing methods for objective evaluation of organic efficiency in looking for it. Such study must be conducted along many lines of observation, but broadly speaking there are two methods at our disposal—the study of conduct and the study of specific bodily reactions or movements. The movements which he has studied and discusses are of two types—those which are the exterior manifestations of the specialized response of certain nervous mechanisms, and those which connote the generalized reaction of the body as a whole to stimuli which disturb or threaten the unity of vital action. Thought as a mode of movement, the connection of muscular tension with intellectual or physical effort, and measurements of alterations of muscle tonus, effort in connection with head movements, respiratory movements and circulatory reaction are discussed for the purpose of giving some brief account of the movements that are the objective expression of effort.

3. A Note on the Mortality of Premature Infants.—Thomas Watts Eden presents data based on the analysis of statistics from six different institutions from which three points of interest are gleaned: (1) Babies born at 36 weeks or 37 weeks in one hospital are on an average nearly a pound heavier than those born during the corresponding week in a second hospital. (2) Babies born prematurely vary in length and weight to as great, or perhaps to a greater, extent than do babies born at term. (3) The relationship between length and weight is subject to very wide variation; premature babies may be long and light, or slight and heavy. It has been suggested by Frank that the ratio of length in centimeters to weight in grammes is different in mature and premature babies. The writer has tested Frank's formula over a large number of cases and does not find it reliable. These figures show that from 30 to 45 per cent. of premature babies die in lying-in hospitals, and if a selection is made of those babies which have no obvious disability in addition to their prematurity, less than two-thirds survive their third week. The percentage of mortality of these selected premature babies during this first period may be anything from 35 to 50 times as great as that of mature babies born under the same or similar conditions. The figures as would be expected show how rapidly the mortality rate falls from the thirty-fifth to the thirty-eighth week. A comparison of these statistics with those of Budin show that his results 20 years ago were as good as our own to-day. The need of following up premature infants after they leave the hospital is emphasized. Budin presented figures showing that his premature babies had as good a chance of survival as normal babies, so long as they were breast fed, but if bottle-fed they did very badly, the mortality in the latter case being nearly three times as high as in the former. The unsatisfactory results at present obtained in the management of premature babies should induce all who are concerned with the lying-in hospitals to consider the whole matter afresh.

British Medical Journal.

July 16, 1921, No. 3159.

1. Observations on Malignant Granuloma of the Nose. Robert Woods.
2. Infective External Hydrocephalus ("Shifting Epilepsy"). Cecil E. Reynolds.
3. Treatment by Asthma by Autogenous Streptococcal Vaccines. Leonard Rogers.
4. Transfixion and Impalement Injuries. W. F. Brook.
5. The Physical Basis of Social Inefficiency. R. J. A. Berry.
6. A Plea for More Frequent Use of Cesarean Section. With a Description of a New Operation. Arnold Jones.

1. Observations on Malignant Granuloma of the Nose.—Robert Woods reports two cases of a disease which he believes has hitherto been undescribed. The first case was that of a man 68 years of age. On examination, the bridge of the nose was sunken just below the nasal bones. Both sides of the nose were filled with fetid crusts, the cartilaginous septum was gone, some of the soft tissues were deficient, and the walls of the nose in a condition of ulceration. The patient was well nourished, no glands were enlarged, and the condition was strictly a local one. The Wassermann reaction was negative and anti-syphilitic treatment had no obvious effect. It seemed as though a wave of granulation tissue advanced irregularly into health parts, breaking down behind as it advanced in front, so that there was never any great depth of pathological growth present. The patient lived for four and a half years after coming under observation. The discomfort of the condition as it progressed was never sufficient to require the use of anodynes. Repeated efforts were made to discover some organism to which blame might be attached, but always without success. *X*-ray treatment was ineffective. The second case was quite similar except that a clinical cure was effected by application of radium tubes. The case was seen by a number of the writer's laryngological colleagues, who confessed that it was unique in their experience. The presumption is raised that the granulation tissue, instead of being an evidence of attempted healing, is itself the primary cause of destruction. Until we understand what is meant by a cell taking on malignant action we cannot doubt that what happens to one kind of cell may happen to another, and if we can have a malignant epithelioma, why not malignant granuloma?

3. Treatment of Asthma by Autogenous Streptococcal Vaccines.—Leonard Rogers during the past seven years has used this method extensively in Lower Bengal, which is notoriously unfavorable to asthmatic patients. Forty cases of well-marked asthma are included in the series. The method used consisted in simply making cultures from the sputum, subculturing a number of colonies of streptococci, including any short chain pneumococci, and making up a vaccine of the strength of 100 millions in 1 c.c. The initial dose was ½ to ¼ c.c., and as soon as no reaction ensued larger dosage was gradually increased. The treatment usually had to be continued for two or three months and sometimes longer. In 15 per cent. of the cases the treatment failed to give material relief of a lasting nature. In 32.5 per cent. great relief was afforded, but it was either not permanent or it was incomplete. In 52.5 per cent. the patients remained well when last heard from, one-half to four years after the treatment. The results seem to be due to immunization against the streptococcal group of organisms which is a common

excitant of asthmatic attacks in persons liable to them.

6. A Plea for the More Frequent Use of Cesarean Section. With Description of a New Operation.—Arnold Jones describes an operation which he has devised with a view of leaving a scar which he believes will stand the strain of future pregnancy. It is based on the fact that there are three layers of uterine muscle, the outer and middle layers of which are easily differentiated during pregnancy. The superficial layer is incised transversely just below the center of the body in front and 2 inches above Bandl's ring. The superficial layer is peeled free from the middle layer. The middle and inner layers are incised longitudinally, the line of incision chosen being that which is most free from blood vessels. This is usually but not always the midline. After delivery of the child and placenta the incisions are closed by continuous No. 4 catgut sutures. The two scars not only run at right angles but are not opposite one another.

Western Medical Times.

June, 1921, xi, 12.

1. Surgical Rejuvenation and Sex Gland Implantation. Thomas Webster Edgar.
2. Twentieth Century Baldness. Charles F. Pabst.
3. Principles and Methods in the Sippy Treatment of Peptic Ulcer. W. H. Foreman.
4. The Proposed Tax on Sales. Frank Parker Stockbridge.
5. Nail Biting. John C. Warbrick.
6. Letters to a Young Physician. Alfred Kahn.

2. Twentieth Century Baldness.—Charles F. Pabst applies this term to premature baldness. Prophylaxis is of vast importance, and consists of daily brushing of the hair and well-regulated habits of hygiene. If the hair is dry, he recommends a few drops of liquid vaseline applied every third day. Wetting, other than with a properly ordered shampoo with soap and water every three weeks, singeing, cutting, or shaving, the application of electricity, and undue exposure to sunlight are not beneficial and may be harmful. Exposure to natural sunlight should be undertaken only when the sun's rays are properly regulated, and under the direction of a competent physician. General treatment involves tonics and exercise, drinking, eating, and mental effort in moderation. The point is made that baldness is not as common in vegetarians as in meat eaters. Local treatment embraces soap and water shampoo, using mild, non-medicated soap every three weeks, and gentle digital massage every day. The local applications vary according to the condition of the patient's scalp. The writer usually begins with a 10 per cent. precipitated sulphur ointment, followed, when the hair ceases to fall, by a mild, stimulating lotion, gradually increasing the strength until the desired action is obtained.

Long Island Medical Journal.

June, 1921, 15, 6.

1. A Review of the Value of Blood Chemistry. Esmonde B. Smith.
2. Purpura, Erythema, and Urticaria with Visceral Lesions. H. M. Moses.
3. An Historical Review of Health Department Activities. Frank J. Monaghan.
4. Prognosis in Nephritis. H. G. Webster.
5. Chronic Splenomegalic Hemolytic Jaundice. Hartwig Kandt.

4. Prognosis in Nephritis.—H. G. Webster discusses the varied and picturesque classification of the nephritides, and says that after all the question is not whether the patient is suffering from acute nephritis, or from subacute nephritis, or from chronic nephritis with edema but if he will recover from his present condition and how long he will live. In analyzing the case of any patient in whom the presence of casts or albumen, or blood elements in the urine has attracted attention to an inflamed kidney we must consider not only the chemical and microscopical condition of the urine, but the blood chemistry and the subjective and objective symptoms of the patient, and more particularly the changes in the heart and blood vessels. It is in the proper estimation of these factors and their relation to one another that the present state and future probabilities of the individual depends. Because in many cases the blood pressure is high one must not fall into the fallacy of regarding high blood pressure as an essential symptom, because many fatal cases show low blood pressure. Because albumen and casts are usually present one must not feel too well assured of a harmless condition if albumen and casts are not present, for fatal cases with this finding are by no means rare. Because of extensive edema one should not despair of the patient's condition, because such cases sometimes clear up completely and make a clinical recovery. For purposes of clinical study it is well to group cases according to the length of time that symptoms have been present; according to the age of the patient; according to the presence of disease of other organs, and according to the intensity of the symptoms. Though this is a loose and elastic method, it serves as a point from which to start. There is one distinct picture which should be excluded from among the nephritides where it has long been placed, and that is the considerable group of people of advanced years who show a constantly high blood pressure, ranging about 200, with the passage of large amounts of watery urine of low specific gravity, containing an occasional trace of albumen; hard and tortuous arteries; more or less compensatory cardiac changes, and some evidence of nervous instability. In spite of their disability they live to a ripe old age. In diagnosis there is sometimes failure to appreciate the frequency with which anorexia, nausea, vomiting, and intestinal gas are associated with nephritis; these symptoms should be regarded as definite finger-posts pointing to the kidney as well as to the gastrointestinal system. Focal infection as a factor in causing kidney inflammation must not be overlooked.

Wiener klinische Wochenschrift.

June 9, 1921, xxxiv, 23

Psoriasis.—Unna gives a terse summary of the history of our knowledge of this dermatosis and its autonomous position, with especial reference to the differentiation of psoriasis and seborrheic eczema. In certain cases this appears almost impossible clinically. The latter appears to represent a gradation between essential psoriasis and dry eczema. Between these two extremes the greatest variability of eruption occurs, which one may term atypical psoriasis or atypical seborrheic eczema, according to the case. An autonomous psoriasis is, therefore, more or less in doubt. From another angle there are analogies between psoriasis and tinea trichophytina, clinical and therapeutic, which suggest a possible mycelial origin of the former. We have long known that psoriasis papules may be produced artificially—for example, by scratching—which suggests inoculation with some microorganism. The behavior of erythema multiforme, however much it suggests a parasitic origin, has always lacked the serpiginous component seen in known parasitic affections. A placque grows peripherically as it clears in the center and several rings may coalesce to form characteristic patterns, but, as stated, there is none of the serpiginous extension seen in known parasitic affections. But in psoriasis we see serpiginous extension. There is, in fact, abundant evidence that psoriasis cannot owe its patterns to vascular or nervous influence. Quite suggestive of the parasitic origin is the apparent lurking of the causal agency in unhealed lesions from which new infection constantly occurs; and success in treatment is bound up in the thoroughness with which these foci are sought out and cured and in the care of the skin from a prophylactic standpoint. In the case of psoriasis universalis, conditions are unfavorable, especially as our best remedies, pyrogallol and chrysarobin, are not applicable on so great a scale. The hands may be treated with pyrogallol in the possible hope that autoinfection may be antagonized. The body at large may be treated with a mixture of chrysarobin, salicylic acid and ichthyol, but only for a short time or until a certain inflammatory reaction is produced. A zinc sulphide paste is then used to follow up, and the skin should clear up, with the exception of certain obstinate lesions, which should receive intensive treatment. When the subject seems clean, the skin should be anointed with a prophylactic ointment or oil containing salicylic acid, white precipitate, or other antiparasiticide.

Book Reviews.

MENTAL DEFICIENCY (AMENTIA). By A. F. TREDGOLD, M.D., F.R.S., Edin., Fellow of the Royal Society of Medicine; Consulting Physician to the National Association for the Feeble-Minded; Consulting Mental Specialist to the Willesden Education Authority; Vice-President Central Association for the Mentally Defective; Formerly Lecturer at the Medical Graduates' College, London; Medical Expert to the Royal Commission on the Feeble-Minded; Research Scholar in Insanity and Neuropathology of the London County Council and Assistant in the Claybury Pathological Laboratory; Resident Clinical Assistant in the Northumberland County Asylum, etc. Third Edition, Revised and Enlarged. Price, $6.00. New York: William Wood & Co., 1920.

THE second edition of this book was exhausted in 1915; but in this, as in many other instances, the war interrupted plans for further revision. Now, however, we have the third edition, thoroughly revised and brought up to date, with some parts entirely rewritten. The text is arranged in twenty-two chapters dealing, respectively, with the nature of mental deficiency; incidence; causation; pathology; classification; neurophysiology and psychology; the physical characteristics of amentia; feeble-mindedness in children (mentally defective children); feeble-mindedness in adults; imbecility; idiocy; clinical varieties of primary amentia; clinical varieties of secondary amentia; "idiot savants"; insane aments; vicious and criminal aments; moral imbecility; mental tests and casetaking; diagnosis and prognosis; treatment and training; the law of England concerning amentia; sociology. An appendix is devoted to nomenclature, embracing tables of synonyms, normal development data, and anomalies associated with amentia. A frontispiece and twenty-nine plates illuminate the text.

VENEREAL DISEASES, Their Clinical Aspect and Treatment. With an Atlas of 106 Color and 21 Half-tone Illustrations. By J. E. R. MCDONAGH, F.R.C.S., Surgeon, London Lock Hospital; Late Hunterian Professor, Royal College of Surgeons, Etc. Price, $20.00. London: William Heinemann; St. Louis: C. V. Mosby Company.

THIS is a noteworthy book in several respects—its size and handsome appearance, the great number and beauty of its illustrations, its exhaustive treatment of the chief venereal infections, and the fact that it has no preface. The author, as is known, disputes the generally accepted views regarding the pathogenic microorganism. He accepts the *Spirochæta pallida*, but holds that it is merely the adult male of a coccidial protozoon *Leucocytozoon syphilidis*. He also holds that the Wassermann reaction "is simply a physical reaction dependent upon the increased number and size of the protein colloidal particles in the serum, and that salvarsan destroys the parasite only indirectly by increasing the oxidizing action of the host's protective substance." Thus he opposes the three alleged discoveries of Schaudinn, Wassermann, and Ehrlich, which he calls the "German syphilitic trinity." The proof of these views is not attempted in the present volume, which is purely clinical, but is promised in a special pathological volume to be published shortly. The practical application thereof is, however, made in the text of the present volume—for example, in the description of the mode of formation of the primary sore (p. 13), the rationale of conceptional syphilis (p. 253), explanation of the escape of the nervous system in many cases of syphilis (p. 113), etc.

In spite of these somewhat heterodox views regarding the causal agent in syphilis, the author's method of treatment is eminently orthodox, even though not altogether conventional. He employs the arsphenamine group of remedies, but does not rely upon them exclusively, making use of mercury, sulphur preparations (intramine), and colloidal iodine. The latter, he claims, breaks up the colloidal protein particles in the blood serum into smaller ones, thereby increasing their receptivity for the arsphenamine.

The author also treats of gonorrhea and chancroid very thoroughly and satisfactorily so far as regards their symptoms and treatment, though, as in the case of syphilis, he does not take up the pathological or microparasitical aspects, which are reserved for a special volume.

INFECTIOUS DISEASES. A Practical Text-book. By CLAUDE BUCHANAN KER, M.D., Ed., F.R.C.P. Ed., Medical Superintendent, City Hospital, Edinburgh, and Lecturer on Infectious Diseases to the University of Edinburgh, Major, R.A.M.C., T.F. Second Edition. London: Henry Frowde, and Hodder and Stoughton; New York: The Oxford University Press, American Branch. 1920.

THE first edition of this work appeared in 1909, and the second edition was scheduled for 1914. The war interfered with the publication, at that time, of the revision, and in the meantime so much work has been done in the field of infectious diseases that the second edition, as it now appears, involves extensive alterations and additions, and the remitting of several portions. Like others of the Oxford Medical Publications, the book is excellent with respect to paper, typographical display, illustrations, and binding. The text comprises 609 pages, and includes 32 plates and 68 charts. The fifteen chapters include an introduction which deals with bacteriology, infection, the incubation period, and other subjects common to all infectious diseases; measles, rubella, scarlet fever, smallpox, vaccinia, chicken-pox, typhus fever, enteric fever, diphtheria, erysipelas, whooping-cough, mumps, cerebrospinal meningitis, and fever hospital problems.

BLOCK ANESTHESIA AND ALLIED SUBJECTS. With Special Chapters on the Maxillary Sinus, the Tonsils, and Neuralgias of the Nervus Trigeminus for Oral Surgeons, Dentists, Laryngologists, Rhinologists, Otologists, and Students. By ARTHUR E. SMITH, D.D.S., M.D., Oral Surgeon to Francis Willard Hospital and to House of Good Shepherd, Chicago. 595 Illustrations. Price, $15.00. St. Louis: C. V. Mosby Company.

THIS great book of 895 pages is devoted to the subject of local anesthesia in all its uses and relations. While simple local anesthesia, in its usual significance as distinguished from block anesthesia, receives full and satisfactory consideration, it is, as the title implies, to the latter as employed in dental, oral, and facial surgery that the larger part of the work is devoted. A brief introduction gives the history of surgical anesthesia in which the claims of all the aspirants are set forth, but the prize for prior demonstration and publication is conceded to Morton.

The description of the technique for blocking the various nerves preliminary to tooth extraction or filling, to resection of the jaw, tonsillectomy, and various operations on the face and neck is given in great detail and nothing is left to the intuition or the guessing of the young operator. This is a special feature of the work and one that will render it of extreme value to the dentist or surgeon, in rural disticts especially, who has to do his own anesthetic work or see that it is properly done by a perhaps insufficiently trained assistant.

Two chapters are devoted to accidents and post-anesthetic complications such as broken needles, hematoma, after pains, syncope, and shock. The book is well printed and the numerous illustrations are a delight to the eye as well as extremely serviceable in making clear every step in the innumerable blocking operations.

KLINIK UND THERAPIE DER MALARIA. Von Dr. EMMERICH WIENER (Budapest), der zeit k. u. k. Oberarzt, Abteilungschefarzt. Berlin und Wien: Urban & Schwarzenberg, 1918.

THIS pamphlet presents a fairly extensive study of the several clinical forms of malaria with a discussion of the differential diagnosis of the disease and its treatment. It is deficient on the pathological side not only in the description of the organ lesions which occur in the disease but also in the changes which have been noted in the blood. The discussion of these factors is so brief as to have but little value. The symptomatology, on the other hand, is quite fully presented, and therapy also is fairly well written up. It is doubtful if this booklet would find much favor in this country, since there are a number of articles on the disease, written in English by American physicians, which are quite as complete and much more readily available.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Eighty-ninth Annual Meeting, Held at Newcastle-on-Tyne, July 15-23, 1921.

(Special Report from Our London Correspondent.)

Hospital Management.—The representative meeting was under the presidency of Dr. GARSTAN. A series of resolutions were discussed with regard to the methods which should be adopted in the conduct of hospitals in the future. Mr. Bishop Harman moved these resolutions on behalf of the council. The first proposal declared that the voluntary method of administration of the voluntary hospitals was to the advantage of the public, of medical science, and of the medical profession and that it should be maintained. Mr. Harman pointed out that the essence of the voluntary system was the independence of administration. Dr. E. Rees remarked that the council were asking them to pass a resolution which was not expressing the exact truth. The voluntary method could no longer preserve the hospitals in the necessary state of efficiency. A great bogy had been brought before medical practitioners. It was very popular with those who objected to an endeavor to put things on a communal basis, because it condemned anything in the nature of what was called socialism. As an educated body they ought to be above that sort of thing. Dr. Fleming said that the experience of public authorities was that they had not got the hospital spirit and the desirable appreciation of scientific work and research. The motion was carried.

The subject of the free treatment of poor patients was then dealt with, and it was resolved that inability to pay for adequate treatment should be the consideration for the admission of all patients for hospital treatment. Dr. Rees said that all people who were admitted to hospitals free should be admitted as citizens. The old idea that they were to be regarded as paupers was horrible. Every citizen should have the right of admission to a national hospital for treatment. The idea that they should be objects of charity was abominable. Another resolution was carried stating that it was undesirable that the voluntary hospitals should be subsidized by the local rating authorities, except in so far as payment was made for the examination and care of patients for whom those authorities were responsible. A resolution was also brought forward advocating that the government should subsidize voluntary hospitals when they were in financial difficulties proportional to the income received by the hospital from voluntary and other contributions. It was further affirmed that greatly extended support for voluntary hospitals should be sought from employers and insurance companies, seeing that they benefited largely, both directly and indirectly, by the services of the voluntary hospitals. Another resolution passed declared that every patient of a voluntary hospital, who was able, should make a contribution, during treatment, towards maintenance, unless the contributory method of subscription was adopted as essential in industrial areas, and that in view of the increased cost of maintenance the contributory rates paid by workmen should be materially increased. Yet another motion adopted was that where voluntary hospitals provided accommodation for paying patients no fixed rate of payment for professional services rendered to such patients should be established. The fees so payable should remain, as at present, a matter of arrangement between the patient, the family physician, and the consultant.

The meeting on the recommendation of the council, adopted a resolution maintaining that the essence of the voluntary system was the independent and voluntary management, and that this was in no way related to the conditions of service of the medical staff.

Poverty and Tuberculosis.—The question of poverty as a means of raising the rate of tuberculosis mortality was one of the most interesting matters discussed.

Dr. B. G. BASKETT, in introducing the question drew attention to the slackening of the fall in tuberculosis mortality in Great Britain from 1896 onwards, culminating in an actual rise in the death rate after the insurance act, and suggested that the council be instructed to institute an inquiry into the effect of the act upon the nutrition of the poor. The national mortality from tuberculosis, he said, depended upon the rate of real wages. He had been studying the subject for twelve years, and had never yet found a case where a rise in the death rate had not been preceded some three years previously by a fall in real wages nor had he seen the converse. Tuberculosis mortality was a very sensitive index to economic conditions and unless wages were raised, he declared that the death rate would not fall. For a long period, from the forties down to the end of Mr. Gladstone's life, there had been a continued fall in the death rate of about 200 per million, and Mr. Gladstone saw it fall during his lifetime by 2,000 per million. Then came a rise, and now the rate was going down again. If the rate had continued to fall at the same rate as during Mr. Gladstone's life, there would now only have been 400 deaths per million instead of 1,000 as was actually the case. That meant that 600 lives per million were at present being wasted. If it depended upon real wages, then he contended that the problem for the statesman was to raise real wages, in other words to act so that prosperity might be diffused. But he asked if this was achieved by the insurance act.

Narcotic Drugs.—Commenting upon the draft regulations of the Dangerous Drugs Act, 1920, Dr. TURNER said that the association took very prompt action immediately these regulations were put forward. As a result of their action a committee had been set up after many points definitely decided by the Home office, and practically the whole of the objections raised by the medical profession had been sustained. The original draft required practitioners to keep in special books records of all purchases and supplies of the drugs, morphine, cocaine, ergonine, heroin, and medicinal opium, and these records were to be open at any time to inspection, presumably by the police. Apparently, a separate set of books would be required at each branch surgery and call house. A prescription in writing was to be given whenever the drugs were ordered. The name and amount of the drugs was to appear on any bottle or package containing the drugs. The draft regulations, seemingly, placed quite unnecessary difficulties in the way of the drugs being got by patients or used by doctors, and showed an astonishing ignorance of the conditions of practice.

The General Meeting was held on the evening of July 19.

Sir CLIFFORD ALLBUTT, the retiring president, in relinquishing his office said that in the performance of his duties during the past five or six years the reward had been his, first, because of the great advantages he had derived from the friendship of those connected with the association, and secondly, in having been allowed to see from the inside the working of the association. He then introduced the new president, Professor David Drummond.

The President's Address dealt with the future of the medical profession, the right of medical practitioners to claim post-mortem examinations as the only true means of insuring accuracy in diagnosis, an admittedly revolutionary suggestion, which, to become effective would require the endorsement of a public opinion at present dominated by prejudice, was one of the outstanding proposals for the advance of surgery put forward by Dr. Drummond. He pointed out that diagnosis, at present, was in very many cases only a matter of opinion, which must remain in doubt unless cleared up by an autopsy. In making that statement, however, he trusted it would not be thought he was casting any blame upon the doctors, for the marvel was that the opinion expressed was so often correct. A prominent member of the profession had recently said to him that the one thing above all others calculated to elevate and generally improve the standing of the general practitioner was opportunity for post-mortem verification or the contrary of his expressed opinion, and the speaker insisted that we should be entitled to claim, with the knowledge that we should not be denied, a post-mortem examination. Revolutionary it certainly would be, Dr. Drummond went on to say, but what an enormous gain to have our doubts set at rest, and it was not too much to hope that before very long both the public and the profession would be educated up to

feel that truth before all things must prevail. It was, perhaps, unnecessary to insist upon the enormous advantage it would be were post-mortem examinations universal. He said there should be in every large teaching hospital connected with a medical school a statistical department, with a highly trained official at its head, whose duty it would be to collect and systematize all returns. At present the returns were grossly inaccurate and therefore many of the deductions were necessarily fallacious, while, for want of a proper system, the waste of what might be called raw material was simply appalling. Observations of interest were being made daily in the wards, post-mortem rooms, and the adjacent pathological and chemical laboratories of which use was never made. The work in every hospital ward, post-mortem room, and scientific laboratory engaged in the investigation of disease for the purpose of teaching, should be regarded in the light of research. The establishment of whole-time professorships in medicine, surgery, and midwifery would help very greatly to promote this most important side of the teacher's functions.

Dr. Drummond said the profession was not satisfied with the position it occupied in the scheme of national polity. It was evident, he said, that they were becoming an indispensable factor in the government of the country. The state would soon realize the great weight of responsibility that belonged to every medical man, and he was anxious that it should not be left to the state to bring it home to the profession. If a member of our profession was to do his duty by the community and fulfill his professional obligations in a satisfactory manner, he must continue his education during the whole of his professional career. The history of the general practitioner ought to be a record of unvarying progress.

Sir DAWSON WILLIAMS, editor of the *British Medical Journal*, was presented at this meeting with the gold medal of merit of the British Medical Association, in recognition of his distinguished services to the profession. The medal of merit was instituted by the association in 1887, and is awarded by the council only for very distinguished services to the association.

The Ministry of Public Health.—In the Section on Preventive Medicine over which Sir Thomas Oliver presided, Dr. Modlin said that the medical profession had worked for a long time for a Ministry of Health, and had asked that the minister should be a medical man. He was not going to answer the question whether it had been a success from the point of view of the health of the people, or whether the benefits of legislation were commensurate with the enormous cost to the nation. He did not think they could wonder that local authorities harassed by fear of rate-payers and increasing rates, and pressed by government orders, which were continually changing, hesitated to rush in without knowing what they were letting themselves in for. But the health of the people must be the first consideration, and he hoped the section would consider whether the matter was best left to local authorities and private effort.

The Effect of Health Legislation on the Health of the People.—Captain WALTER E. ELLIOTT introduced this discussion. He said that the more one looked into the problem the more one was impressed with the enormous value of prevention as against cure, and so far as could be made out prevention could only me really brought about by the compulsion of some statutory enactment or other. Captain Elliott went into the history of health legislation and declared that the treatment had not advanced in the same degree as had legislation. The death rate and the infantile mortality rate had gone down since 1850 and he did not think that medical skill alone could have brought this about. In no small way it was due to the power of the policeman. The supply of water, first dirty water and then pure water, was one of the examples of legislation's effect on the health of the people. The factory legislation had had an enormous effect, too, and it was largely agitated for and driven home by laymen. Lord Shaftesbury was largely responsible, but not many public monuments were erected to him; and there was not a single portrait of him in the House of Commons, though he had more effect on the health of the nation than fifty of the commonplace busybodies who were glorified there. The compelling hand of the state was in many ways a great evil, but to deal with the manufacturers of the forties (1840 to 1850) no less an authority than the state was capable of tackling the problem. The conditions under which the manufacturing population were allowed to live were still reflected in the North. The South was still better than the North in the matter of children. There was at present a great wave of feeling against state interference of any kind; but it would be fatal and tragic if it allowed any to despise or ignore the great results which had come about from public health legislation in the past. The lay population had forgotten the benefits, and they resented the shepherding to which they were going to be subjected. It was interesting to note that diseases which had been regulated had lessened, while other diseases had not diminished proportionately. Measles, for instance, was responsible for 9,000 deaths in 1871, and the mortality was still 9,000 a year. Dealing with the statistics for tuberculosis the speaker said he had tried to find reason for the rapid post-war fall. It was said by some that the influenza epidemic which swept the country like a broom, cleaned out all the weak chests; but the fact remained that nonpulmonary tuberculosis had declined also. There was the great wave of unemployment, 22 per cent. in May, and the vital statistics of this country were not apparently suffering to any great extent at the present time, but there were four million producers not producing, and the debility and starvation diseases were not showing themselves to any great extent. In conclusion he asserted that legislation had done enough to warrant them continuing on the same path.

The Importance of Industrial Medicine to the Community.—Professor E. I. COLLIS introduced, in the Section of Preventive Medicine with Industrial Diseases, a discussion. He said that previously the public came in contact with the profession only in case of illness. Questions affecting the maintenance of health were impersonal and left to the public service concerned with the water supply, drainage, etc. More recently, however, the personal note had been sounded in relation to maternity and infant welfare, school medical service, and venereal clinics. Adult life was just touched, but generally speaking, means had yet to be found for bringing preventive medicine into direct contact with the adult. For this purpose industry, which gathered the adults together, provided the means. The points were, whether the community would benefit, if industry shouldered the responsibility and whether industry itself would benefit. The benefits to both were closely interlocked. Regarding the health of the industrial population, army recruiting data showed that only 36 per cent. of the male adults were classed Grade I. The miner and the agriculturist provided higher proportions than any other industrial groups. The peculiarities of industrial disease were important in drawing attention to the influence of occupation upon health. Industrial medicine was recognized to be directly aimed at preventing disease and maintaining health. The state was undertaking to bring up to adolescence healthy individuals. Employers must in turn maintain that health. The state strove to instil the principle of health up to adolescent life. The youth passed into some occupation, and found no attention paid to health and its maintenance. There were immense possibilities in industry. A standard set by the capitalist would spread from the factory to the home. The drift of workers from one place of employment to another was now recognized to be a heavy economic burden upon employers and employed. Various calculations in America and elsewhere placed this labor turnover at a figure which in some cases attained to 400 per cent. The high labor turnover was unnecessary, as had been shown both in the United States and here; it fell to 30 per cent. where medical supervision of entrants and hygienic conditions of employment existed. This would mean a saving of seventy million pounds a year. Careful inquiry had established that the underlying cause at the back of lost time was either certificated sickness or that condition of lowered health which preceded sickness. Various estimates of lost time had been made. In some cases it amounted to 20 per cent. of total possible hours; but when health conditions were favorable it might

fall below 4 per cent. An average of 10 per cent. probably was not excessive for half the employed population, while 4 per cent. might be taken for the other half.

Industrial Hygiene: Its Rise, Progress, and Opportunities.—Sir THOMAS OLIVER gave an address on this subject. He said that industrial hygiene might have merged out of Parliamentary interference with the claims of employers to utilize labor almost to its breaking point. Occupation was never meant to cripple workmen, cause ill health, or induce early death. It was thus that medicine was drawn into the social movement, in which it played an honored part today. Within the past few years the scope of industrial hygiene had widened. Today industrial hygiene was no longer the affair of one nation, but of all the advanced nations. The creation of the International Labor Bureau had raised industrial medicine to a higher platform. Medical examination of workers before commencing their industrial career would no doubt create hardships, but the ultimate gain would transcend all these. After discussing lead poisoning, phosphorous poisoning and fatigue, the speaker said in conclusion that since industrial medicine had come to stay, facilities would in the future have to be provided to medical students and young graduates to become familiar in a practical manner with its objects. The prosperity of the nation was intimately bound up with the health of the people who composed it. Preventive medicine had, practically speaking, swept the British Isles clear of typhoid fever and considerably reduced the mortality of diphtheria. What it had accomplished on the side of public health it could also accomplish in regard to occupational disease. There was a psychology of industry just as there was a physiology. Psychology was no longer simply "the science of mind or soul" but "the science of the facts of human nature and behavior," and there was no department of human activity which offered greater scope for its study and application than industry. Employers no longer regarded "industrial hygiene" as something to be turned down on the ground of its interference with labor and the conditions under which it was carried on. They recognized that it introduced into industry just that something with a touch of humanity in it which softened the asperities of labor, made occupation more healthful, and tended to bring employers and employed into closer touch with each other. Had it not been for "welfare work" carried on during the years 1914 to 1918 the enormous production of munitions could hardly have taken place and without it the war would have been lost.

AMERICAN THERAPEUTIC SOCIETY.

Twenty-second Annual Meeting Held in Washington, D. C., June 3 and 4, 1921.

First Day—Friday, June 3.

(*Continued from page 303.*)

The Prevention of Venereal Disease.—Dr. THOMAS E. SATTERTHWAITE of New York presented this paper. (See page 311.)

Dr. JAMES M. ANDERS of Philadelphia said that prophylaxis in venereal disease was essentially a medical question and that from the medical profession must emanate efforts to solve the vexed problem. This being unquestionably true, they should realize their responsibilities, more particularly since, as Dr. Satterthwaite had just emphasized, these diseases had been more prevalent since the World War than prior to 1914. It had been thought that the prevention of venereal disease could be dealt with by Boards of Health, *e. g.*, by making notification compulsory, etc., but it had been shown in Philadelphia and elsewhere that notification was not practicable and could not be enforced at present. He had been a member of the Board of Health for eight years. Three years ago the venereal diseases were placed on the list of notifiable complaints, but it soon became apparent that neither the public nor the physicians, more particularly the urologists, were in sympathy with the plan and therefore it was almost totally disregarded. There was, however, a small class of cases to which Dr. Satterthwaite had incidentally referred, in which this regulation had worked well, namely, the class composed of those who were refractory and would not remain under treatment until cured. These cases were reported to the chief medical inspector, Dr. Cairns, who insisted that they either return to their medical adviser or be sent to an institution. This was good so far as it went, but it did not meet the main problem of venereal disease prevention. As Dr. Satterthwaite had intimated, public prostitution was the greatest danger and it had to be controlled by law enforced by the military and civic authorities. The medical profession, however, had a clear and patriotic duty to perform and the same was true of medical bodies such as the American Therapeutic Society, for they should instruct not only the public but military and civic authorities in this class of complaints and how best to accomplish their prophylaxis. The general public was not sufficiently informed in regard to the prevalence and the grave, far-reaching dangers of these loathsome affections, and this information should be spread not only by the medical profession but by military officials and the boards of health. The latter had been carrying on a pretty active propaganda along this line, but unfortunately this reached mostly the medical profession. Dr. Anders said he strongly favored the teaching of sex hygiene in the schools and colleges, and this instruction should include emphasis on chastity upon which Dr. Satterthwaite had insisted. The general public should be impressed with the fact that chastity is not hurtful to either man or woman. That was an aspect of the subject which had been sadly neglected in the past. Men very often exposed themselves to risk through ignorance, and it would seem that the medical profession was somewhat at fault in not having sufficiently emphasized the importance of chastity among young unmarried men. He felt that as individuals and as an organization it was their duty to speak frankly to the public and inform them of these facts and of the great prevalence and far-reaching dangers to life in connection with venereal infection. As Dr. Satterthwaite had said, there was in London a society for the prevention of venereal disease. That society did not attach much influence to moral suasion, but it did insist that all who would persist in exposing themselves to risk should purchase, carry, and use a simple disinfectant which had been found to be efficient in warding off venereal infection. There could be but one opinion on that point, namely, that the advocacy of such methods must encourage rather than diminish prostitution. Dr. Satterthwaite had dealt with the subject in a very masterful fashion and the paper deserved to be widely circulated and appreciated.

Dr. SPENCER L. DAWES of New York said that Dr. Satterthwaite's presentation of the great dangers in public prostitution and also of the prevalence of venereal disease among aliens had impressed him very forcibly, and it might interest the society to hear a statement regarding these two points as related to the hospitals for the insane in the state of New York. It was a very remarkable fact that the greatest ratio of general paresis in the state hospitals in New York today was found among the Italians, and greater among women than among men. That was a very appalling and dreadful statement to make, but in a way it could be explained. There had never been a record anywhere of such a rapid syphilization of a race as among the Italians coming to this country, and it was because of the fact that so many of the Italian men came to this country alone, without their wives and without their sweethearts; they stayed for a time and were exposed to public prostitution, and contracted syphilis, and then later sent for their wives and sweethearts and conveyed the disease to them, and in that way we had the spread of the disease, the incubus falling upon the Italian women.

Dr. JACOB DINER of New York said that the subject presented by Dr. Satterthwaite was of equal importance to that of alcohol, if not greater, and he thoroughly agreed with Dr. Satterthwaite and Dr. Anders that it was primarily a matter of education. He desired, however, to emphasize the fact that education should be spread in a broader way even than through the physician, though his influence was necessarily great. We were living in an era of readjustment, in an era of

strife for the single standard. He thoroughly approved of the single standard, but not in the sense in which that was being taken today, of the low standard of the male, but rather of the high standard previously held for the female. Our progressive women of today demanded equal rights with the male. He would prefer to see the restrictions applied to men as they had been applied to women in the matter of sex relations. When a young woman of today selected her life partner, it was not a question of what his previous moral life had been nor what his present physical condition was, but whether he would be able to support her in the style she had been accustomed to at home; that seemed to be the only determining factor in the eligibility of the man. The idea might seem utopian, but he believed that the eligibility of the male should be the same as that of the female, in the chastity and purity and moral character which he brought into the home.

Dr. BEVERLEY R. TUCKER of Richmond, Va., said that he had been asked by Dr. Satterthwaite to discuss the paper, and expressed his accord with the remarks of Dr. Anders. He felt that chastity was an ideal which would not be reached in the present generation although it should be the goal aimed for, but we had to get down to something more concrete and practical if we proposed in any way to solve or help solve the question today. In Richmond they have had very efficient city health regulations, and venereal diseases were reportable by name or number; the physicians could keep the names confidential. Those infected had to stay under treatment until three negative smears were made in gonorrheal cases or until two negative Wassermann tests were made in syphilis. The physicians had responded very satisfactorily to this plan, and the cases which did not return to the physicians were taken up by the city and treated at the public clinic or in the city hospital under restrictions, or in the city jail under arrest. In that way the majority of the cases had been gotten under control. An infected man was asked to tell where he got his infection, if he could. If he did not know, he was excusable, but most of them would tell. Sometimes several men would report on the same female, and then she was located and taken in charge. Of course the plan did not work perfectly, but it had lessened very greatly the prevalence of venereal disease in Richmond, where a third of the population were negroes who were very hard to manage under this regime, for very few of them went to a physician. They did not seem to have the disease in a very virulent form, either in the early stages or in the late nerve manifestations.

Dr. JOHN TRAVERS of Baltimore said that the admirable paper of Dr. Satterthwaite was well worth remembering. As a ship surgeon during the war, his own records bore out the statements that had been made. He had been on a U. S. transport taking the troops over and bringing them back, and the percentage of cases of venereal disease in the beginning of the service was over 40 per cent. Whenever they stopped at St. Nazaire or other port abroad, on the return trip, the percentage increased, even among the crew, to 75 or 78. On the last trip, after the armistice was signed, a lot of engineers was brought back and the percentage was something like 92 per cent.

Dr. HYMAN I. GOLDSTEIN of Camden, N. J., said that if the plan of reporting these cases was adopted, complete reports should be made. If they were going to be used for statistical or other purposes the job should be done completely or not at all. Various laws had been prepared and passed for more or less indirect methods of reporting venereal disease, and in many instances they had proved to be more or less of a failure. To illustrate concretely what he meant, he stated that several years ago in the state of New Jersey a bill was passed making syphilis and gonorrhea reportable diseases, to be reported in full—name, address, place of occupation, and if possible the source of the infection. Not long after the passage of this bill he went into an ice cream saloon, and serving the customers was a man with typical secondary lesions on his face, a mucous patch in the mouth and angle of the lips, and lesions on the hands. Dr. Goldstein said he asked the man if he was under treatment and whether he knew that he had a contagious disease, and advised him to see a physician. He then reported the case to the State Department of Health as he was required to do under the law, but nothing further was done. It was impossible to say how many cases of venereal disease that a single patient caused. In another instance, a married man (early marriage did not necessarily prevent the spread of disease and it was principally an economic question) who gave a history of having had a sore throat for two months, and some pain in the chest. He was told to strip, which he very reluctantly and hesitatingly did. He was a well-known business man and had a family of five or six children. However, he stripped to the waist, and on assuming a certain position a faint macular rash was noted under the surface of the skin. With considerable hesitation the man then permitted a further examination and an active initial (genital) lesion was found. Upon being asked how long this had existed, he replied for six or seven weeks, and that he was under the care of two physicians. Dr. Goldstein said that his object in speaking of this case was to show that it was sometimes a question for the physician himself. There was little doubt but that this man had infected some member of his family and the physicians were directly responsible. The Wassermann blood tests were strongly positive, of course. The dark field examination and blood Wassermann tests were not made by the previous medical attendants. The matter, however, narrowed itself down to the practical question of how to handle the subject now. The ideal way, as outlined by the speaker, was certainly the preferable way, but this would take time. His own opinion was that a physician was not opposing the prevention of venereal disease by recommending prophylactic treatment to patients who would not follow out the ideal instructions. He also felt that the reporting of these cases, as was done in New Jersey, was a good thing, but that it should be done thoroughly by all physicians and hospitals. It was a very important economic question. When the necessities of life became cheaper and living conditions were changed and readjusted, the young people might mate sooner, and this would tend to reduce the number of infections, but the main point now was for the doctors to make prompt, careful, and early diagnoses, to advise strongly against extramarital and illicit exposure, and where necessary, to give the information pertaining to prophylactic treatment as has been recommended and carried out in the United States Army and Navy.

Dr. SATTERTHWAITE said, in closing, that mistakes were often made in the diagnosis of syphilis. One of the members present, had a case of aortic disease which he had seen with him in consultation. The possibility of its causation being due to syphilis had not been broached. Later Wassermann tests proved that lues existed. Another of the members had transferred to him for a cardiac lesion, an old lady, a spinster, and well connected. On admission to the hospital a diagnosis of tertiary syphilis was made immediately, by the examining physician. In the rural districts of this country, especially, syphilis was apt to be overlooked by the general practitioner, who often had seen so little of the disease that he did not know its phases. Syphilis existed, he could safely say, in at least one-tenth of our population. In cities and congested localities, the incidence was very much greater, of course. As for the efficacy of quarantine in the matter of public prostitution in military circles, he read a cutting from the *New York Medical Journal* of the fortnight previous, in which a statement was made that under the direction of our Surgeon General, it was tried in a group of about 12,000 men, and following it the incidence was reduced about 50 per cent. This incident confirmed what he had said in his paper, that quarantine in military circles could accomplish a great deal. But what we had to do in the future was to protect both men and women by law. If a man or woman contracted the disease and communicated it to his or her consort, it should be a legal matter. We would probably come to that very soon. He would add a few words about the poor prostitutes. The general idea was that they were purely mercenary women. As a matter of fact, however, there had been many cases, especially abroad, since the war, where women had been forced into prostitution from hunger or destitution. Another point he would make was that these women were not always treated properly

in civil life. It had been intimated in print that public venereal clinics were sometimes conducted in so careless and slovenly a manner, as to suggest that healthy persons, especially women, who happened to be suspected of venereal infection, might actually become infected in the clinics.

Some Practical Observations on Glandular Therapy.—Dr. JAMES M. ANDERS of Philadelphia read this paper. (See page 314.)

Therapeutic Uses of Pituitary Gland Substance.—Dr. BEVERLEY R. TUCKER, of Richmond, Va., presented a communication with this title. (See page 316.)

Dr. OLIVER T. OSBORNE of New Haven said the subject of the physiology of the endocrine glands and of the symptoms of their pathology, and the therapeutic value of their extracts was of so much importance and created so much interest, that very much had been written and said with too much enthusiasm and without scientific proof. There was no question that the child, man, or woman was physically and mentally what the secretions of his or her endocrine glands determined. It had been clinically and experimentally demonstrated that the secretions of some, at least, of the endocrine glands were essential for the human being to be normal. However, physicians and even the laity were unfortunately becoming over-enthusiastic in the use of glandular extracts and of glandular mixtures, concerning the activities of which they knew but little, and even patent medicine advertisements were now lauding the use of monkey or other gland materials. Before deciding that a glandular extract was indicated, one must investigate the whole life history of the individual, noting development in all its details from babyhood, through childhood, puberty, and adult life, to the changes from forty-five to fifty, and to senility. The hair, the teeth, the nails, the skin pigmentations, mental activity, the digestion, the blood-pressure, and the character of the circulation all would give indications of the sufficiency or insufficiency of one or more glands. It should also be recognized that the glandular functions were interlocking, and deficiency of one gland might cause deficiencies or hypersecretions of other glands, and the symptoms or conditions present were the outcome of these several disturbed functions. Therefore, to administer empirically a single, or several glandular extracts to a patient, without the most careful supervision or without the understanding that undesired activities might be developed, was inexcusable. On the other hand, from the very nature of these glandular tissues and the fact that the laboratory, even by extirpation, could not always develop positive chemical or hormone values of the glands, necessitated well directed clinical studies. In other words, many of the valued uses of these extracts had been discovered by clinical trials. The endocrine glands that had been proved to have positive therapeutic value were the thyroid, parathyroid, pituitary, suprarenal, and corpus luteum. Other glands that had therapeutic values, which, however, were not so generally recognized or accepted, were the ovaries, testicles, and mammary. All of the other several endocrine gland and organ extracts were as yet subject to a longer clinical proof before they could be accepted as meeting definite indications in the treatment of diseased or disturbed conditions. The pituitary gland was primarily of more importance to the female than to the male, while the suprarenal glands were primarily of more importance to the male than to the female. The pituitary, in conjunction with the thyroid, increased in size and hypersecreted just before, or during the first part of menstruation, and some of the headache of women at these times was due to the congestion of the pituitary gland. As the speaker had pointed out very many years ago, the first, so far as he was acquainted with the early literature, mammary gland extracts when fed to young girls who flooded at their menstrual periods or who menstruated too frequently would inhibit this condition. He also pointed out many years ago that the disturbances of the menopause were largely due to disturbances of the glandular secretions, and that if the thyroid ceased its periodic increased activity at the time the ovarian glands diminished their activity, the hot flashes, nervous disturbances, palpitations, etc., would not occur. On the other hand, if the thyroid diminished its activity too rapidly or too completely, the woman rapidly added weight and showed other signs of hypothyroidism. Thyroid treatment was needed when these latter symptoms were present. Sometimes there was a decided loss of tone in women at this period in which ovarian substance frequently acted as a stimulant and was beneficial. Also ovarian extracts were of value at any period when menstruation was scanty or occurred only at long intervals. The corpus luteum was certainly a distinct gland although it was located in the ovary. It was a stimulant to the uterus and caused its mucous membrane to become ready for pregnancy, or if conception did not occur, allowed the usual uterine flow. Although this gland was frequently administered with success in amenorrhea, he did not believe that it caused ovulation and consequent menstruation, but it did cause the uterus to be ready to bleed. This gland was enlarged and theoretically should be doing more physiological work during the first three months of pregnancy, although the woman normally did not menstruate. Its secretion might be the stimulant that caused the placenta to grow properly. Corpus luteum had been frequently administered for the high blood-pressure that occurred in women at the time of the menopause, and with some success; but it was a potent glandular substance, and might lower the blood-pressure more than was desired. In other words, one must watch the results with corpus luteum administration as carefully as with thyroid. During periods of amenorrhea, or at the time of the menopause, or perhaps some time later, pigmentations were likely to occur, forgotten freckles became prominent, and moles developed. These seemed to evidence a disturbed adrenal secretion, probably of the medullary portion of the adrenals. At present the speaker was studying clinically the activity of extracts from the cortical portion and extracts from the medullary portion of the adrenal glands. But administering the substance as a whole would not only many times stop this tendency to pigmentation and clear up brown spots, but would also cause improvement in the circulation, when there was low blood-pressure. Finally, he would be very careful in polyglandular therapy, much as we should be careful in advising or using polyvaccines.

Dr. CHARLES E. DE M. SAJOUS of Philadelphia said that he could emphatically subscribe to what had been said about the empirical use of organic products. Only recently he had seen a New York lady, whom he referred to Dr. Satterthwaite. Although a very bad case of mitral disorder, she had been given thyroid by a physician previously seen. If persisted in, death would probably have ensued. As consultant of the Bell Telephone Company the speaker had had occasion to see many cases of exophthalmic goiter and hyperthyroidism. In one case with bulging eyes and prominent thyroid, the patient had been seen by fifteen doctors in succession and had been treated for cardiac trouble owing to the arrhythmia; not one had recognized the true condition. Between the promiscuous use of organic products on the one side and the non-recognition of endocrine disorders on the other, much poor work was being done. In respect to pluriglandular therapy, a word of caution was offered in view of the gunshot prescriptions that were being given for various conditions—a renewal, in a measure, of the old polypharmacy methods. The speaker urged that no glandular product should be administered without taking into account what glandular stigmata each case presented. There was no doubt that today the profession possessed a very distinct therapy for all endocrinopathies and the general diseases they complicated; but the syndrome could be detected in each case and there was no reason why pluriglandular treatment should be used unless it was indicated by a pluriglandular syndrome. A feature that had not been referred to was the combination of some gland treatment with the usual remedies, strychnine, digitalis, etc. In cases of secondary anemia, for instance, after finding out the cause and eliminating it, one would obtain better and prompter results by adding a small dose of adrenal gland or posterior pituitary and strychnine to the iron, the constituents of the hemoglobin molecule being thus supplied. Concerning immunology, Dr. Sajous felt that many cases were being sacrificed today because the relationship between the thyroid and the immune chemistry of the body, now fully recognized on the continent of Europe, was neg-

lected. He was confident that if surgeons realized more what the thyroid meant they would not remove thyroids as freely as they did. Medical treatment was slower, but it preserved a defensive organ. Although he treated many such cases he had never had to send one to a surgeon, and had had no deaths so far. Others had obtained similar results. Some of his cured cases had been sorely tried during the war and stood the test without recurrence. One of these patients, a Canadian lady, who had suffered from one of the worst cases of exophthalmic goiter he had ever seen, had had four sons at the front during the entire war and had gone through great anxiety and distress, and yet had remained perfectly well. His treatment, published in the MEDICAL RECORD of September 27, 1919, was based on the recognition of the importance of the relation of the thyroid gland to the immune chemistry of the body. The essential point was to find out what the thyroid gland was fighting and to eliminate it, and to avoid what, to him, was virtually a criminal method, the "symptomatic treatment," carelessly recommended by many authors. As for acromegaly, Dr. Sajous was always ready to yield to *bona fide* evidence, but he had not changed his mind to the effect that the pituitary gland was not a secreting organ, and before very long he would adduce ample evidence to that effect. He had patiently awaited the believers in the secretory theory to prove the existence of a secretion, but it was increasingly becoming evident that the socalled secretion was a myth, as the speaker had long urged. Taking, for instance, the supposed relationship between the anterior pituitary body and growth based upon the prevailing conception of acromegaly: Had any one present ever caused a dwarf to grow by giving him anterior pituitary? Even tethelin had completely failed in this respect. And yet other glandular products had sometimes been found very efficient in this respect when the cause of the arrest of growth could be determined. All were familiar with the connection between pituitary disorders and polyuria, but did they realize that this condition could also be caused by passing a needle into the basal tissues behind the pituitary, cutting off the splanchnic, *i. e.* along the pituitoneural path Dr. Sajous had long ago described? Every one had been dazzled by Cushing's beautiful book, but this brilliant surgeon had not studied phylogeny far back enough or he would have found a close relationship between the sympathetic and the posterior lobe of the pituitary body, which, through the pituitary neural path, influenced the adrenals and other endocrines. The secretory theory had started as a mere assumption and was dying fast—a good riddance which had been misleading able workers for several decades. Dr. Sajous said that if any one had seen his cases of acromegaly when they first came under treatment based upon his conception and two months afterward, they would have been astonished by the change. The faces gradually flattened down as far as the bones would permit. Was it through glandular therapy? No; through vasocontraction. He considered acromegaly as a vasoneurosis due to a lesion of the anterior pituitary capable of inhibiting more or less the coordinating functions of the neural or posterior lobe.

The Treatment of Patients After Certain Abdominal Operations Have Failed.—Dr. W. WAYNE BABCOCK of Philadelphia read this paper. (See page 319.)

Dr. F. M. POTTENGER of Monrovia, Calif., directed attention to one point in regard to pain after diseased conditions had been cleared up, which had not been sufficiently appreciated because our conceptions were anatomical instead of physiological. When an organic lesion was removed, the nerves were not restored to their former power of resisting impulses. Women with uterine troubles, patients with tuberculosis, pleurisy, or chronic appendicitis might be relieved of all these troubles, yet if they should be worried or tired out they would still often have their pains because the threshold of response in the neurons was lowered so that the impulse passed more easily than normal. One might remove the organ or the disease, but the patient's nerves were still not restored to normal.

Dr. HYMAN I. GOLDSTEIN of Camden, N. J., said that in this connection it should be remembered that some very good surgeons were too apt to accept the diagnosis made by referring physicians. In some of these cases, were the surgeon and staff to reexamine the patients more thoroughly, some of these operative failures might be avoided. He then cited a case with attacks similar to those mentioned by Dr. Babcock, with acute indications and symptoms such as vomiting, epigastric pain, etc. After thorough Roentgenographic study the patient was operated upon under the suspicion of possible ulcer, but no ulcer was found, nor anything abnormal; the usual procedure of appendectomy was followed, and the patient felt a little better for a time. Four to six weeks later he again had severe vomiting and epigastric pain. The blood Wassermann was negative and there was no history of any initial lesion. Later the pains became worse, and it was decided that possibly he had adhesions following the first operation. He was again subjected to operation and nothing seriously abnormal was found. Subsequently the spinal fluid and blood Wassermann was found to be strongly positive. In the meantime the patient had had several of these seizures. After the second injection of neoarsphenamine the man, for the first time in eight years, had no seizures, and further treatment practically cured him.

Dr. FUSSELL of Philadelphia reported two cases of acute pericarditis which simulated acute appendicitis, at a recent (May 30, 1921) meeting of the College of Physicians of Philadelphia, section on General Medicine. Some years ago Dr. Libman of New York City reported cases of primary sarcoma of the intestines, simulating appendicitis, while last year the speaker reported a case of primary sarcoma of the appendix with intestinal obstruction by a band that simulated acute appendicitis.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 5, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Neurology.

Bradykinetic Analysis by Means of Ultrarapid Photography.—Dr. S. PHILIP GOODHART gave a lantern slide demonstration, which emphasized the value of ultrarapid photography in the study of various neurological conditions affecting motor function.

The Production of Hallucinatory Phenomena.—Dr. MORTON PRINCE of Boston made this presentation. He said the paper should be called "The Pathological Mechanism of Hallucination as Based upon Experimental Studies." The convential theories of traditional psychiatry regarded the mechanism of hallucinations as belonging to one or the other of two classes, namely, the anatomical-physiological theories and the psychic theories. All the anatomical-physiological theories brought forward by Schroeder, Kraft-Ebing, Joley, etc., were but variations of one and the same thing. They all postulated a local idealization in the cortex or basal ganglia. The only difference in these theories was that some put the idealization in one part and some in another. On close examination they were all unsatisfactory and failed to explain the content of hallucination, which involved a higher functional process. Turning to the psychological theories, these ascribed hallucinations to a function of the subconscious, but they were rather weak in elucidating the process. Some said it was an expression of a subconscious wish; others that it was a regression to a primary infantile mode of thinking, but they did not explain why the process never emerged into consciousness. Dr. Prince said he was going to approach the question of hallucinations from the psychological point of view. Hallucinations were psychological; at least we had to explain them in psychological terms. Whether we should be able to explain them in anatomical terms was another question; we could not even approximate such an attempt to-day. There were three different modes of approach. (1) By experiment one could induce experimental hallucination in certain people; it was easy to do; it was a common phenomenon. One could produce hallucination by fixation of attention. If certain

persons looked into a glass globe a hallucination would be induced. The globe was not necessary; it was merely necessary to fix the attention, and perhaps suggest that something was going to happen. In that way one could produce hallucination and study its form and structure and draw inferences as to the process involved. The structure and form and behavior of hallucinations in the sane were similar to those in the insane or paranoiac. It happened when a person looked into a glass and his attention was gripped that he acted a part; the hallucination could not be explained except by assuming that there was another process besides his conscious mind that made the kaleidoscopic picture. What was that process that might reproduce memory, imagination, and logic, and might exhibit nearly every faculty of the mind? The hallucination might be a hearing or a visual reproduction. A second mode of attacking the problem was that of hypnosis. By putting a person into a hypnotic state one was able to recover memories of events outside of his conscious recollection, and among those memories were the memories that were stored in the subconscious. The idea had come to him that the problem was why we were not aware of the subconscious. In four cases studied there had been these images which were not in the conscious mind, and those images were of the same nature as those we all had in conscious thought. That was, if one thought of going home and going to bed he immediately had a mental picture of his home and his bed. In certain individuals those images became coconscious images, merged into consciousness, and became hallucinations. Hallucinations were then images of the subconscious and in certain cases emerged into the consciousness. Those images might occur as a posthypnosis phenomenon or they might occur in certain states of exaltation or depression. As an illustration, a widow on the anniversary of her wedding became very much depressed, but was determined to put her depression out of her mind. She did so as she thought. In the evening she sat in the twilight and of a sudden felt something on the other side of the room. Then she had the hallucination that her husband was there surrounded by a blaze of light. Investigation showed that she was getting memories of the past. There was a similar picture in a gilt frame of her husband. This had suddenly emerged and the image was identical with the picture. The question was how to get at the process. Of course one must tap the subconscious. He now had a way of tapping the subconscious, and that was by automatic script. Automatic script was an important means of research and had been much neglected. As a method of research it was comparable to the method of the physicist who studied radioactivity. The physicist did not study atoms directly; he saw only the manifestations and from these he inferred what went on in the atom. Script was writing and it was done by something. Script showed intelligence, logic, imagination. It was done by something, not consciously. If not done consciously, it must be done by something unconscious—the subconscious had been tapped. What was needed then was a subject who could write without being aware of it and one who had hallucinations. Dr. Prince said that if asked how he knew that it was automatic writing, he must say that he did not know that it was automatic. There was a consensus of opinion that epileptic convulsions were not faked, though they might be faked. There were people who wrote automatically and there were scientists who wrote automatically, who were absolutely unaware of what they were writing. That had to be assumed as the basis of the experiment. Then the person had to have hallucinations and the question was what relation the hallucinations had to the script. Dr. Prince then explained that the subject had her head covered with a cloth and was directed to write. When she began to have an hallucination it was to be marked on the script and then when the hallucination disappeared it was again to be noted on the script. A number of charts were shown with the hallucination and script side by side. The substance of the hallucination and that of the script was the same, making it evident that the subconscious had been tapped. Another experiment was carried out by taking an individual with a double personality who was asked to review an episode in the past life of one of the personalities. She at the same time wrote and the script ran parallel to the episode related. If the script thus tapped the unconscious and was correlated with hallucination, by script one might reach the hallucination which occurred in certain psychoses. The application might be left to the psychiatrist. As to the mechanism of the process, testimony indicated that these thoughts were below the subconscious level. The thoughts formed themselves and made images, that was to say, those objects were visualized just as events were visualized in the conscious mind. After a few moments the image that had been formed merged into consciousness and produced hallucination. This theory was in harmony with other processes of investigation, namely when a certain hallucination occurred similar to those seen in the insane, the hallucination was caused by the breaking out of an ordinary imagery, which in these cases was subconscious. When an hallucination occurred it was a provisional hypothesis that a larger process was going on below the conscious level and the hallucination was a signal flag of danger of what was going on below. Therefore, if we wanted a real explanation we must look into the underlying processes. There was in this theory a distinct divergence from the theory of Freud. Hallucinations were due to a subconscious process, perhaps such as he had pictured, but they were not a regression to an infantile type before language had been acquired. This was anything but a regression; it was a highly developed process representing the imagery of thought. Instead of a wish fulfillment it was the wish itself. This was not the whole problem of hallucination, it was only the mechanism; there remained why we had subconscious processes, and why we did not have subconscious processes projecting hallucinations into our minds all the time.

Dr. JOHN T. MACCURDY said that in view of the lateness of the hour he thought it would be a finer compliment to Dr. Prince merely to move a vote of thanks than to attempt to discuss his address. He would say, however, that this was one of the best pieces of work Dr. Prince had done and he knew of no higher comparison. The problem of hallucination was one that had never been taken up seriously from the standpoint of the mechanism of the mind. This was really the first attempt to trace out the way false sense perceptions were obtruded upon the consciousness.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DIE GESCHLECHTSKALTE DER FRAU. By Dr. WILHELM STEKEL. 490 pages. Price 96 marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

DISEASES OF CHILDREN. By HERMAN B. SHEFFIELD, M.D. 798 pages with 238 illustrations. Price, $9.00. Published by C. V. Mosby Company, St. Louis.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints Volume xxxvii. 613 pages with illustrations. Published by The Rockefeller Institute for Medical Research, New York.

INFORME DEL DIRECTOR DE SANIDAD NACIONAL. Correspondiente al año de 1920. 382 pages. Published by F. J. Camejo & Co., Caracas.

LES EXTRAITS HYPOPHYSAIRES. Par le Dr. LÉON POULIOT. 94 pages. Price, five francs. Published by L'Expansion Scientifique Française, Paris.

NACHKRANKHEITEN DER RUHR. By Prof. Dr. H. STRAUB. 61 pages. Price, seven marks. Published by Carl Marhold, Halle a. S.

UBER DAS SCHICKSAL DER KRIEGSBLINDEN UND IHRE VERSORGUNG. Von Dr. KURT UHTHOFF. 100 pages. Price, 9.50 marks. Published by Carl Marhold, Halle a. S.

LEHRBUCH DER LUNGENKRANKHEITEN. Von Dr. ADOLPH BACMEISTER. 399 pages with illustrations. Price, 126 marks. Published by Georg Thieme, Leipzig.

Miscellany.

Infinitesimals in Medicine.—Dejust has recently published in the *Revue scientifique* an article which is reviewed in *La Presse Médicale* for June 11, 1921, xxix, 47. He first narrates the Hahnemannian conceptions of "similia" and infinitesimal dosage and then adds documents obtained along the lines of general science. The first is the work of Peyraud which was submitted to the Academy of Medicine. It comprises two sets of animal experiments in one of which attempts were made to immunize against tetanus with strychnine, or, in other words, to vaccinate against tetanus by the use of that alkaloid. The other series had to do with certain similarities between rabies and poisoning with the essential oil of tansy, which led to the use of the latter in immunizing against rabies. The experiments were criticized and control experiments were made, the whole subject being far from settled. The subject of minute dosage of drugs is next covered and while certain substances can exhibit activity in extreme attenuation—the author cites many examples—nothing has been discovered in the laboratories to suggest that drugs can be activated by succussion or that subdivision carried on indefinitely can release new forms of drug energy. Activity in a state of minute subdivision is inherent in the particular drug and not determined by outside manipulation. The author suggests that future work should be undertaken *de novo* without any attempt to build on the old superstructure, and commends the work of Peyraud, Rabe, and Hirschland, in which strict laboratory technique is applied to the two underlying problems of similia and infinitesimals.

Max Nordau, Physician, Sociologist, and Philosopher.—*La Medicina Ibera* for May 21, 1921, xiv, 185, contains a short account of the activities of this well-known writer, as one of a series of contributions on physician-authors. It seems to have appeared originally in another Spanish periodical, the *Revista Americana de Farmacia, Medicina y Hospitales*. Nordau was born in Budapest but was descended from an old Sephardic family of Segovia, Spain, and some of his ancestors actually used the surname of De Segovia. He was taught at home Latin, Greek, Hebrew, and probably the ancient Castillian idiom known as "Chudeo," which is quite intelligible to a Spaniard of today. He went through the University of Budapest, graduating also from its medical department; served as regimental surgeon and traveled extensively, before settling down to practise in his home city. After two years of practice he removed to Paris, where he thenceforth divided his energies between literature and clinical work. The World War found him in a precarious position. In Paris he was suspected of Teutonic sympathies, and in Hungary was held to be pro-Ally. As an asylum in England or Italy was out of the question, he took the only course open to him, and moved to Spain, the home of his ancestors, returning to Paris after the conclusion of the war.

His activities include the publication of four novels and a book of short stories, five dramas, and many essays on art, history, and Jewish interests. In 1905 he was elected president of the Zionist Congress. His fame is due chiefly to his polemical writings in the fields of religion, politics, and economics. He is said to be engaged today in writing what he regards as his masterpiece, the "Essentials of Civilization," in which he appears as a pessimist. The theme is the multiplication of human desires as contrasted with the shortage of supply, which status begets discontent and disintegration. There is but one remedy—gradual education of the masses—which at best can aid only very slightly in the solution. Nordau was one of those who had hoped much from the formation of the League of Nations, and the repudiation of the latter by America has probably contributed to his pessimism.

The Peking Union Medical College, situated in the capital of the Chinese Republic, had its beginning in an earlier institution, the Union Medical College, founded in 1906 by the joint efforts of six British and American missionary societies. The property of the earlier school was transferred in 1916 to the China Medical Board of the Rockefeller Foundation, which has purchased additional land and erected, in an interesting adaptation of classic Chinese architecture, a series of hospital and laboratory buildings. The institution comprises not only the medical school, but also a 250-bed hospital with outpatient clinics, a nurse training school, and a premedical school—an institution of junior college grade with a distinct faculty and group of laboratory and classroom buildings. The new buildings will be dedicated the latter part of September, the ceremonies filling the week of the 15th to 22d of that month.

Crumbs Wanted for the Brain Worker.—The editor of *La Presse Médicale* has a short editorial on this subject in the May 25, 1921, edition of his journal (xxix, 42). Recently one of the Cabinet—it matters not which one in these times of rapid turnover of ministries—made a pathetic appeal for the brain worker, through Parliament, to the rich commercialists and industrialists. He reminded them that their wealth came in a measure from the contributions to science made by the laboratory man, whose discoveries were ever revolutionizing commerce, agriculture, and manufactures. The big men of the country did indeed recognize the laboratory as a source of wealth and acted by supporting it, but the laboratory worker himself received only a meager salary. Crœsus has added greatly to his wealth through the same war activities which left the laboratory men hardly able to exist. The appeal was eloquent and unanswerable by critics, but will it be heard? To visualize the situation will the high-brow scientist get the crumbs which remain after Crœsus has banqueted? Meanwhile the burdens of taxation continue to accumulate. Cannot Crœsus emulate the beekeeper who keeps back enough honey to nourish the bees which support and enrich him? The state takes care more and more of its helpless classes—of those who cannot contribute to its wealth, but does nothing for its highest types of producers of wealth. The result is easily foreseen, for the laboratory man will some day give up in disgust, no one will be found to replace him, the laboratories will close, and wealth will soon feel the results of this suppression, while the whole commonwealth will face ruin.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 9. Whole No. 2651. NEW YORK, AUGUST 27, 1921. $5.00 Per Annum. Single Copies, 25c.

Original Articles.

REMARKS ON ORTHOPEDIC TREATMENTS IN CHRONIC AND SEVERE NERVOUS DISEASES.

A PLEA FOR MORE FREQUENT APPLICATION OF ORTHOPEDIC METHODS IN NEUROLOGICAL CASES.*

BY SAMUEL W. BOORSTEIN, M.D.,

NEW YORK.

INSTRUCTOR IN ORTHOPEDIC SURGERY, FORDHAM UNIVERSITY MEDICAL SCHOOL; ADJUNCT VISITING ORTHOPEDIC SURGEON, MONTEFIORE HOSPITAL; NEUROLOGICAL-ORTHOPEDIC SURGEON, CENTRAL NEUROLOGICAL HOSPITAL; CHIEF OF ORTHOPEDIC DEPARTMENT, FORDHAM HOSPITAL, O. P. D.; ASSISTANT VISITING SURGEON, FORDHAM HOSPITAL.

IT is well known that Montefiore Hospital is an institution for Chronic Diseases and the class of cases that are admitted there. There are other similar institutions in the U. S., though not so well known. Many physicians have no doubt referred patients to such institutions with the distinct conviction that the latter would stay there forever. They even thanked the Almighty that such institutions do exist to relieve the physicians from troublesome and nerve-racking chronic cases. Still to the great astonishment of these medical men some of the hopelessly doomed patients have appeared after a time, at their offices, walking even without a cane as if returning from the grave. Their surprising resurrection was for the family physician a reminder of his failures and of the success of the "Hospital." It may be worth while to demonstrate how these achievements are attained. The methods used are so simple that everyone can follow them. The writer believes that the methods employed in Montefiore Hospital, of which he has had ample experience, will prove beneficial if employed by others.

It is not necessary to discuss the treatments used in chronic arthritis as our studies and results have been amply published. Nor is it desirable to take up the cardiacs or the tuberculous, but the paper will be limited to the more difficult types, *i. e.*, the neurological cases. It is self-evident that an institution of this nature does not get the early cases or the light ones as these patients visit the dispensaries or the private physicians. It is only after they become bedridden that they are referred to a hospital for chronic diseases.

As soon as they are admitted, careful examinations are made by the neurological men who are "pains-takers" with their charts and graphic recordings. The laboratory and *x*-ray findings are then done. Finally the disease is labelled. For illustration, it may be said that the chronic affliction is a tumor of the cord or a transverse myelitis or peripheral neuritis or multiple sclerosis or cerebro-spinal lues. If an operation is decided upon, it is performed and the after treatments are begun immediately after the operation. If no operation is deemed necessary or if an operation has already been done without success, the patients are immediately after examination referred to their proper departments.

Just as in modern treatment of fractures, the pendulum has swung from complete rest or immobilization to early exercises and mobilization, so with neurological cases the pendulum has swung from "rest" which they have enjoyed enough to their regret prior to admission to such an institution, to mobility and activity. Only occasionally is a little rest permitted in intervals. The principle is: "There is a time for rest and a time for activity, the second one is the more useful."

The treatments of course include medications, salvarsan, sodium cacodylate, other injections, etc., but the main work is left to the orthopedic surgeon. He is called upon to take charge of the neuromuscular system. After all, one has to remember that the vast majority of disabled and crippled have some trouble with their neuromuscular system rather than the skeleton or osseous. As a matter of fact, Andry, the founder of orthopedics, attributed all deformities to muscular deficiencies. The physiotherapeutic department is therefore under the care of the orthopedic surgeon. The important work is how to make these patients walk or use their upper extremities.

In this respect Montefiore Hospital can justly claim more success than other institutions of similar character. Many methods have been used which have produced excellent results. Even the purely hysterical and neurasthenic patients are treated as real disabled. (The patients are not told that they are hysterical.) Most of the patients are not able to walk for the reason that the articular sense is gone, through either organic or functional changes. Some are afraid to walk, as they have no correct perception where their limbs are. Very often the limbs bend under them as in tabes, or the motor muscles do not respond to the order given by the brain, as in anterior poliomyelitis or transverse myelitis, or the spasms prevent free use of the muscles as in spastic paralysis. The weak limb is therefore encased in a plaster splint, either including the foot or not, extending to the groin. The patient is instructed in the proper way of getting up, of standing, of walking, and particularly, the proper way of using the crutches. Very few people

*From the Orthopedic Service of the Montefiore Hospital. Read before Bronx County Medical Society, June 16, 1920, at the meeting in the Montefiore Hospital.

know how to use crutches and very few physicians instruct their patients exactly how to use them; perhaps they have never been instructed themselves. The patient therefore fails on the first attempt and does not try any more. (This statement does not refer to purely functional cases; the fact is, that even in organic cases their first failure discourages further attempts.)

If the first attempt is successful, the results aimed at are assured. After a while the plaster splints are substituted by removable ones. Then one crutch is taken away and proper instruction is given how to use the remaining crutch. Then the crutch is exchanged for a cane. Sometimes the splints can be left off at this stage, but in most of the cases braces are necessary. The other treatments are of course kept up all the time. From discarding the cane to a walk in a nearby park, or an extensive trip is only a question of weeks.

What Is the Principle of the Plaster Splints Applied to the Feet or Back?—The patient cannot stand up or walk for one of the four reasons: (1) There may be flaccid paralysis, *i.e.* when walking is slow, steps shortened and legs dragged. This gait is found in anterior poliomyelitis, polyneuritis, diphtheritic paralysis, and muscular atrophies. (2) There may be spastic gait in which the patient walks with small, leaping steps, knees held stiff, feet in plantar flexion, and toes tending to stick to the floor. This gait is found in organic hemiplegia, cerebral diplegia, multiple sclerosis, and tumor of the cord. (3) The ataxic gait, found in tabes, Friedreich's ataxia and dystonia. (4) The abnormal gaits found in hysterical or neurasthenic patients.

Naturally many patients cannot walk on account of deformities and contractures present. It is self-evident that all contractures should be prevented, and, if present, should be corrected by proper orthopedic methods, the details of which need not be discussed in this paper. Nor is it necessary to discuss just now any orthopedic operation such as tendon transplantation, arthrodesis, Stoffel's operation, tendon fixation, etc., which the reader can find in any orthopedic treatise.

(*A*) *Plaster Splints in Flaccid Paralysis.*—Assuming that the deformities have been corrected, the patient may still not be able to walk because there is weakness of the muscles holding the balance. Is there any better method than to put the limb in the proper position and substitute an artificial support for the natural one which has failed? The orthopedic surgeon uses this method freely in the anterior poliomyelitic cases with his braces. It takes, however, a long time to get braces and the muscles may atrophy meanwhile. Plaster splints are usually applied while waiting for the braces. In the case of chronic patients, many of them had probably, previous to their admission, braces that were improperly fitted and they have no more confidence in them. The plaster splints are therefore applied and the proper use of the limbs is encouraged.

In this group are included the cases of paralysis due to transverse myelitis and nerve palsies, also functional paralysis where it is absolutely necessary to help the proper use of the limbs. The patient uses the limbs without knowing whether the muscles hold the position by their own power or whether the plaster splints prevent the bending of the limbs.

Lovett[5], in a very interesting article, demonstrates that even patients with complete flaccid paralysis of both lower extremities can walk. He sounds an encouraging note in these cases. We have had similar good results. About the splints he states: "If the knees are prevented from flexing by splints, the erect position can be maintained without crutches only if the gluteus maximus muscles are strong enough to hold the trunk from falling forward. The loss of the gluteus maximus can, however, be compensated for by a peculiar method of using the crutches for what may be called 'tripod' walking."

Another proper use of crutches in a method slightly different from Lovett's will be described in this paper.

It may be of interest to describe here three interesting cases for illustration:

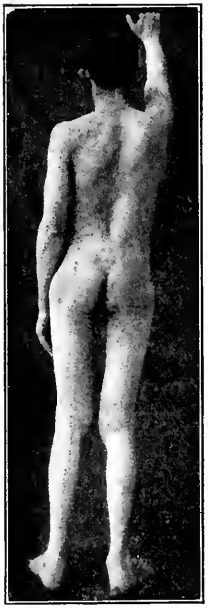


Fig. 1—I. G. G. Case No. 3, showing proper posture and fair musculature of body and feet. See absence of gibbus on spine.

Case I.—A. H., a man with peripheral neuritis (either alcoholic or lead) was in the Home for a year and a half receiving massage and exercises in bed. The muscle had improved. There was good power in the quadriceps, glutei, and dorsal flexors of the feet, still the man has made no attempt to walk. During the ward rounds one day he was told by the attending orthopedist that he could walk in from two to three days if he wanted, to which he consented. Plaster splints to both knees were applied so as to give him stability. The next day he was shown the proper method of using the crutches and he began to walk immediately. In four weeks he threw away the plasters and walked with one cane. In six weeks he returned to his occupation as painter, though his hands were somewhat weak.

Case II.—This was one of a young girl of twenty (Hannah B.), who had a marked tremor in both ankles resembling "shimmi" dancing. The diagnosis of the neurologists was "neurasthenia." Strapping of both ankles with red flannel bandages (for psychic effect),

but with several layers of strong adhesive plaster for real support, gave her confidence. She walked immediately, even without crutches, and was discharged in six weeks.

CASE III.—Isidore G., male, aged twenty-three, had traumatic myelitis following a crushed fracture of last

FIG. 2—A case with left hemiplegia showing contraction of hand before application of plaster splints.

dorsal and first lumbar vertebræ, resulting in paralysis of both lower extremities, loss of bladder and rectal control. Was operated on by Dr. A. S. Taylor in another institution in May, 1918 (eight months after the accident), when a laminectomy was performed. The rectal and bladder condition improved somewhat, but the patient was unable to walk. He was admitted to Montefiore Hospital in September, 1918, one year after the accident. He was treated with massage and exercises, etc., but was still confined to the chair. Physical examination in March, 1919, showed fair power in the glutei and quadriceps, weak power in the dorsal flexors of the foot. Plaster splints, extending from the toes to the groin, were then applied and he was put up on his feet in one week. At present the patient walks with one cane only and uses braces. (Fig. 1.)

This patient demonstrates that operation without after-treatments will not result in marked improvement, and unless the patient is supported by splints very early (to be changed later on for braces) he will never begin to walk no matter how much improvement in the muscular power is obtained.

It is probably best that the plaster splints should be applied while the patient is still on the operating table. As soon as it is safe to permit the patient to stand, he should do so while he has the first casts. He will feel safe and the physical influence of the operation will encourage him to walk.

(*B*) *Splints in Spastic Paralysis.*—In the second type, *i.e.* spastic paraplegia where there is present involuntary contractures due to motor irritation, either through increased physiological stimuli, or through pathological irritation of the motor neuron system, the plaster splints are of extreme value. They control the tremors.

It was Sherrington[4] who was able to prove "that a constant stream of messages arises in the contracting extensors of the knee and, passing to the cells which control the action of the hamstrings, exercises on them a regulating influence. In this way a balance is maintained between the degree of shortening of the extensors of the knee and the degree of lengthening of the hamstring flexors. Similarly, messages are being produced in the hamstring muscles which exercise a regulating or inhibitive influence over the extensor motor cells. Thus the state or degree of contraction in any muscle is regulated in the main by two sets of stimuli or messages: (1) Those arising in its own fibers; (2) Those arising in the fibers of its opponent. The more nearly we can place muscles in a state of rest, the less call will there be in this reflex mechanism."

In spastic paralysis, particularly in infantile paraplegias, there is a disturbance of the balance in the antagonistic action of the spinal and cerebral innervation of the muscles. According to Freund, rigidity occurs when the function of the cortical neuron is merely weakened but not lost (Lorenz[5]).

Hilton[6] also stated distinctly in considering a similar affliction, "that if he could keep the joint at rest and thus arrest the production of painful articular stimuli within the knee-joint in arthritis, he would succeed in allaying the contracted state of the muscles of the thigh. We have to arrest or diminish the transmission of stimuli."

The plaster splint is, therefore, the best ideal for that desired rest to arrest and diminish the production of stimuli and overcome the disturbance of balance in the muscular antagonisms.

Lorenz[5] says in this connection: "The method to be chosen to obtain this is to reduce the unrestrained part of the muscles which cause the contracture to a degree that will permit of their properly balanced antagonism working in unison with those muscles of less spastic power which are situated in the opposite side of the deformity. If this object is properly secured, a muscle may still contract spasmodically, as it did before, but the effect of this undesirable contraction will be diminished to such an extent as to be balanced by the antagonists while still permitting of locomotion. We arrive at this by simple tenotomy or myorrhexis of the muscles producing the contracture. The contracture is overcorrected and retained in plaster for six to eight weeks."

Three illustrative cases will be cited:

CASE IV.—Bernard P., a man of thirty-five, of extreme nervous temperament, who had a severe form of encephalitis lethargica, treated by Dr. I. Abrahamson and the late Dr. H. Climenko, seen by the writer in January, 1920, when he had marked spasticity of both knees, shoulders, and spine with beginning of contractures of knees. He was in bed and could not even raise on a pillow. Splints on his shoulders and on his feet, extending to the groins, were applied. The pain in the knees was severe for two or three days on account of the spasm, but this was gradually diminished. In seven days he was put up on his feet. The splints were removed in four weeks. At present he walks perfectly well. Had he been in bed a few months more the contractures would have been severe, necessitating op-

FIG. 3—Same patient as in Fig 2 showing the relaxation of the hand after the removal of the plaster splint which was on only ten days.

erations. His mental attitude would have been worse and he would not have given the proper help.

CASE V.—Dora P., a woman aged twenty-two, with a left-sided hemiplegia following a confinement. Was in bed six to eight weeks, and had already contractures of knees with drop foot. A plaster splint on foot and

knee gave her stability and she walked the next day with one crutch.

As a matter of fact, all patients with hemiplegia whom I had a chance to see very early have been treated in the same way, *i.e.* application of plaster splints to the knees and hand. Many patients at the Home, who had contractures of the hand following hemiplegia, had a plaster cast applied which was left on for two or three weeks; the spasm was then relaxed and treatments could be instituted. (Figs. 2 and 3.) (For more details, the reader is referred to a former article, "Early Surgical and Orthopedic Treatments of Hemiplegia.")[2]

Is it necessary to put on casts on a patient with hemiplegia whose knee is straight due to hypertonicity of the quadriceps in order to train him to walk? The answer is "yes." The plaster will prevent the hypertonicity and the reflexes of the quadriceps and hamstrings and relax the muscles.

CASE VI.—John McA., male, age forty-six; spastic paraplegia since age of twenty-eight. Was on chair

length and, particularly, the length from the arm rest to the hand rest. A crutch must be 1½ to 2 inches longer than the length from the armpit to the sole of the foot. The distance between arm rest and hand rest must be 2 to 2½ inches less than the actual length between the armpit and palm of the hand. Both rests must be well padded.

The first principle is to instruct the patient not to put his weight on the arm rest but on the hand rest and thus crutch paralysis will be avoided, and train the patient to stand when the crutches are in front of the body as far as possible. He must train himself for a while to stand, as he has probably lost the sense of upright equilibrium.

When starting to walk, both crutches must be in front of the body about four to five inches, or really as far as possible. This gives the "tripod" appearance described by Lovett in his recent article[5]. (Fig. 1.)

Then the patient must bring one crutch a little forward, leaning the entire body to the other side

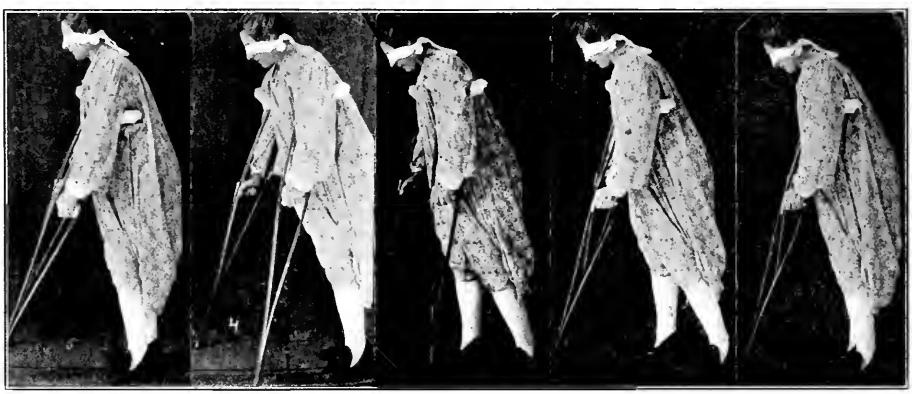


Fig. 4. Fig. 5. Fig. 6. Fig. 7. Fig. 8.

FIG. 4—Proper use of crutches—First step—Both crutches in front of the body, patient leaning on the hand rest. FIG. 5—Second step. Right crutch advanced forward. FIG. 6—Third step. Right foot advanced forward but not enough to touch the crutch. FIG. 7—Fourth step. Left crutch advanced forward in the same line with the right crutch. FIG. 8—Fifth step. Left foot advanced in the same position as the right foot. Notice the distance between the crutches and the feet.

for fourteen years. Physical examination showed marked contracture of tendo Achillis and talipes equinovarus. Simple tenotomy of both Achilles tendons was performed, the feet were corrected, and plaster casts were applied extending to the knees. In a few days the patient showed that he could wiggle with the toes. The second week he was put on his feet and taught how to stand. In the third week the patient was shown how to use the crutches and he began to walk. At present he is still wearing the first casts and the time is thus too short to report any more progress.

(*A*) *Splints in Tabes and Other Ataxic Gaits.*—In tabes the patient does not know the proper position of the limbs; the articular sense is lost, and if he has a cast he feels safe. In him the method is purely psychic. After wearing the cast for a few weeks, Frenkel's treatments are used with great benefit. If a support is to be used for a long time, the splints should be replaced by properly fitted braces.

Methods of Using the Crutches Properly.—When one orders a crutch, he should do the same as he does with a prescription. He must give the proper

(Fig. 2). Then the foot corresponding to the crutch is brought a little forward, but does not come up to the crutch (Fig. 3). Then the other crutch is brought forward while the body leans to the opposite side (Fig. 4). Then the second foot is brought forward (Fig. 5). (The gait is different than the one described by Lovett.) This gait resembles that of a pacing horse. At no time, however, are the crutches in the same line with the body. They must always be in front of the body line. That will prevent the patient from falling and will also help to extend the hips. If the patient cannot advance the foot forward voluntarily as in severe degrees of flaccid paralysis, he usually twists the body a little forward; thus he performs some voluntary movement. By bringing one foot forward at a time he exercises a group in each limb. We had many cases of patients who walked with great difficulty even with crutches. When, however, the proper method of using the crutches was demonstrated to them, they began to walk with great ease. At the Dominion Orthopedic Hospital in Toronto

they use crutches without arm rests, resting on the hand rest and having two cuffs for the arm.

When a single crutch or cane is used the process is performed on the same principle, *i.e.* the order is: the crutch, the corresponding foot, then the other foot. Within a short time the wheel chair is taken away from the patient; thus he must walk to the dining room and visit other wards, etc., while using the crutches. The crutches are also removed earlier than the patient wishes to part with them. The cane, however, is permitted for a long time.

Principle of Exercises.—The value of exercises to prevent deformities is a well established fact. It was still in 1743, when Nicholas Andry, the founder of orthopedic surgery, wrote in his book, "Orthopedia": "Moderate exercise is the best means of preventing or even curing disease." It will be waste of time to go into details of the value or effect of massage and exercises in cases of lack of normal motion of muscles. These facts are well known. However, it may be of interest to specify the methods used in Montefiore Hospital.

The exercises are usually of two types (passive and active). (1) Passive exercises are of two forms, either (*a*) the Swedish movements given by the masseuse or masseur after the massage. This form is very useful but rather limited, as the patient does not use his will power to do the movements himself; it is useful in cases where only a few muscles are paralyzed, as in anterior poliomyelitis or paralysis due to nerve injury. Even in these cases volitional or active movement is encouraged. "If there is a little movement," said Jean Pierre David at another occasion, "nature will soon make it a little more."

(*b*) In the second subdivision of passive exercises are the ones given by means of the elaborate machines in the Zander room. There are apparatuses for passive and active exercises and resistance machines. The principle here is, "that a single muscle has no existence in the physiology of the brain. The brain knows nothing of muscles, only of movement." (Duchenne.) By using these apparatuses, group action of muscles is called into play. The results are very good. Lately, however, it was found that the patients do the exercises unwillingly. They get tired of wiggling a machine or driving a stationary bicycle. One thus gets the patient as a passive agent and not as an active one, which is the most desirable. We are, therefore, encouraging the second type, *i.e.* active exercise, which is also of two forms. (1) Work in a curative shop, occupational therapy. The patient works in the shop making baskets, rugs, toys, etc. The work is selected to suit the desires of the patient and the nature of the disease. (2) The natural active exercises. He is taught how to stand and walk and jump and made to do that. It may be suggestive to introduce dancing in some cases. One should take away wheel chairs and crutches early and make him depend on his natural resources. (The patient should be encouraged to use his hands at the table for meals or at his card game in which he may be interested or in the needlework).

For many reasons the contraction set up in a weakened muscle by a volitional stimulus is better than that set up by a faradic or galvanic stimulus (or passive exercises), because only volitional impulses can set groups of muscles into normal action. The voluntary impulse not only plays on the muscle-controlling machinery of the spinal cord but also on another reflex mechanism—the vasomotor.

There is another form of exercise, and that is the one produced by faradic or galvanic currents. It will be a surprise to learn that the "electric" exercises are not much resorted to in this institution, though we have so many neurological cases . We believe with Duchenne, who noticed that faradization could not replace normal voluntary impulses as a means of keeping a paralyzed muscle in health and preventing it from undergoing atrophy. He came to the conclusion that it was only as voluntary control was returning that the application of faradization could help in recovery. (Keith in Menders of the Maimed.)

Though we have so many elaborate and expensive electrical apparatuses, we probably use in a whole year less electrical current than a certain orthopedic hospital in New York City uses in one day. The neurological attendings, some way or another, do not prescribe them, as they feel that those patients have been fed enough on that "humbug" before they landed here. (It is good only for psychic effect but not for real effects.) I personally never use "magic electricity." I consider it a waste of valuable time to treat with that form of exercise. It was in this institution where we used electricity a great deal in former years and, in another institution, where electricity is being used freely and I was in full charge of the electrical department for six months, that I gained the impression that it is valueless or, at least, its value has been greatly exaggerated. I have therefore abandoned it and do not use it in private practice or in acute cases under my care in another hospital (Fordham).

For spastic cases, special exercises are used, such as walking on inclined plane to train the patient to use his ankle, knee, and hip. Crossing objects of different heights teaches the patient the proper way of avoiding obstacles and to raise the feet from the floor. Carrying a heavy load in one hand makes the patient incline toward the other side, thus better balance can be retained when there is a tendency to incline to one side. Walking along a stick suspended between two chairs helps greatly to keep balance. There are many other exercises to which one can resort, in order to teach the patient coordination of the lower limbs, but the details cannot be discussed here. (Particulars will be published in another article in the near future.)

Case VII.—Philip T., aged nineteen; diagnosis, dystonia musculorum deformans. Duration of disease since eleven years of age. Entered Montefiore in January, 1919. By proper exercises he learned how to walk, even to cross glasses put in his way. Can make different toys in the occupational room.

Case VII.—Rebecca A., female, aged twenty-two; diagnosis, anterior poliomyelitis, with some functional element. Attack dates to 1916, when the epidemic of anterior poliomyelitis was raging in New York City. Patient entered Montefiore December, 1918. Examination showed left upper: partial paralysis of deltoid, pectoralis, weakness of forearm and wrist muscles. Choreic movement of left hand present. Lower extremities: right—weakness of abductors. Some spasm of the foot muscles. Spine: lateral curvature and prominent abdomen. Patient was observed during sleep and found that all the choreic movements disappear, and the spine was kept straight. Left lower extremity: all muscles paralyzed with the exception of flexors of the toes. No contractures present. Various

diagnoses were made, such an anterior poliomyelitis, dystonia, spastic monoplegia, and hysteria.

The orthopedic treatments were as follows: Patient was put on a Bradford frame and the body tied to it to correct the lateral curvature and control the choreic movements. On the feet plaster splints were applied. After six weeks the spasm in the limbs and back was relieved. She was put on her feet in July, 1919. Began to walk at the end of July, 1919. At present has a brace on the left lower extremity extending to the groin; can walk without support.

Comment.—This patient demonstrates the following facts: (1) The difficulty of making a proper diagnosis in some of the cases. (2) The necessity of strict cooperation between the neurologists and orthopedic surgeons. (3) The relaxation obtained by plaster splints on the limbs, and the Bradford frame on the spine. (4) The necessity of early walking in functional cases.

Conclusions.—1. No patient with "chronic nervous disease" should be labeled "chronic invalid" or should be pronounced such. Many patients can be improved.

2. More attention to orthopedic treatments will be of great help to patients afflicted with severe forms of neuromuscular diseases.

3. Proper cooperation is necessary between the neurologists and orthopedic surgeons.

4. Proper position of limbs to prevent contractions and deformities will help to restore normal motion.

5. Plaster splints or braces for limbs are to be applied when motion is to be encouraged.

6. Plaster splints will relieve the hypertonicity and spasms found in many types of nervous diseases.

7. Crutches and cane must be used properly if the real group action of muscles is desired.

8. Voluntary exercise is to be urged in preference to passive.

9. Massage and mechanotherapy are of great help but cannot replace volitional movements.

10. Electricity in all forms may be dispensed with. It has only a psychical value which in chronic cases cannot be of any use.

11. This class of patients requires an extraordinary amount of endurance which the family physician is not anxious to comply with. But if properly carried out, the results are sufficiently compensating and will bring the highest gratitude from the patients.

I wish to thank Dr. S. Wachsmann, the Medical Director of Montefiore Hospital, whose great interest in neurological orthopedics has afforded me ample opportunities for observation and study of these various cases. I also wish to express my gratitude to the neurological attendings at Montefiore for referring numerous cases to me.

REFERENCES.

1. Boorstein, S. W.: "Orthopedic Treatments in Neurological Cases," *American Journal of Surgery*, July, 1919.

2. Byrne, Jos., Taylor, A. S., and Boorstein, S. W.: "Early Surgical and Orthopedic Treatment of Hemiplegia," *Surgery, Gynecology, and Obstetrics*, October, 1919, pp. 398-413.

3. Elliott, G. R., and Boorstein, S. W.: "Orthopedic Treatments in the Hemiplegias of Long Standing," *J. A. M. A.*, January 1, 1916, lxvii, pp. 31-32.

4. Keith, A.: "Menders of the Maimed," Oxford, 1919.

5. Lovett, R. W.: "The Tripod Method of Walking with Crutches as Applicable to Patients with Complete Paralysis of the Lower Extremities," *J. A. M. A.*, lxxiv, 19, May 8, 1920, pp. 1306-1308.

6. Lorenz, Adolf, and Saxl, Alfred: "Orthopedics in Medical Practice." English translation by L. C. Peel Ritchie. William Wood & Co., 1913.

7. McKenzie, William Colin: "The Action of Muscles," P. B. Hoeher, 1918.

529 COURTLANDT AVENUE.

THE TREATMENT OF EPILEPTIC MANIFESTATIONS IN CHILDREN FROM THE STANDPOINT OF THE CONSTITUTIONAL BASIS.*

BY E. BOSWORTH McCREADY, M.D., F.A.C.P.,

PITTSBURGH, PA.

FOR centuries the pathogenesis of idiopathic epilepsy has been one of the baffling problems of the medical profession, consequently therapy has been principally directed toward the suppression or mitigation of the convulsive crises, consisting for the most part in saturation with depressant drugs, which, "while reducing the number of seizures, simultaneously aggravate the morbid process."

Adequate proof of the exact nature and cause of this frequent and fearsome disease is still lacking. While in many epileptics coming to autopsy definite pathological brain tissue conditions can be demonstrated microscopically, the character of the changes differs widely as observed by different investigators, some describing a generalized gliosis, others, areas of sclerosis in different parts of the cortex, while still others have observed degenerative changes in the ganglion cells. The existence of these lesions does not prove, however, whether they are the essential cause of the epilepsy, whether they are developmental (hypoplastic) in origin, acquired, or are the result of the epilepsy. The theories of Clark as to the psychogenetic element in the convulsions are applicable to a small percentage of epileptics and of significance in the inauguration of occasional attacks in others. It is thought by many observers that the epileptic attacks are due to the accumulation of toxic wastes in the blood. Sajous strongly supports this view and contends that such accumulation is due to inherited or acquired hypoactivity of the adrenal system, particularly the anterior pituitary as test-organ. The investigations of Johnston, McKennan, Tucker, and Munson upon the sella turcica and the pituitary would seem to lend strong support to the theory which assigns to the pituitary body an important place in the etiology.

The epileptic is usually the product either of a "bad heredity" or of unfavorable gestational and environmental influences or of a combination of both. The same influences that operate in the production of constitutional inferiority (degeneracy or hypoplasia) in general are responsible for the epileptic constitution. These may be briefly summarized as:

1. Hereditary: Due to defects in the chromosomes of the germ cells of parents.

2. Environmental: Due to toxemia from various causes in parent or parents affecting the germ cell or cells, resulting in a defective impregnated germ, or to toxemia in the mother or to local disease in

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 387.)

the endometrium leading to defective or insufficient nutrition of the fetus or embryo.

3. Both hereditary and environmental forms occurring in the same individual.

Any interference with the natural forces of growth by vitiating influences modifying cell nutrition and development tends to become aggravated through the close interrelation and interdependence of the various systems of body cells, among the most important of which are those initiators and regulators of correlative growth—the ductless-glandular and vegetative-nervous systems, and further disturbance in growth and development results. The structures which were the last, phylogenetically, to develop and to achieve effective complexity, the endocrine, central nervous, and vegetative nervous systems, are most likely to suffer, even though the rest of the soma escape with little injury.

It is pretty definitely established that the endocrine system controls the metabolic processes and presides over growth and development in infancy and childhood; that upon its integrity depends mental, physical, and reproductive efficiency in adult life, and that it maintains catabolic balance during senescence. Thus it is evident that in evaluating the various factors contributory to the epileptic constitution the endocrine system must be given serious consideration. The writer has failed to find any constant and peculiar endocrine anomaly in epileptic children, nor has he found any essential difference in the endocrine abnormalities of inferior children with epilepsy and those who have never had convulsive attacks, yet varied manifestations of endocrine imbalance are common in these patients and the highly satisfactory results following treatment, in properly selected cases, by organotherapeutic measures, is in his mind significant evidence as to the implication of the endocrine system in the etiology.

As the ductless glands are themselves vegetative organs, supplied by vegetative nerves and possessing central projection fields, their functions are, in great measure, regulated by the nervous system, and in turn the excitability of the nervous system (the vegetative, particularly) is influenced by the hormones which the endocrine system gives off to the circulation. Thus we frequently find definite indications of vegetative nervous disequilibrium.

The attempts to establish the gastrointestinal system as the prime offender in epilepsy have failed of success. Most epileptics are constipated and the constipation likely has more or less influence (toxic absorption, reflex irritation, etc.) upon the severity of the disease, but it is probable that gastrointestinal anomalies are little, if any, more frequent than in other organically inferior individuals. When these anomalies do exist, however, their treatment by appropriate measures exerts a favorable influence upon the severity of the disorder.

Anemia is an almost constant manifestation of constitutional inferiority in children, particularly in those with epilepsy. The developmental arrest, whether hereditary or acquired, affects the blood-making organs and as a result there is a hemic dyscrasia, which the writer is in the habit of referring to as "hypoplastic blood," blood which is ontogenetically incomplete, resembling the fetal type. The hemoglobin is low in percentage and is unevenly distributed, the red cells are decreased in number, are irregular in shape and size, and many are nucleated; myelocytes may be present and usually there is lymphocytosis and an increase in the eosinophiles.

The epileptic child, like other constitutionally inferior children is apt to present anomalies, as visual defects, enlarged tonsils and adenoids, phimosis, impacted teeth, etc., which serve as reflex sources of irritation aggravating the convulsive tendency, sometimes even to the extent of determining the occurrence or absence of attacks; for the epileptic individual can carry without convulsions a certain load of constitutional and functional anomaly, but when the load becomes too heavy convulsions ensue. The aim of therapeusis is both to lighten the load and to increase the patient's carrying power. The affective peculiarities of the epileptic are often apparent from birth. He frets at slight bodily discomforts, or from the mere tedium of existence, is peevish, easily startled by noises, over-sensitive to impressions of all kinds, is self-willed, with extreme lability of mood. While he usually sits up, crawls, walks, and talks at about the usual time, he fails to develop the ability to perform the finer muscular adjustments, and continues to be clumsy and incoordinate. Usually he is hyperenergized, when hereditary factors predominate in the etiology, or alternately restless and lethargic, when the developmental arrest is both hereditary and environmental in origin. While epilepsy is often accompanied by a varying degree of mental enfeeblement it is sometimes difficult to determine how much of this is the result of the developmental arrest and how much is deterioration resulting from the fits. The psychic peculiarities of the epileptic personality correspond closely to the degree of developmental arrest of the nervous system and consist, chiefly, of egocentricity, supersensitiveness, and emotional poverty. It is in accentuation of these traits, and in the absence of a sense of inferiority that the epileptic personality differs from the neurotic. The varied manifestations of the instinctive defects are ably and fully treated by L. Pierce Clark in numerous articles.

The rational treatment of epilepsy consists, not so much in suppressing the convulsive manifestations as in removing and counteracting those factors and influences which are of etiological and contributory significance, and by so doing to modify the individual's constitutional reactions. We have seen that the epileptic has an endocrine system, a nervous system, a metabolic system, and a circulatory system of peculiar stamp, and this individual differs in his susceptibilities and reactions to stimuli, physical, chemical, psychic, and social, from beings of normal make-up. It is especially important that treatment be instituted in early years when developmental trends may be directed and modified.

Recourse to depressant drugs, as the bromides and luminal, should be made only after every other therapeutic aid and corrective measure has been exhausted, or when, for some good reason, it is advisable to suppress the attacks temporarily until other lines of treatment become effective. All sources of reflex irritation and foci of infection should be removed, and their removal is sometimes sufficient to arrest the convulsive attacks perma-

nently, but usually such procedure is but the preliminary to effective treatment.

It must always be kept in mind that our aim is to effect remote rather than immediate results and that we are attempting so to modify the individual's developmental trends—his cellular and chemical constitution—as to lessen his response to irritative factors which ordinarily inaugurate a convulsive reaction. The syndrome of suboxidation characteristic of the disease furnishes definite therapeutic indications. Thyroid in small doses is useful in selected cases and especially in young subjects. The dose, except when definite hypothyroidism exists, which is not unusual, should be very small and very gradually increased or the condition will be aggravated as a result of excessive metabolism. The use of pituitary substance has met with success in the hands of Tucker, McKennan, and others, and the writer has also seen excellent results follow its use, especially in children of the dystrophia-adiposis-sexualis type. He believes, however, that the endocrine implication is usually pluriglandular and, unless contraindicated, uses thyroid, pituitary, suprarenal, and thymus in combination, finding that by so doing he achieves better results than from giving a single gland substance or extract.

Stimulation of the endocrine system to correlative activity is not the only indication to be met. While the endocrine system influences the vegetative nervous system and is concerned in blood genesis, the action is reciprocal and to influence body chemistry effectively we cannot depend upon endocrine therapy alone. Many epileptics show definite symptoms of vagotonic irritability. In these belladonna or atropine is useful, given in ascending doses until the limit of tolerance is reached. It is of the greatest importance to correct the anemia which is practically always present. Several patients under the writer's observation had convulsions only when the hemoglobin fell below 65 per cent. Iron, in spite of recent investigations which serve to discount its value, is, in the writer's opinion, the remedy of greatest value in anemia. It must be given in large doses over a considerable period. Faulty lime metabolism (calcium deficiency) is a natural accompaniment and possibly an important contributory etiological factor in epilepsy. For the purpose of supplying lime to the tissues the writer uses calcium chloride, or powdered oyster shell and powdered egg shell (rich in calcium carbonate), the membrane being included in the latter because of the supposed action of the contained keratin upon metabolism and development.

While various dietary restrictions have been enthusiastically advocated the writer believes that the epileptic, like other constitutional inferiors, requires a full and well-balanced diet. The withdrawal of salt in those with chloride retention is of advantage for a time, but if long continued impairs the osmotic properties of the blood and retards metabolism. The proteins are necessary to growth, to cell development in its most inclusive sense, particularly are the animal proteins essential to proper blood genesis. While it is sometimes advisable for a time to restrict the proteins when intestinal putrefaction is a factor, to do so indefinitely produces remote effects which are deleterious to the economy. The excess of potassium salts in an exclusive vegetable diet conduces to nerve irritability. The same result, for a different reason, follows a diet deficient in vitamines.

Lack of time forbids the discussion of the hygienic and educational management of epileptic children. Their hygienic needs differ but little from those of other hypoplastic children, which are taken up at some length in other of the writer's contributions. In meeting their educational requirements the psychic reactions peculiar to the epileptic constitution must be given special consideration. It is desirable, and in some cases necessary, that the child be removed from his previous environment. The psychic element in the fits is often an important factor and can best be controlled away from parents, relatives, and friends.

The alleviation of epilepsy is not a matter of a few days or a few weeks, but requires months and even years of careful intensive treatment—medical, hygienic, and educational, and when properly carried out the results are eminently gratifying to patient, family and physician.

Conclusions.—1. The convulsive manifestations of idiopathic epilepsy are the result of a dyscrasia which itself is the result of constitutional defect or inferiority.

2. In this constitutional inferiority, the endocrine system, the nervous system, the metabolic system, and the hematopoietic system are involved.

3. Rational treatment should be directed toward the correction of existing anomalies of function and toward the stimulation of normal correlative development, consisting of intensive medical, hygienic, and educational treatment under favorable conditions of environment.

4. The plastic period of early childhood is the best time for the institution of such measures.

KEENAN BUILDING.

DISEASE AS SEEN THROUGH THERAPEUTICS.*

BY G. LEVEN, M.D.,

PARIS, FRANCE.

SECRETARY GENERAL OF THE SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

IN the classical works issued fifteen or twenty years ago diarrhea was mentioned among the symptoms of the prodromic period of typhoid fever. Now, on the contrary, it is admitted that constipation is more usual at that period. These contradictory opinions are readily explained by the fact that formerly every kind of gastric derangement was created by the use of purgatives, and when the gastric trouble was the first sign of typhoid fever, the diarrhea was naturally due to the purgative and not to the typhoid process. This exemplifies disease as seen through therapeutics!

A certain school has been unanimous in teaching that dilatation of the stomach comes on with typhoid fever and follows it throughout. There was a double reason for such a mistake: the diagnosis rested on a most misleading symptom: the gastric ripple. Moreover, the patients were not to be fed. As a rule, when fed during typhoid, they do not

*Read by invitation at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921.

(See page 388.)

show dilatation, which was deemed formerly almost unavoidable. A. Mathieu and J. Charles Roux have shown the causal rôle of insufficient nutrition in the genesis of gastric dilatation in typhoid fever as well as in other diseases. This affords a second instance of the same disease as seen through therapeutics.

This may be emphasized by the following case: A sixty year old patient, on the twentieth day of a typical typhoid fever, established by a positive serodiagnosis, had developed coma. After she had refused to take any kind of food for the first twenty days, it was found sufficient to feed her for twelve hours on milk and coffee to make her so much better that she could recognize me (I was a very near relative of hers). I was then able to tell the attending physician that we were watching a case of illness seen through therapeutics. My colleague very frankly acknowledged that he had not sufficiently insisted on the diet question and that the coma demonstrated this fact.

We are taught that icteric patients by retention get thinner; I am experimentally certain[1] that when sufficiently fed they do not get thinner and can even grow fatter, even if the icterus persists several months. The statement that all icterics by retention must grow thinner simply means that the patient has been again looked at through therapeutics; emaciation is an artificially created symptom, in which the practitioner has neglected to consider how far anorexia and insufficient nutrition were responsible for it. This view is pregnant with lessons; for, indeed, if a patient suffering from retentive jaundice grows conspicuously thinner, while sufficiently fed, one is justified in considering the case as one of some lesion leading to cachexia, usually cancer. As it is always somewhat difficult to establish the cause of a retentive jaundice, it is important to possess an easy means of laying down, after fifteen or twenty days at most, an almost positive diagnosis, or better, of setting aside the cancer hypothesis, if the emaciation stops or if the patient grows fatter. Whenever I have used the dietetic method described, it has proved true.

In cases of pregnancy, the so-called incoercible vomiting would often cease if a diet appropriate to the dyspeptic state of pregnant women were ordered. The patient is too often left to her own dietetic whims, and her vomiting seems irrepressible. This is an example of ineffectual therapeutics.

Veronal or any other hypnotic taken after the evening meal or on retiring will often act only the next day, so the patient will feel uncomfortable during the daytime. If it had been taken half an hour before the evening meal[2] it would have brought sleep during the night and been evacuated in the morning; so the day would have run smoothly. This affords another instance of therapeutic symptomatology.

How many misdeeds has anaphylaxis been charged with in "accidents which have been ascribed to it without their having anything—or hardly anything—left of the conditions described by Richet" as Marcel Labbé[3] so excellently says; these misdeeds can be safely explained if observation is cleared of misleading agents. The following example about egg-anaphylaxis is, I think, conclusive. Some persons, called "egg-anaphylactics," can digest an egg easily if they use the small salt-cellar spoon to eat it with. Why this different tolerance? An underboiled egg when too quickly swallowed, curdles in big bits which cannot pass easily through the pylorus and determine indigestion: by using the small spoon, the person must swallow very small quantities of albumen, which break up into tiny curdles on which the gastric juice works better, enabling them to cross more comfortably the pyloric strait. Here again are symptoms seen through an alimentary mistake.

I do not, in any way, deny the existence of anaphylaxis; I only believe and have long believed—as my lectures have shown[4]—that its province has been unduly extended—an opinion which Marcel Labbé[5] equally maintains.

Let us now turn from the clinical department and enter that of experimental physiology.

When I studied, first experimentally,[6] and then radioscopically with G. Barret[7], the passing of water through the stomach, my conclusions differed from those of experimentalists of the first rank (Gley and Rondeau, von Mering and Moritz, Laborde, A. Mathieu, Hirsch) whose unquestionable statements all differed one from another.

An explanation of these divergences is easily afforded. Each experimentalist had been using different technique: the distance of the intestinal fistula to the pylorus was not the same in all these experiments; and that was the only reason why the results differed. Each physiologist's observations were correct, excepting in one feature which I tried to avoid by using another method, namely, avoiding all operation upon the animal and studying the passage of liquids with the aid of the screen.

I only mention these results because they afford an instance of physiology seen through experimentation, and because it might prove useful to compare it with a case of disease seen through therapeutics.

We find in medicine as well as in physiology and therapeutics differences of opinion which are puzzling and discouraging for the physician, and which little by little bring him to believe in nothing. When he begins studying he is taught certain things; later he is told that what was true twenty years ago is no longer true to-day. It is probable that medical opinions would not change so frequently if clinical experimentalists were more accurate in ascertaining the actual circumstances of their experiments. One must acknowledge that this is a more difficult task for a physician than for a physicist or chemist, as biological phenomena, both physiological and pathological, are, and always will be, extremely complex.

However, when the experimentalist tries to go further in the investigation of the symptoms; when he is careful in determining the circumstances of his experiment; when, first of all, he avoids creating symptoms which he will afterwards falsely ascribe to the disease; when he does not study the latter through the deformation occasioned by therapeutics; when he does everything he can to be a good medical experimentalist, he will have a justified claim on both practitioners' and patients' gratitude; and sceptics will no longer be able to say: take this medicine while it still cures! Well studied,

well experimented, the medicine that has cured once should always cure.

REFERENCES.

1. G. Caussade and G. Leven: "Engraissement et amaigrissement au cours de l'ictère par rétention; leur valeur séméiologique," Soc. Méd. des Hôpitaux, 26 Mars, 1909.
2. G. Leven and G. Barret: "Radioscopie gastrique et maladies de l'estomac," p. 81.
3. Marcel Labbé: "Leçon d'ouverture du Cours de Pathologie et Thérapeutique Générales," La Presse Médicale, 8 Janvier, 1921.
4. G. Leven: Lectures delivered at the Hôtel-Dieu in M. Caussade's department from 1909 to 1914 and 1919 to 1920.
5. G. Leven: "Recherches sur le séjour des liquides dans l'estomac," Soc. de biol., 15 Novembre, 1902. "Radioscopie gastrique et séjour des liquides dans l'estomac," Soc. de biol., 20 Décembre, 1902.
6. G. Leven et G. Barret: "Radioscopie gastrique et maladies de l'estomac," Paris, 1909.

THE ETIOLOGY OF HYPERTENSION.*

By J. F. YARBROUGH, M.D

COLUMBIA, ALA.

In speaking of hypertension we refer to the permanent type; the transient, or emotional form will not be considered. In the treatment of pellagra during the years 1912 and 1913 we discovered that hypertension, Brights disease, and certain types of rheumatism made wonderful improvement under the dietary and medicinal measures employed in the treatment of that disease. The author stated in a paper written at that time that the improvement in these conditions was so striking that he believed he was dealing with a carbohydrate diathesis. (The carbohydrate referred to is that contained in sweets and starches, not that contained in fruits and vegetables.)

Subsequent observations have vastly strengthened that belief. It would be interesting to take up separately the above diseases and study their relations to the carbohydrates; however, the time allowed, and the scope of this paper, forbid a detailed study of this phase of the subject. Therefore, our study will be confined to hypertension, or rather, the etiology of hypertension, the keystone to the arch of this medley of conditions.

Hypertension is the most anomalous and perplexing symptom now engaging the minds of the profession.

A state of chaos exists as to its etiology; this is clearly proven by the great divergence of opinion among investigators. Jacobi and his followers believe that all hypertension has its origin in nephritis. Jacobi goes so far as to state that all systolic pressure approaching 200 is proof positive of nephritis. The other school believes the etiology is to be found in the blood tree. Hemenway differs from these schools in that he believes a viscosity of the blood is the leading factor. The opinions of all these gentlemen seem plausible, as expounded by them; however, after much investigation and experience, I am convinced they are in error.

The true etiology, in my opinion, will be found in a carbohydrate acidemia. The following facts seem to be strong proof of the correctness of this conclusion:

*Read before the Alabama Medical Association held in Montgomery, Ala., April 20,1921.

1. The history of every case with which I have had to deal showed a large preponderance of carbohydrates in the diet.

2. They all showed an acidemia.

3. In former years a large percentage of our nephritis cases was addicted to the use of alcohol (a pure carbohydrate product).

4. In every instance the pressure has quickly fallen to normal under a strictly protein diet, and such drugs as would promote alkaline secretion, or the administration of an alkali.

5. In every experiment made, a substitution of the proteins by the carbohydrates, and the withdrawal of the alkaline promoting drugs, was quickly followed by a rising tension.

A careful study of the part played by the carbohydrates in the process of digestion also offers strong proof of the above hypothesis. It is known by all chemists that the end- or by-products of carbohydrate digestion are acids, too various in kind and number to be discussed in this paper.

The main function of the liver is to neutralize these acids and other poisonous products. A long preponderance of the carbohydrates in the diet produces these acids in sufficient quantity to cripple the secreting power of the liver; a natural consequence of this crippled function is a blood stream filled with these acids. The detailed treatment of this condition is not contemplated in this paper; however, I feel constrained to say here that in advanced cases, the fate of the patient absolutely depends upon the restoration of the hepatic function.

Acids are astringents, therefore contract tissues; what then would be more natural than a contraction of the arterioles by a blood stream filled with this poison? The lumen of these vessels would naturally be materially restricted. Mechanical engineering teaches that it requires more power to deliver a given amount of water in a specified time through an inch pipe than through a two-inch pipe.

The same principle is here involved; nature demands that a certain amount of blood be supplied to the parts in a given time, if from any cause the lumen of these vessels become lessened, it naturally follows that more power is required to maintain a proper circulation. What then could be more natural than an increased blood pressure under such conditions?

In further support of this etiology, we quote Monakow as he was quoted in a recent number of the MEDICAL RECORD of New York: "Monakow presents evidence that permanently high blood pressure is always preceded by abnormal contraction of the arterioles in extensive vascular regions. These contractions of the vessels can be induced by nervous influences (disturbances in the domain of the sympathetic, from emotional influences), or they may be induced by changes in the internal secretions, or by poisons. A high blood pressure is thus a symptom which—like fever—has no single etiology. To attempt to trace this symptom to a single cause—disease of the kidneys—is futile. Even with the so-called nephrosclerosis, the rise in blood pressure is not conditioned by the kidneys; the kidneys may be entirely intact not only functionally, but anatomically. The trouble is a primary hypertonia which may be of different origins."

Dr. Beaumont S. Cornell, in the *Journal of the American Medical Association*, March 12, 1921, offers the following corroborative evidence: "Elsewhere I have emphasized the clinical evidence of acidemia in early cases of chronic nephritis. It was shown in ninety-five cases out of a hundred in which nephritis had been present under three years there was a certain kind of dyspnea that seemed unexplained by the heart. In the present article, I will give further observations. It is remarkable how, after, say four doses (20 grains each) of the alkaline salt (sodium bicarbonate) most extreme dyspnea of this type subsides, and usually disappears altogether. There is then no dyspnea of any kind left, thus proving that the heart had no part in causing the respiratory distress."

The writer in a former article gave the following explanation of the dyspnea described by Dr. Cornell: "An acid blood cannot absorb oxygen, hence dyspnea naturally follows an improper oxidation of that fluid. The bicarbonate of soda quickly alkalinizes the blood, oxygen is immediately absorbed, and the disappearance of the dyspnea is the logical result." In late years we have had much discussion as to the initial lesion of hypertension in cardiovascular renal disease; the heart and kidneys have both had ardent advocates. It would seem from the above study that the real lesion was in neither of these organs, but had its inception in a carbohydrate acidemia (with accompanying hypertension) long before any symptom of cardiovascular renal disease made its appearance.

With this heterogenous mass of poisons filling the blood stream for months and years, would it not be strange if the vessels containing them and the sewer through which most of them pass out of the system did not become seriously affected? A natural consequence, therefore, of this condition would be cardiovascular renal disease.

In closing, the history, diet, treatment, and results obtained in the three principal types of hypertension will, I believe, add value to this paper.

CASE I—*Simple Hypertension:* Mrs. A. D. C., white, age 65, housewife, admitted Nov. 2, 1920. (A note from her physician stated that her blood pressure had averaged 230 for the past two years, and that he had never been able to find albumin in the urine.) Blood pressure 240. Skin dark brown; constipation, indigestion, oral membranes, tongue and throat scarlet; proctitis, vaginitis, with excoriating acid discharge; much distress from gas after meals. No appetite. Diet had consisted for the past several years of cereals, potatoes and rice. She was passing only 8 ounces of urine in 24 hours, no albumin, no cardiac lesion. A nervous and mental wreck.

Treatment: Thirty drops dilute nitric acid in glass of water one hour before meals. An ounce or two of phosphate of soda when a purgative was necessary. Fifteen grains trional at bedtime.

Diet: Two raw eggs, four ounces pure cream, the juice of two oranges and a pint of sweet milk three times a day. All the water she could be induced to drink.

Results: Within eight days her pressure had fallen to 140. The urinary secretion had increased to 40 ounces. We now added to the diet chickens, fish, beef, peas, and beans, bean bread and all fruits and vegetables except beets and bananas. She left the hospital January 15, 1921, greatly improved; nervous and mental condition practically normal; pressure 140, eating and sleeping well, normal stool every morning, weight 88.

CASE II.—*Interstitial Nephritis:* Mr. T. C. McC., admitted Feb. 15, 1921. White, age 61. Capitalist. This patient had had high blood pressure and albumin for more than ten years. In New Orleans his case had been diagnosed "Brights" and a bad prognosis given. Later in New York the same diagnosis and prognosis were made. He entered the hospital Jan. 15, 1921, in the following condition: Blood pressure 245, urine loaded with albumin, skin dark brown, constipation with hard white stools. Exceedingly nervous, insomnia, vision greatly impaired, indigestion. Oral cavity, tongue and throat scarlet. Was voiding 14 ounces urine in 24 hours. Diet had consisted largely of rice and sweets for several years.

Treatment: Thirty drops dilute nitric acid in a glass of water one hour before meals. One or two ounces of phosphate of soda when a purgative was necessary. Was induced to drink all water possible. Fifteen grains trional at bedtime.

Diet: Two raw eggs, the juice of two or three oranges, and a quart of sweet milk three times a day.

Results: At the end of the first week his general condition had improved; urine had increased to 50 ounces. Stools were still hard and white. The acid was discontinued and 8 grains ox-gall was given in its place. In less than a week the stools were soft and dark; the gall was now displaced by the acid. The blood pressure had fallen to 175. There were now added to his diet peas, beans, bean bread, chickens, beef, fish, and game, and all fruits and vegetables except beets and bananas.

At the end of the fifth week his condition was as follows: Blood pressure 130, no albumin, skin clear, appetite good, sleeping well, normal stool every morning, vision practically restored. On a visit to the hospital a week ago his pressure was 138, no albumin.

CASE III—*Parenchymatous Nephritis:* Mrs. J. D., White, age 40, housewife, admitted to hospital in December, 1914. General anasarca with the peculiar pallor of chronic parenchymatous nephritis. Ears, nose, lips, and fingers cyanosed. The edema and dyspnea were very distressing symptoms. Constipation; urine loaded with albumin. Systolic pressure 100. She was voiding 12 ounces of urine in 24 hours. She had recently been given almost every known drug that was supposed to increase urinary flow without result. For several years her diet had consisted largely of corn bread, syrup and potatoes.

Treatment: Thirty drops dilute nitric acid in a glass of water one hour before meals; large quantities of phosphate of soda with the hope of reducing the edema.

Diet: Two raw eggs, the juice of two or three oranges, and all the sweet milk she could be induced to drink. No salt; practically no water.

Results: In one week the edema and dyspnea had disappeared; the urinary flow had increased to 60 ounces. The patient slept prone on the bed without discomfort. She was now given chicken, beef, fish, peas, beans, bean bread, all fruits and vegetables except beets and bananas.

At the end of the sixth week she was dismissed practically recovered; blood pressure had risen to 140. This woman has had no return of the nephritis and is now in good health.

In the initial stage of this type of nephritis, we have high blood pressure—it falls after the cardiac muscle has become weakened. We occasionally find low pressure in the interstitial type from the same cause.

These case histories give only the leading features of the treatment; many details have of necessity been omitted because of a lack of space.

Passage of Virus of Epidemic Encephalitis from Mother to Fetus.—Levaditi and two others have shown this transmission experimentally. A gravid rabbit inoculated with the virus in question died on the 11th day. Experiments with the brain of the mother and one of the young, in the course of which healthy rabbits were inoculated in the usual manner, showed that the virus had gained access to the cerebrum of the newborn rabbit through the placenta, with the possibility of transmission through the milk.—*Gazette des Hôpitaux.*

ACUTE ANTERIOR POLIOMYELITIS OF UNUSUAL TYPE.*

WITH REPORT OF A CASE.

By LOUIS HANNAH, M.D.,

SYLVANIA, GA.

THE presentation of this type of poliomyelitis is of diagnostic interest chiefly. Recognition of the disease is complicated by manifestations of intracranial involvement, which, until the type of paralysis is determined, leads one to suspect some organic alteration in the brain or its blood supply as the primary cause of the symptom syndrome. It is true that we encounter but rarely tumor formations, apoplexy, thrombosis, inflammation, or even syphilis, of the brain in very young children; but such exceptions are possibilities, and, clinically, the case under consideration is one of the exceptions.

Since many features of resemblance between encephalitis and poliomyelitis have long since been established, we have been confronted with the question as to whether the two maladies may not represent simply different manifestations of a single disease entity, with a common etiology. As late as 1914, it was stated with certainty by McKee and Wells in their text book, "Practical Pediatrics," that "infantile spinal paralysis and polioencephalitis represent but different phases of one and the same disease." Furthermore, to quote the same authors, "In addition to such cases—the well recognized types—every epidemic of size contributes its cases of polioencephalitis with resulting spastic hemiplegia, the superior and inferior types of Wernicke, facial paralysis, bulbar palsy, paralysis of the neck muscles, and paralysis of various muscles of the trunk. Again, though rarely, cases of the Landry ascending type of paralysis occur." Should we accept the question of this theory in the affirmative, then the case to be later described might be regarded as of the borderline type. However, recent immunologic investigation at the Rockefeller Institute seems to determine the question more nearly, and with more obvious and convincing evidence, in favor of an individuality rather than an identity of poliomyelitis and encephalitis.

Concerning the etiology of sporadic poliomyelitis, it has not been determined whether or not its causative agent is identical with the virus of the epidemic form. However, from an immunologic standpoint, Amoss, in a report published January 8, 1921, stated that the serum employed in epidemic poliomyelitis was "scarcely adapted" to the treatment of the sporadic types. In the present instance, no definite source of infection could be ascertained, as there were no other occurrences of the disease in the community. In the absence of fever or other evidence of an infectious process, Starr suggests that the cause of these unusual forms of the affection may be a primary degeneration of the ganglion cells, or may be a hemorrhage or thrombosis of a spinal vessel. The same author regards the two types of onset (with and without fever) as quite distinct, and considers their pathological basis as probably different. The same sex, age of maximum liability, and seasonal incidences obtain in the sporadic disease as in the epidemic form.

*Read before the Screven County (Ga.) Medical Society, May 12, 1921.

CASE REPORT.—R. W., a boy 6 years old, son of a farmer living eight miles from the city, was seen in consultation with Dr. W. R. Lovett on May 4, and again on May 6 and on May 11.

The patient's family history is negative, excepting that one brother, 8 years old, now has slight "weakness" of one side of the body, including the limbs, with which he has been affected since birth. The past history is entirely negative, including exanthemata and trauma.

Present History.—When first seen, the patient exhibited left partial hemiplegia which had appeared suddenly, three days before, to mar an apparently perfect record of health. The paralysis was flaccid, and there was also present at this time right internal strabismus, symptoms of optic neuritis, impaired vision, and slight temporary hemianopsia. There was no inequality of pupils, which also reacted normally to light. The deep reflexes were normal, as was also tactile sensation. There was slight motor paralysis of the tongue on the right side. Malaise and apathy were also noted, although the child displayed an unusually bright mentality, as evinced by his ability to recite readily the alphabet in reverse order of its letters. The only incident which might be considered prodromal occurred three days previous to the attack, when the patient complained of slight abdominal colic.

Later observations disclosed progressive disability, and while for the first few days he had been able to walk with little or no assistance, he was now confined to bed and was practically helpless. At this time there were signs of slight motor aphasia and dysphagia, temporary retention of urine, abolition of the left patellar, wrist, ankle, and plantar reflexes, with the presence of marked Kernig's sign (due to contracture) and of very slight Babinski reflex on the paralyzed side. The right patellar reflex was also abolished and the right Kernig negative. He had had several marked sweating spells and attacks of vomiting, and suffered some exhaustion. The affected limbs were cold but showed no edema. The upper limb paralysis was of the lower arm type and presented much greater disability than did the leg; and while the patient could raise the arm to his head, there was total loss of control of his forearm. There was no mental impairment, and no headaches, fever, loss of consciousness, convulsions, tremor, nor chills at any time during the course of the attack. The patient never complained of any pain whatsoever, and only during the first few days was there tenderness over the spine. The only variations in his general condition were a slightly accelerated pulse, temporary anorexia, coated tongue, and constipation. There was never bladder nor rectal incontinence. Tests were not made for reactions of degeneration, and at the present time atrophy is not discernible.

The general physical examination of the patient proved negative, excepting the effects of paralysis. The Moro test for tuberculosis was negative. The blood pressure was 85, and hemoglobin 70 per cent.

Examination of blood showed: Leucocytes 7,600; blood picture negative; malaria negative; Widal test negative; Wassermann negative. The spinal fluid macroscopically was normal; spinal fluid pressure increased; albumin slightly increased, with a trace of sugar, or other reducing substance, present; no cells were found other than a few erythrocytes, seen microscopically and probably due to the needle puncture; the reaction was faintly alkaline; the Wassermann reaction was negative. The urine showed: specific gravity 1,017, acid reaction, no albumin nor sugar, and was negative microscopically. We were unable to obtain a specimen of feces.

With reference to treatment of this case the writer is not prepared to present any conclusions, as the patient was seen only in consultation, and the general management was left to the family physician. The measures decided upon were hydro-, electro-, and mechanotherapy, with massage, and the administration of urotropin, strychnine, laxatives, and general alteratives. There is no specific remedy known for this type of poliomyelitis, and the serum used in the epidemic form has not proven applicable to sporadic cases.

Comment.—The features of interest in connec-

tion with this case were the total absence of fever, headache, pain, and convulsions, and the presence of a hemiplegic type of paralysis, with facial involvement. As to the infrequency of afebrile infantile paralysis, Starr has concluded that only 25 per cent. are of this character; and statistics show a smaller incidence of paralysis affecting the eyes, tongue, and face, as a result of invasion of cranial nerve nuclei by this disease, than occurs in the epidemic form. However, the most striking variation from the usual manifestations of sporadic poliomyelitis is the incidence of hemiplegia, as indicated by the fact that of 1292 cases of this disease reported by five observers, from 1864 to 1908, only 63 cases, or less than 5 per cent., were of hemiplegic type.

FOREIGN BODIES IN THE EXTERNAL AUDITORY CANAL.

WITH TWO CASE REPORTS.

BY JOSEPH FRIEDMAN, M.D.,

NEW YORK.

INSTRUCTOR, NOSE AND THROAT DEPARTMENT, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ASSOCIATE OTOLARYNGOLOGIST, BETH MOSES, WILLIAMSBURG AND CONEY ISLAND HOSPITALS,

AND

SAMUEL D. GREENFIELD, M.D.,

NEW YORK.

ASSISTANT ATTENDING OTOLARYNGOLOGIST, WILLIAMSBURG AND CONEY ISLAND HOSPITALS; ASSISTANT ATTENDING OPHTHALMOLOGIST, BETH MOSES HOSPITAL; CLINICAL ASSISTANT, NOSE AND THROAT DEPARTMENT, MANHATTAN EYE, EAR, NOSE AND THROAT HOSPITAL.

FOREIGN bodies in the external auditory canal oftentimes offer difficulties of such a nature that the ingenuity of the otologist is taxed to the utmost. Very frequently these difficulties are augmented as a result of the injudicious and unwise attempts at removal in unskilled hands. What would ordinarily be a simple and safe procedure is indeed rendered a more or less hazardous task by the overanxious physician in his hurried and unsuccessful manipulations. Most of the cases in our experience that have required more than the ordinary methods of removal have been those that had previously been tampered with and particularly have we in mind the faulty and overindulgent instrumentation. That this overindulgence can be carried to an almost unmerciful state will be exemplified subsequently.

The foreign bodies that find their way into the external auditory canal are numerous and of great variety. Almost every conceivable object of a size small enough to permit of its entrance into the external auditory canal may find lodgment there either accidentally or intentionally. The wilful insertion of foreign bodies into the canal is not only a most pernicious habit prevalent among children, but we also find adults who partake of this practice. Shoe and collar buttons, glass beads, kernels, seeds, pieces of chalk, pebbles, beans and peas, pieces of match-stick and pencil lead, shot, cotton plugs, and various insects such as flies and bugs are some of the articles encountered.

The presence of a foreign body in the canal *per se*, is not of very great consequence, providing of course it is not of such size as to exert undue pressure upon the walls of the canal with its subsequent irritation or, by reason of its size and location, to cause interference with audition. A foreign body not too large to obstruct the lumen completely may remain in the canal for an indefinite length of time without producing any injury to the ear or inconvenience to the patient. As a matter of fact the patient may not be conscious of its presence, and cases have been reported in which foreign bodies introduced in childhood were accidentally discovered in adult life. Politzer reports a case in which he removed a piece of pencil lead that had remained in the ear for fifty years. There is greater danger to be feared in those cases in which interference has been instituted. The forceful and injudicious attempts at removal have oftentimes resulted in fracture of the walls of the meatus with subsequent serious involvement of neighboring structures. Not alone has the foreign body been driven against the drum, with laceration of the canal walls and destruction of the drum membrane, but with persistence it has been driven through the drum into the middle ear where it becomes impacted and in this location renders removal through the canal almost impossible. Not alone has the ear been frequently rendered functionless, but even death of the patient has been known to ensue. No one is justified in jeopardizing the usefulness of the organ of hearing or endangering the patient's life because of lack of knowledge and familiarity with the conformation of the external auditory canal and the location and slope of the drum membrane, associated with inexperience and the employment of unsatisfactory and improper instruments. We cannot impress too strongly upon the general practitioner the necessity of refraining from introducing various instruments into the ear especially when the foreign body with ordinary examination is hidden from view. Groping about blindly in a narrow irregular canal can never accomplish anything but harm to the patient, which only too often becomes of a most irreparable nature.

We wish it to be remembered that a history of the introduction of a foreign body into the auditory canal of a child is no criterion that a foreign body is present. Not until we have obtained a satisfactory view of the object can we be assured that the patient's statement is correct. One can readily see therefore that, especially in the latter case, damage is apt to result from faulty instrumentation. A curette or a hook is oftentimes introduced into the canal until it meets an obstruction and then the operator tries to engage what he believes is the foreign body. In his eagerness to extract the object, usually in a struggling child, he lacerates the drum, mutilates the canal walls, or dislodges the ossicles and with the appearance of a sanguineous discharge from the ear, he withdraws from the procedure and is then willing to transfer the responsibility. Much can be accomplished and a great deal of unnecessary traumatism and pain can be spared these patients if certain facts are borne in mind, and if those factors which govern the selection of the procedure to be employed are assiduously and intelligently considered.

The external auditory canal is a narrow irregular tube about 1½ inches in length. At its inner extremity is situated the membrana tympani, a knowledge of the exact position of which is essen-

tial if one is to perform with safety any manipulations in these cases. It should be borne in mind that the direction of the drum membrane is obliquely forward and downward and that in children this inclination is much greater than in adults. Because of this position the posterior portion of the drum is situated 5 to 6 mm. nearer the meatus than is the anterior portion. This being the case, therefore, instruments must, if passed along the posterior and superior walls, be introduced with great caution in order to avoid injury to the drum membrane; it is much safer to introduce them along the anterior and inferior walls in our endeavor to engage the foreign body.

The canal as a whole presents great variations in different individuals; in some cases being wide and straight while in others it is narrow and presents curves requiring quite a bit of difficulty and maneuvering before one is able to obtain a satisfactory view of the interior of all the canal walls. This difficulty is obviated to a great extent by the presence of the fissures of Santorini, located in the cartilaginous portion, which run at right angles to the long axis of the canal. These fissures permit the straightening of the meatus and also follow a certain amount of displacement of the cartilage during examination and operative procedures. Hence traction on the auricle in the proper direction aids materially in making a satisfactory inspection. The narrowest part of the canal is located at the isthmus, which is the point of junction of the cartilaginous and osseous portions. This is the place where foreign bodies become wedged and where if they penetrate more deeply beyond this point, the greatest obstacle is offered to their extraction. As a rule foreign bodies are driven beyond the isthmus as a result of instrumental interference; the usual location in the cases that have not been treated being external to the point of constriction.

Given a case in which we have obtained a history, either from the child itself or from the parents, that a foreign body has been accidentally introduced into the ear, what steps are we to follow in the process of its extraction? To begin with, we must have at our disposal adequate light, a head mirror, a speculum, and the proper assistance necessary to hold the child quiet so that we can obtain a good view of the foreign body. When the proper assistance cannot be had, light anesthesia may be employed to great advantage. That we must verify the statement of the patient or of its parents is of great importance, a matter to which we have previously called attention. Under no circumstances should we attempt interference unless we have ascertained to our own satisfaction that a foreign body is present in the canal. Some of us may advance the proposition that all this precaution is unnecessary; that without seeing the foreign body, the ear syringe may be employed promiscuously without any ill effects to the patient. In some instances this hit and miss affair may drive a foreign body deeper into the canal and what would ordinarily be a simple case to handle becomes a difficult one. This is especially true in those instances in which the foreign body is impacted in the canal occluding the entire lumen. Because of this latter fact the stream of water from our syringe, which is only effectual when we succeed in establishing a return flow behind the foreign body, cannot be applied here to advantage, and consequently all that it serves to do is drive the object deeper into the canal and increase the impaction. After what has been said, we believe it is obvious to all that instrumentation should certainly be precluded under similar circumstances. How much more liable is the operator to force the foreign body beyond the isthmus in these instances.

Having determined to our satisfaction that a foreign body is present, what factors concerning our case must be taken into consideration before we institute treatment?

The method of extraction of a foreign body depends upon its location in the canal, its size, whether small or large (the importance of the latter being the absence or the presence of impaction), its consistency (whether soft so that an instrument can be forced into the object itself and so engaged, or whether an instrument can with safety be introduced between it and the canal wall), and lastly upon the condition of the meatus at the time of examination, viz., whether previous attempts have already been made at removal as evidenced by impaction, inflammation, and narrowing of the canal. The majority of cases, unfortunately, that come to the specialist have already been interfered with.

In cases in which the foreign body is not impacted and in which there has been no previous interference, whether it be internal or external to the isthmus, the employment of the ear syringe, preferably one holding at least six ounces, using plenty of lukewarm water and force, and above all patience, will usually be successful in dislodging it. In the majority of cases this is all that is necessary. However, if perchance this should fail, we can very easily engage the foreign body by passing a small probe, hook, curette, or spoon beyond the object and then making pressure against it as we withdraw our instrument we can remove it. These measures, carried out carefully, should result in no injury to the lining of the canal or to the drum membrane.

In those cases in which the foreign body is impacted, but in which the previous interference has not caused reaction sufficient to render a good view of the object and its location impossible, we must determine whether the impaction is complete or incomplete, viz., whether at one or more points in the circumference of the foreign body there is no contact with the canal wall. If the impaction is incomplete, we may hope for a return flow behind the foreign body, and hence, the syringe should first be tried. If unsuccessful, we may attempt dislodgment by means of a narrow probe or hook inserted at the point where the impaction is incomplete, always exerting pressure against the foreign body and so try if possible to loosen the impaction. This should then be followed with the syringe. In the majority of cases that fall into this category, the procedure outlined will usually be effectual. If the impaction is complete and the foreign body is external to the isthmus a number of procedures may be tried depending upon the circumstances. If the foreign body is of such a consistency that it can be perforated, or if the mass can be entered, we can oftentimes loosen it so as to render a complete impaction incomplete and then further steps may be employed as above described. Occasionally, especially in the case of kernels, peas, beans,

or wood, the mass can be shrunken to allow of manipulation by the repeated instillation of alcohol. However, should the foreign body be impossible to enter and if tightly impacted deeply in the canal, then the more radical operative measures, as will be described later, must be undertaken, especially if complications arise.

A very important governing factor, which at times calls for delay in instituting any treatment whatsoever excepting the expectant plan, is the presence of severe inflammatory reaction. In these cases cold applications to the canal must be employed until the inflammation and swelling have subsided and we can learn the exact state of affairs inside the canal. Whether we are justified in waiting will depend of course to a great extent upon the presence or absence of more severe symptoms. Delay should not be resorted to in the presence of increased temperature, severe pain, labyrinth, or brain symptoms. In these cases if the simpler methods have proven fruitless then the auricle and posterior wall of the cartilaginous section must be detached and the foreign body removed. It may be necessary, although rarely, to chisel away the osseous meatus in order to reach the foreign body. In all these cases, therefore, the treatment is determined by correct judgment of the circumstances, and here, more than elsewhere, the acuteness of the physician is the leading factor in the success of the operation.

There are two cases we wish to report in detail. Both of them demonstrate very clearly those points we have tried to emphasize in regard to the damage that can result from the injudicious attempt at removal. There is no question in our minds that the complications which followed in both cases could have been avoided if the cases had fallen into the proper hands at the outset.

CASE I.—The first case was that of a little boy aged five, who had introduced a small pebble into his ear. The mother immediately took the child to a physician, who attempted to remove the foreign body, but having failed and who, according to the mother, had caused the child considerable pain, prescribed drops to be instilled. The child was not relieved and was taken to another physician, who repeated the same procedure. He likewise failed. That evening the child was seen by Dr. S. Robbinowitz, who referred the patient to us. After carefully wiping out the canal of blood, examination disclosed the following: A canal badly lacerated, the foreign body impacted deeply in the canal, extending probably beyond the annulus tympanicus into the middle ear, a drum membrane bady lacerated with the malleus handle projecting into the canal. Several attempts at removal with a small hook failed, difficulty being encountered in trying to pass the instrument between the mass and the canal wall. In view of what had gone before with an already well-established traumatic otitis and the child suffering with pain and temperature, we decided to remove the pebble through the posterior route. The child was admitted to the Bikur Cholim Hospital the next morning and under anesthesia an incision was made close to the postauricular fold. The soft parts were retracted, the cartilaginous canal exposed, detached and opened and the foreign body grasped and removed. The child left the hospital several days later and came to the office for subsequent treatment. The otitis ran a most protracted course. The mastoid never seemed involved, but due to the extensive destruction of the drum membrane more than three months elapsed before the middle ear became dry.

CASE II.—The second case was less fortunate. A little boy aged four and one-half permitted an older brother to introduce a shoe button into his ear. Nothing was said of the accident until three days later, when the youngster began to experience pain in his ear. He was taken to his family physician, who decided to undertake its removal. As commonly occurs, the physician introduced a pair of forceps and began to feel for the foreign body. Not succeeding, his attemps became more violent and very soon the youngster began to object, and the mêlee ended with the child bleeding profusely from the ear. The child was sent home and told to return the next morning. During the remainder of the day the youngster was very uncomfortable and complained bitterly of earache, and consequently that evening the child was brought to our office. Examination revealed the button deeply wedged in the canal, but very fortunately the loop of the button was directed externally. It was impossible to control the vigorous youngster and we had to resort to anesthesia. It took a short time to insert a hook and thread the loop and the foreign body was quickly removed. The drum was very much congested and bulging. We incised at the same time and obtained pus. The child was put on irrigation, but apparently the otitis ran the usual course that one expects when traumatism plays a part in the etiology. For two weeks the discharge was profuse; the child was restless at night, his temperature ranging from 99° to 103°, and about this time the posterosuperior canal wall began to droop, and because of these findings, with acute mastoid tenderness, we advised operation. The child was admitted to the Williamsburg Hospital and operated upon the same day. The interesting feature of the operation was the finding of a very diseased and necrotic pneumatic mastoid. We cleaned out all the cells very carefully and completely and closed the usual way. In less than five weeks the posterior wound was healed and the middle ear was dry.

There is no doubt in our minds that both of these otitides were traumatic in origin and that the latter case developed a masteid in consequence. It must therefore be clear to all that we cannot afford to minimize the danger attendant upon the rash and hasty removal of foreign bodies from the external auditory canal in inexperienced and unskilled hands.

691 LAFAYETTE AVENUE

THE TREATMENT OF PULMONARY TUBERCULOSIS WITH SULPHUR DIOXIDE.

BY F. TWEDDELL, M.D.,

GREAT NECK, N. Y.

MORE than two and a half years ago I read my first paper[1] on the use of sulphur dioxide inhalations in the treatment of pulmonary tuberculosis. This was an experiment then and will remain one for some time to come until I shall have had better facilities for carrying out this treatment in some institution on a larger scale. My experience has shown that practically all men exposed to inhalations of sulphur dioxide are immune to tuberculosis. This immunity arises from no other known cause. Consequently I feel justified in continuing experiments along these lines.

I know of several men who are using this gas with success, and I have heard of others who have not had success with it. It must be borne in mind that this treatment is unquestionably in the experimental stage. Nonsuccess is due to several causes: (1) Unsuitable cases, *i.e.* long-standing chronic cases and those in too far advanced stages. (2) Fibroid phthisis, which I have shown[2] does not respond to the treatment. (3) Using the gas too strong, or too often, or prolonging the time for inhalations. (4) Using impure gas. Only the pure

gas as supplied by the King Chemical Company, made from powdered sulphur, should be used. This gas is liquefied under pressure and sold in tanks. A pound will last a month. The gas should pass through a rubber tube into a test tube half filled with water, so as to purify it again. The water in the test tube should not be changed, as one volume of water absorbs forty volumes of the gas before it enters the room. When the water gets low in the test tube more can be added to it.

Sulphur dioxide made from burning powdered sulphur or sulphur candles is very irritating and impure, and the amount of the gas cannot be controlled. Also sulphur dioxide made from pyrites is impure and irritating. None of these gases should be used.

Marked improvement is noted within a day or two after beginning treatment. Before treatment the patient has been coaxed to take a little milk or an egg or orange juice. He does not sleep well, is awake most of the night and coughs day and night. Within 48 hours he eats everything in sight and sleeps all night without waking. His cough becomes loose and he brings up enormous amounts of mucus with gray lumps in it. In about two weeks' time he hardly coughs at all except for a few minutes when he gets up in the morning. He then gets rid of the mucus which has accumulated during his sleep. The sputum has changed, there are no more gray lumps, it is white and frothy and greatly diminished in amount. About this time it will be noticed that the temperature and pulse are coming down and that the weight is going up.

As a rule patients use the gas far too strong. Improvement is so rapid and so steady that patients are led to believe that the stronger the gas the quicker the recovery. This is a mistake and should be guarded against. The gas in the room is strong enough when it can be noticed by the odor or the taste. When this is the case it should be turned off almost entirely, allowing about 50 or 60 bubbles to the minute to replace the gas which is lost by coming in contact with moisture, or by escaping from the room through cracks in the windows and doors. When used too strong or for too long a time, the patient will notice a warm, burning sensation below the sternum and in the epigastrium, or he will cough incessantly. In this event he must leave the room at once, or turn off the gas and open the doors and windows, and not take another inhalation for at least three hours. Some patients, after an inhalation, get a fit of coughing when they go out in the open air. When this happens they are advised to stay indoors for 15 or 20 minutes before venturing out of doors.

Tuberculous patients look forward to and enjoy the inhalations, and, as a rule, never cough during the treatment, whereas persons with sound lungs may cough a great deal. Usually three inhalations a day are sufficient, one early in the morning on rising, one in the middle of the day before the midday meal, and one late in the evening. In this way the interval at night will be shortened as much as possible. Later, after marked improvement, the midday inhalation can be left out. Patients at all times must refrain from much talking, which always subjects the lungs to a strain.

I do not advise inhalations in cases suffering from an active pleurisy, unless great care is taken. Deep inspirations aggravate it and complicate matters. The patient should either wait until all active signs of the pleurisy have disappeared and then begin treatment, or go to the inhalation room without, however, at any time attempting to expand his lungs, but just breathing normally. This is, of course, a disadvantage as the gas cannot reach the apices without deep inspirations.

I wish to report some very interesting and unusual experiences. I was called in consultation to see a patient, 74 years old, with involvement of the left apex, rales above and below the clavicle in front, and in the alarm zone behind. No bronchial voice or breathing anywhere. Sputum reported positive by two separate laboratories. His physician had already put him on sulphur dioxide inhalations a few days before. Eighteen days later I saw him again, the rales had completely disappeared, but there was cavernous voice and breathing in a small area, the size of a 25-cent piece at the outer side of the first interspace! A consolidation must have been there before treatment, but could not be made out.

On two other occasions I noticed another curious phenomenon. Both were in the right alarm zone, and occurred in like manner. There were crepitant rales in this area, especially after coughing. After three weeks' inhalations with sulphur dioxide, bronchial breathing was noticed on *expiration only*, and ten days later there was cavernous breathing during both inspiration and expiration. Undoubtedly this was a cavity. I am unable to find an explanation why bronchial breathing appeared first only during expiration. In future when this sign appears I shall feel inclined to infer that a cavity will show up sooner or later.

A few days ago I went to the Boston session of the American Medical Association to hear Dr. Pierson's paper,[3] which obviously would be of interest to me. I met Dr. Pierson before the opening of the meeting and he asked me to discuss his paper. Although I sent in my slip notifying the secretary of my desire to discuss the paper, I was not called on to do so. I therefore wish to say a few words here concerning Dr. Pierson's experiments.

I consider the strength of the gas used, not less than 1,500 parts to one million of air, far too strong. This amount could hardly have any curative action and would eventually and surely prove fatal to the rabbits. The gas was about 300 times stronger than I am in the habit of using, viz., about five parts per million of air. It is imperceptible to the taste or smell below three parts per million of air as investigated by the U. S. Bureau of Mines in the Smedley Smelters Commission. No object can be gained by adding active irritation to tuberculous lungs and it must detract from its curative value. In addition to this, each treatment averaged seven hours a day! My patients take from 3 to 5 inhalations a day varying from 15 to 20 minutes, and with intervals of at least two hours. Why could not this same method of treatment be applied to rabbits?

Even when the gas is exceedingly weak and imperceptible, it causes irritation if inhaled too long, for I remember leaving a tank one evening near my desk, where I was occupied for about two hours, when I noticed that my throat and trachea felt very

dry, hot, and burning. I examined the tank carefully and noticed a very slight leak. After removal of the tank, these symptoms quickly subsided. Therefore to subject rabbits to sulphur dioxide gas 300 times stronger than used by me on human beings, and for seven hours a day instead of one hour a day, cannot but cause irritation and thus vitiate any attempts to discover any curative value. I hope Dr. Pierson will in future so modify his experiments as to eliminate any unnecessary irritation to the lungs.

In conclusion I wish to state that:

1. Sulphur dioxide is not irritating nor harmful if carefully used, as we know from the great number of men employed in its manufacture or use.[2]
2. In using it for tuberculous patients, only incipient cases should at first be selected for treatment.

REFERENCES.

1. Tweddell, F.: Experiments with a New and Most Efficient Remedy for Pulmonary and Laryngeal Tuberculosis. MEDICAL RECORD, Dec. 21, 1918.
2. Tweddell, F.: Immunity to Tuberculosis among Workers in Sulphur Dioxide. MEDICAL RECORD, Aug. 21, 1920.
3. Pierson, P. H.: Sulphur Dioxide in the treatment of Experimental Tuberculosis. Abstract of a paper at the Boston session of the A.M.A. MEDICAL RECORD, June 11, 1921.

THE INDUCTION OF GRADUAL, NORMAL, MENOPAUSE AFTER OVARIECTOMY.

BY ALBERT GROVES HULETT, M.D.,
EAST ORANGE, N. J.

ALL those who have had occasion to persuade a female patient to submit to either an ovarectomy or pan-hysterectomy know that the objections and questions raised by the patient are rarely, if ever, concerned with the physical risk of the operation, per se, but rather an expression of dread of various dire and terrible nervous and mental phenomena which she is convinced will follow the removal of her ovaries.

Though the physician knows that the mental and nervous reactions will not be calamitous, he fully appreciates the probability that they will be distressing and annoying to the patient as well as to himself. Unless a potent prophylactic be in his possession he is not to be blamed if he hesitates to urge these operations, since without such an agent he would be unable to assure the patient truthfully that her fears were groundless, and might well question whether the treatment might not, in the end, prove almost as disturbing as the disease before him.

Having carried a number of patients through the displeasures of an abrupt surgical menopause, our sympathies were aroused and we decided to seek a method which would enable us to prevent these developments. This course was first embarked upon more than six years ago, so that the results and deductions which we shall state in this article may be said to have withstood a very fair clinical test.

The scientific basis for our method will bear a brief recital at this point even though the facts be well known to all. It is an accepted doctrine that the underlying cause of the phenomenon commonly known as the menopause is a change in the functional activity of the ovaries whereby ovulation ceases and an undoubted alteration in their internal secretion occurs. This alteration in activity, in the well woman, is a gradual process covering many months and the cessation of menstruation and mild nervous symptoms which it induces constitute the normal menopause or climacteric.

The deduction naturally follows that the more violent nervous disturbances so often induced by ovariectomy can be accounted for by the abrupt and complete removal of the internal secretion of the ovary to which the body of the woman is subjected by that operation.

It seemed logical to infer that by the adoption of a method whereby this secretion would be gradually removed from the body over a term of months, a normal menopause could be simulated in these patients and the usual difficulties avoided. Should this attempt succeed the chief dread of the patient facing ovariectomy and the misgivings of the physician would vanish together, and the operation could then be urged upon the patient whose disease demanded it with the assurance that her health would not be seriously interfered with.

Realizing the proven worth of thyroid feeding in cretinism, ovarian feeding seemed to promise much. Since by this method we sought to accomplish a gradual diminution of ovarian secretion in the body fluids, the decision as to the initial daily dose, the rapidity and rate of its decrease, and the duration of the treatment was the first and principal problem to solve.

Immersed in an active practice, without means for extended research in these determinations, we resorted to clinical trials, and therefrom very shortly evolved the routine which for nearly six years has been followed in all cases where both ovaries have been subjected to surgical removal. Without exception, these women have escaped any untoward nervous or physical derangement which might be inferred as due to the ovariectomy, and, aside from the normal physical weakness which obtains in the first few weeks following any abdominal operation, have left the hospital to resume their normal life habits without restraint. A recitation of numerous cases might be appended, but since all have been identical in the main particulars this tabulation is omitted here and an outline of the routine deemed sufficient.

Starting on the fifth day after operation the patient is given five grains of ovarian substance in tablet form, four times daily. This dosage is continued for one month. For the next two months three doses of five grains each are administered daily. Throughout the succeeding three months the dose is three grains three times daily, during the seventh and eighth months the patient takes three grains twice daily, and, during the ninth month two grains twice daily. In the tenth month two grains are taken each night upon retiring, in the eleventh month two grains upon retiring, on alternate nights, and in the twelfth month, two grains, upon retiring, every fourth night. This completes the medication.

The rationale of the treatment is carefully explained to the patient, and if she be a married woman, to her husband also. This serves to secure her cooperation and faithful adherence to the schedule as well as to prove to her that a reasonable and potent prophylactic is being given.

In the case of the married woman, the resumption of normal sexual relations is advised as soon as her surgical recovery will permit, and in all cases the resumption of her normal habit of living is urged upon the patient.

Extract of corpus luteum and entire dried ovarian substance have been employed, individually, in many parallel cases, and alternately administered in others, without detecting any essential difference in effect or potency.

No claim to originality is offered for the method outlined above; and, though we stumbled upon it by deductive reasoning and knew of no other physician, by name, who was employing the same method, we had assumed that the principle was generally known and must consequently be in more or less general use. However, some two weeks ago, when in consultation with a New York physician of large experience and ability, I casually mentioned that, though the patient we were considering had submitted to a panhysterectomy some two years ago, prophylactic feeding had prevented any reflex disturbances, he declared his ignorance of the method and its principle. Upon receiving a verbal account very similar to the above, he inquired why it had never been published. While I do not feel at liberty to publish his name, the reader may blame him for the submission of this article.

If I shall induce only one other physician or surgeon to try the scheme outlined above my effort will be well rewarded.

20 Hawthorne Avenue.

Medicolegal Notes.

The Reading of Medical Works to Expert Witnesses.—In an action against a hospital and physicians for malpractice in the treatment of an impacted fracture of the right hip joint and dislocation of the joint, the Montana Supreme Court held it improper for plaintiff's counsel to include in a question to physicians testifying on his behalf statements from text books on medical subjects, and that the admission of such questions is reversible error. "Experts are permitted to give their conclusions because of their presumed knowledge of subjects with which the ordinary layman or juror is not conversant. These opinions may be the result of their actual experience, or because of theoretical knowledge based upon special study of the subject. The testimony given by them is necessarily in the nature of a conclusion in most instances, and likewise is largely in the nature of hearsay. For a witness whose fitness is thus determined to be permitted upon his direct examination to merely state that he agrees with the text of a certain text writer is in effect to permit the reception in evidence not only of the expert's opinion, but likewise to permit the unsworn statement of another to go to the jury without opportunity for cross-examination. It is permissible, and perhaps necessary and advisable in most instances, for the expert to state his experience, knowledge and other qualifications, even stating the sources of his knowledge; but we are not inclined to extend the rule to permit the introduction of statements of text writers upon medical subjects as part of the direct evidence." The court distinguishes between this ruling and its holding in Emerson v. Butte Electric Ry. Co. (1912), 46 Mont. 454, that the trial court did not abuse its discretion in permitting counsel for the plaintiff to read to a physician, *on cross-examination*, an excerpt from a medical work, and asking him whether he agreed with the statement therein made.—Schumacher v. Murray Hospital (Mont.), 193 Pac. 397.

X-ray Photographs in Evidence.—In an action against a dentist for malpractice in extracting a tooth, the admission of the testimony of an *x*-ray operator, who did not qualify as an expert dentist, as to the condition of the bone after the extraction as shown by the *x*-ray photograph, was held error prejudicial to the defendant.—Saas v. Hindmarsh, 184 N. Y. Supp. 467. In an action against a hospital and physicians for malpractice in the treatment of a fractured hip, it was held error to refuse to instruct the jury, at the request of the defendants, that they could not consider any reference to the defendants' failure to take an *x*-ray picture of the patient's hip unless the plaintiff had proved that it was usual and customary under the circumstances for ordinary skillful and careful physicians to take such a picture.

Testimony to the effect that one medical witness did so in all cases, but did not know of the practice of others in that regard, was not sufficient to show negligence. In the present case the defendants did not use the *x*-ray until the thirty-sixth day, and the physicians said they had no reason to suspect the existence of the fracture, and that, even if they had discovered it earlier, there would have been no change in the treatment, under the conditions.—Schumacher v. Murray Hospital (Mont.), 193 Pac. 397.

Defendant in Malpractice Case May Testify That He Used His Best Judgment and Skill.—The Iowa Supreme Court holds that, in an action against a surgeon for malpractice in the treatment of the plaintiff's fractured leg, the testimony of the defendant, on redirect examination by his counsel, as to whether he had given the plaintiff the benefit of his best judgment and skill, was admissible, and its exclusion was prejudicial error. The court said: "The defendant was asked whether he used his best judgment. No one else could testify as well as he whether he did or not. Of course, if he had said he did, it would not be binding on the jury necessarily, but they were entitled to the evidence. We are of opinion that there was prejudicial error in the ruling." A medical witness in the case having testified that the effect on the foot of improper placing of the splints and cast would be very painful, it was held that a question to the witness whether the patient could endure such pain without a sedative and without the loss of any weight was objectionable, as calling for a conclusion.—Asnes v. Scanlon (Iowa), 179 N. W. 869.

Physician's Testimony that Injury Could Have Aggravated Disease, Competent.—A physician having testified in a personal injury case that: "It would be possible for the plaintiff to recover from an operation for removal of stones from the kidneys, and the injuries to her back alleged to have been received by reason of the accident could have aggravated or brought about the diseased condition in which her kidneys were shown to have been after the accident," it was held that this answer was not objectionable on the ground that it related, not to probabilities, but to possibilities, or was speculative and referred to conditions too remote. The physician was giving his opinion of the immediate effect of an injury such as the one described by the plaintiff upon her condition at the time of the accident.—El Paso Electric Ry. Co. v. Jennings, Texas Civil Appeals, 224 S. W. 1113.

Regular Visits Under Health Policy Provision.—In an action on a health policy requiring that the insured should be "continuously confined within the house, and therein regularly visited at least once a week," it was held that the meaning of this clause is that the physician must be weekly in attendance upon the insured; and it was sufficient that the physician made two calls in person at insured's home during his illness from February 14 to March 15, and was kept informed as to the insured's condition by telephone, prescribing for him on the personal visits and telephone calls.—Bass v. Pioneer Life Ins. Co. (Mo. App.), 227 S. W. 639.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, August 27, 1921.

THE PRESENT STATUS OF SEX DETERMINATION.

CERTAIN biologists have maintained that it is possible to determine the sex of the embryo by bringing certain influences to bear during its development. At the beginning of embryonal development there is only a genital outline which later on becomes precise, so that it has been supposed by some that before the fourth week of intrauterine life the sex is indifferent and by appropriate means the evolution of the embryo could be regulated for male or female offspring, and much experimental work has been done in this respect.

Bordage experimented with *Carica papaya;* by cutting the stem of a one-year-old male carica before budding time he transformed it into a female plant. But the majority of experiments have been carried out on animals with the object of influencing the product of conception by acting on it through maternal nutrition. Born and Junge overfed tadpoles and were able to obtain respectively 78 per cent. and 95 per cent. females, instead of the usual 54 per cent. to 61 per cent. Similar results have been obtained in caterpillars by both Treat and Giard. Cuenot experimented with albino rats. He divided the animals into two groups. The first were overfed, the second underfed, and then calculating the percentages of males and females born in the two groups, he noted a slight excess of females in the overfed animals, but the difference was very small. According to Landois, it is enough to transport the eggs laid in the alveoli of the working bees to those of the males in order to give rise to males, while the inverse likewise occurs. This statement has been denied by Sanson and Bastian. Geddes and Thompson believe that abundantly fed sows give birth to more females than males. De Kerhevé found that perfectly fed *Daphnia Psittacea* will give parthenogenic ovi, all of which will develop females, while Bernard noted that in the Apodidæ bad nutritive conditions resulted in a tendency to hermaphrodism in the offspring which constitutes a step toward the production of male products. Giron experimented with three hundred ewes; 50 per cent. of them were well fed and were covered by young rams, the other 150 were underfed and covered by old rams, with the result that the former gave issue to 60 per cent. females, the latter to 40 per cent. females.

Two observers have attempted to apply this experimental work to man, especially Orchansky, who maintains that maternal overfeeding will favor the development of female offspring, while Schenck of Vienna holds that the inverse is true. The results obtained by other investigators proved that both these observers were in the wrong and Schenck's theory was lamentably wrecked by the great publicity given it by the author. It is, for that matter, difficult to conceive how the nutrition of the reproductive cells can be acted on, since, in point of fact, nothing proves that nutritive plethora reacts on the genital cells. The birth statistics, according to social classes, are interesting from this viewpoint, because the number of female and male offspring should vary according to the extent of misery or prosperity of the parents. Now, in reality, the difference is minute. In France, according to Martin (Thèse de Paris, 1912), 115 boys to 100 girls are born to the poor and 104.5 girls to the well-to-do. On the other hand, Pennet, in 1901, published the results of the statistical findings of the sexes in London, and found that female births were more numerous than male in the poorer classes. Finally, how can this theory be maintained since, as Rauber has shown, in children born in extrauterine pregnancy where the conditions of nutrition are certainly unfavorable for the fetus, the two sexes break fifty-fifty. Therefore, this observer assumes that the sex is already formed in the ovum and Cuenot is of a like opinion, believing that the sex is already determined at the time of fecundation of the ovum at the latest.

Further experiments have destroyed the hypothesis of the effective part played by alimentation on the determination of the sex. King experimented with tadpoles, divided into four groups. One group was fed on meat with 49 per cent. female offspring; another group was fed on cereals and gave 54 per cent. females; the third lot received a mixed diet and gave 46 per cent. females, while the fourth group was fed on the yolks of eggs and the result was 60 per cent. female offspring. The alimentation in these experiments influenced the weight, size, and color of the offspring, but not the sex. Heapes implanted the ova of an Angora rabbit fecundated by an Angora rabbit into a female Belgian rabbit fecundated by a Belgian male rabbit. The result was that the litter was composed of two Angora and four Belgian rabbits. Therefore, the mother exercised no influence over the characters of her products of conception.

Robinson and Régnault were the promoters of the theory of sex determination by adrenalin. The former observer noted the influence of adrenalin on the determination of the sex by the exhibition of this drug to women with uncontrollable vomiting of pregnancy, and he maintained that in order to have a male child, adrenalin should be given to

pregnant women, while those with nutritional disturbances with vomiting and pigmentation showing an inferiority of their suprarenals will give birth to female children in 100 per cent. of the cases. *A priori* it does not seem scientific to admit that a condition as physiological as the determination of the sex of a child should be subject to pathological factors like hypofunction of an endocrine gland. As to the part played by choline in the production of sexes it has not been extensively studied and is at least obscure, not to say problematical.

RELATIONSHIP BETWEEN GRAVES' DISEASE AND TUBERCULOSIS.

THAT there is any causal connection between exophthalmic goiter and tuberculosis is most improbable and when we speak of a relationship between the two affections it must be understood as hypothetical rather than demonstrable. Common to both are tachycardia and fever, emaciation, diarrhea, and vasomotor disturbances, but this syndrome is not peculiar to these two affections. There is also the coincidence of a peculiar eye in each disease, which while by no means identical has something in common—luminous, moist, etc. Steck, who writes on this subject in the *Schweizerische medizinische Wochenschrift* for June 9, 1921, li, 23, says that when a tuberculous subject has a typical exophthalmus it is of course possible that he has a hyperthyroid component. Poncet indeed pointed out that tuberculous toxication sometimes causes enlargement of the thyroid, perhaps as a part of a defense reaction. On the other hand, histological studies of many thyroids of tuberculous subjects have failed to show a single case of the alterations which appear in typical Graves' disease. But it has been noted that the thyroid in these cases is never normal —that it may exceptionally be tuberculous but almost invariably is sclerotic. Now, if in a defense reaction developed against tuberculosis the thyroid is disorganized, we can perhaps understand why the pictures of tuberculosis and Graves' disease may largely coincide, and why tuberculosis may be the occasion for a picture of hyperthyroidism of a special type. We say that the tuberculous toxin causes this or that symptom without much effort to explain the mechanism; but if it stimulates the thyroid function we have a ready explanation of some of the symptoms of tuberculosis—tachycardia, low blood pressure, slight fever, the tuberculous eye, and vasomotor phenomena, as the blush on the cheek, part of the tendency to perspire, etc.

This sounds plausible, but is there not some catch in it? Such an explanation of early tuberculosis, including so-called pretuberculosis, is almost too simple. If true, it would not have escaped the older clinicians. Doubtless it is not difficult to isolate a type of tuberculosis with hyperthyroidism but there is tuberculosis without this component and Graves' disease without any tuberculous factor.

The author quotes authorities to prove that in a large material of typical tuberculosis, fully developed Graves' disease is as good as absent. This leaves, then, the association of the bacillary disease with mild and abortive Graves' disease or, as some term it, "basedowoid," which is as far as we can go at present without something more than clinical evidence. The author has made use of a method of comparative blood testing which he describes at great length which seems to demonstrate that the tuberculous subject's blood is quite free from certain substances found in hyperthyroid blood of any degree. The blood of any subject with Graves' disease acts as a synergist to adrenaline in producing vascular contraction, while tuberculous blood is, under all circumstances, quite free from this substance. The petty or minor basedowism of the tuberculous is therefore illusional and due to other factors. The author learned only after he had reached this conclusion that his finds and conclusions were in thorough accord with work recently published by Chvostek.

PSEUDOTUBERCULOSIS DUE TO DISEASE OF THE UPPER AIR PASSAGES.

DURING the late war the French physicians had considerable to say of a false tuberculosis encountered in recruits, which very closely simulated the genuine condition but was found to improve on the correction of intranasal deformities, sinus disease, and other anomalies of the upper air-food passages. In the *Journal de médecine et de chirurgie pratiques* for March 25, 1921, cviii, 6, Festal gives an elaborate account of the syndrome in question. The author states that it was well enough known before the war, but that the latter focused the eyes of the profession on it. Sergent found that many subjects rejected as tuberculous or suspects were of this type, which was moreover very common.

The resemblance to the early stage of tuberculosis of the lungs was often startling—slight temperature rise, emaciation, lassitude, spasmodic cough with profuse expectoration in the morning on waking, and even physical signs suggesting apical lesions. Of the two resources which might be expected to diagnosticate or exclude tuberculosis even the *x*-ray seemed noncommittal; only the bacteriological examination was frankly negative. The *x*-ray plate showed at times the absence of normal transparency of the apex with or without a suspicious hilus shadow. Auscultation and percussion gave the signs commonly encountered in early apical tuberculosis, such as lessened breathing, prolonged expiration, and slight dulness. The research for Koch's bacillus continued to be absolutely negative in the face of all subtleties of resource for bringing out the latter. In the course of a systematic examination the patients were found to present nasal obstruction, hypersecretion from the nasal passages which was at times purulent, empyema of some one or more of the sinuses, adenoid hypertrophy, and in some cases atrophic rhinitis. The patients attributed these troubles to tobacco and so were not especially

concerned about them. Indeed, they seem to have given them very little inconvenience. The rhinologist in examining these cases learned to look into the nasopharynx at the outset and the peculiar conditions encountered there sufficed to exclude for the time the suspicion of tuberculosis. There was, however, always the possibility of supervention of the latter.

Lemoine and Sieur once placed on record the physical signs encountered in the lungs of mouth-breathers irrespective of the causation. These sufficiently resemble those of beginning tuberculosis, and the author frankly admits that he does not attempt to differentiate by physical signs alone. One should proceed at once to the bacteriological diagnosis, but should this prove negative one cannot always straightway exclude tubercle. Difficulty of radiological differentiation has already been mentioned, and the author would place his main reliance on the effects of treatment of the nose and nasopharynx. But while in one patient the change for the better is at once apparent, in another two or three months may elapse before the benefit is realized. There is a third type in which, after a clearing up of the upper passages, the patient's chest shows no improvement at all, and here we have to regard him for the time being as actually tuberculous or perhaps as having recovered from tuberculous lesions with residual sclerosis, etc., until time comes to our aid.

The Great Unstable.

The well known medical littérateur of Paris, Voivenel, has written a paper with the title *Les Grands Inquiets*, which is commented on in *La Presse Médicale* for June 29, 1921, xxix, 52. Unstable may not be a very good rendering of the French *inquiet*, but it conveys the author's meaning better than any other, for such adjective substantives as restless, anxious, fearful, uneasy, etc., would not answer at all in this connection. Some disequilibrium or want of steadiness of the nervous system is only too common in modern civilized man. The author limits himself to the constitutionally unstable and in the present connection concerns himself only with intellectual subjects. One might say that authors and artists, to succeed, must be unstable in order to express or visualize the emotional states of others. A vivid imagination which goes with disequilibrium makes inevitable much fanciful suffering which may be harder to bear than actual strokes of ill fortune. The unstable live in an atmosphere of fear. Some of them have been tuberculous and the disease has augmented the natural instability. The author cites among authors Schiller and Prosper-Merimée, and among artists and musicians Watteau, Schubert, and Mozart. In many without any tuberculous factor life has been one long stretch of anguish. This list, which is a long one, comprises Pascal, Rousseau, Hoffmann, Poe, Baudelaire, Verlaine, Byron, Shelley, Dostoyevsky, et al. Both of these lists could be greatly extended. Characteristic of the unstable is the recourse to drink and drugs in the attempt to bridge over depressive and anxious periods.

Present Status of the Exudative Diathesis.

Before the years of the war pediatric journals contained much on the socalled exudative diathesis of Czerny, a condition which overlaps a number of other alleged diathetic affections such as scrofula, spasmophilia, milk intolerance, etc. Marie in *La Presse Médicale* for June 25, 1921, xxix, 51, claims that this diathesis was long ago described in France by Bazin and Besnier. The characteristic lesion is the socalled "milk-crust" of the nursling, while intertrigo belongs under the same head. After two years the nursling symptoms have disappeared—have been outgrown, but others take their places. Niemann, a recent writer, disagrees with Czerny concerning the later symptoms and regards strophulus and urticaria as essential to the diathesis. The mucosæ seem more compromised than the skin in later childhood and recurrent angina, bronchitis with asthmatic crises, and false croup are tokens that the diathesis is present. The extreme nervous irritability of these children may appear as spasmophilia of the latent type, although Niemann seems to think that constitutional neuropathy amenable to psychotherapy is the neurotic component. Doubtless this diathesis shades into vasomotor instability also, with pictures of vagotonia. Another constitutional anomaly overlapped is status lymphaticus. That so many different conditions overlap one another is an argument against setting up concrete pictures of diatheses. The most striking feature in practice concerning Czerny's diathesis is the milk intolerance. Why not let it go at that without attempting to build up a constitutional anomaly around it?

News of the Week.

Cholera Decreases in Volga District.—The Moscow correspondent of the New York *Herald*, says there has been a decrease in the number of cholera cases in the Volga district, there having been 22,000 cases reported during July, as against 42,000 in June. A bill was introduced into the United States Senate on August 19 directing the President to use $5,000,000 worth of medical supplies of the War Department for relief work in Russia.

Care of Disabled Soldiers to Rest With War Risk Bureau.—Surgeon General Hugh S. Cumming has recently made a statement recalling that the care of disabled soldiers did not constitute a part of the Public Health functions of the Service but was undertaken through patriotism and because the Service was the only public agency that had an organization and hospitals available when the need came. Later its assignment to this duty was made a matter of law. From March 3, 1919, when this law went into effect, to May, 1921, when the hospitalization and care of nearly half of these patients were transferred to the War Risk Bureau, the number of former military patients in charge of the Service increased from 990 to 25,000, with indications of still further increase. From the first the number increased faster than the government hospitals could be extended and the Service was compelled to place about two-thirds of its patients in private hospitals under contract. On May 1, 1921, the number so placed was 10,500. Responsibility for these patients has been restored to the War Risk Bureau.

The Public Health Service, if bills now pending become law, will merely render hospital care to those whom the War Risk Bureau assigns to it. This action will enable the Public Health Service to turn a much larger share of its energies to its traditional duties.

Typhoid Fever in New Jersey.—All the available forces of the State Health Department have been sent to Burlington County, New Jersey, where there is a serious epidemic of typhoid fever. It was reported in Trenton on August 20 that there are more than two hundred cases of the disease in twelve towns of the county. The origin of the outbreak has not yet been determined.

Typhus Suspect Holds Up Liner.—A suspected case of typhus fever in the second cabin of the Cunarder *Aquitania*, which arrived in quarantine at the Port of New York on August 20, caused the vessel to be detained for eight hours. The patient and sixty-one passengers in the section she occupied were transferred to Hoffman Island for observation.

Colorado Hospital for War Veterans.—Under an executive order signed by President Harding, the Veterans' Bureau has taken over the naval tuberculosis hospital at Fort Lyons, Las Animas, Col. The institution has a capacity of 780 beds and will be used for war veterans suffering with tuberculosis.

Municipal Hospitals Open to Obstetrical Cases.—Bird S. Coler, Commissioner of Public Welfare of New York City, announces that he has decided to open the city hospitals to confinement cases as a means of relief to families with an income ranging between $2,500 and $5,000 a year. Under the new plan the charge at the city hospitals will be $2.50 per day.

Drug Addiction and Prohibition.—Figures compiled by the Department of Public Welfare of the City of New York show that in 1918 there were 116 addicts under the care of the city hospitals, 339 in 1919, and 493 in 1920. For the first six months of this year there were 337 cases. In 1918 the department cared for 1,145 cases of alcoholism, and in 1920 there were 1,024 cases. Up to July of this year there have been 567. The report states that certainly prohibition has not lessened the number of alcoholics treated in the city hospitals while the number of drug addicts has increased.

Army Dental School.—Major General Merritt L. Ireland, Surgeon General of the Army, addressing the Military Dental Surgeons at their recent meeting in Milwaukee, announced that he expects to have established by next January a training school at Washington and corps schools at various other points, to give the necessary training to about 800 dental officers a year. He hopes to build up an organization that will be large enough to take care of the dental work of an army of 4,000,000 men.

School of Public Health in Harvard.—Plans for the organization of a School of Public Health in Harvard University, with the aid of an initial gift of $1,750,000 by the Rockefeller Foundation, have been announced by the University and the officers of the Foundation.

Health Tests Sought for Children at Work.—Health Service for boys and girls of fourteen to sixteen years who have left school to work in factories is recommended by Dr. H. H. Mitchell in a report to the National Child Labor Committee just made public. The report urges the establishment, either by health or school authorities, of a system of periodical physical examinations for working children. According to Dr. Mitchell's plan the examinations would be followed by measures to correct defects and to provide adequate physical education through continuation schools.

Red Cross Hospital Burned.—On the night of August 14 fire destroyed two buildings occupied by the Red Cross child health clinic in Salonica, Greece. Dr. Russell Stewart Wingfield of Richmond, Va., medical head of the Red Cross unit in that place, was seriously burned. There were no casualties among the nurses and children.

Hospital Notes.—Plans have been filed for the enlargement of St. Justice Hospital for Children on Denis Street, Montreal, which will cost about $220,000. Provision is also made for a new dispensary building.—The new Missouri, Kansas, and Texas Railway Employees' Hospital at Dallas, Texas, built at a cost of $250,000, will be opened to receive patients about September 1.—Plans for a new building for the Jamaica (Long Island) Hospital are about completed and ground will be broken in the near future. The new structure will cost approximately $500,000 and will have 122 beds.—The recent drive for funds for the Huntington Hospital, Huntington, L. I., has netted over $30,000. Of this sum $25,000 is to be used for an extension to the present hospital building.—A fire in the Norfolk (Neb.) Hospital on August 15 caused damage to the buildings estimated at $5,000.

Dr. Helen L. Palliser has tendered her resignation as health officer at Poughkeepsie, a position she has held for the past four years, to take effect January 1, 1922.

Activities of the Medical Women's National Association.—A statement recently made by Dr. Elizabeth Bass, president of the Medical Women's National Association, defines the objects of that organization. She says that medical women are not organized for scientific purposes—the American Medical Association of which they are all members covers that—but for movements in the interest of women. The association will keep a list of medical colleges which admit women and of hospitals in which women may become internes, and of hospitals which afford the best opportunities along certain lines. Another piece of work which the association has in view is to compile a history of medical women in America. It is estimated that there are between five and six thousand women doctors in the United States of which more than six hundred belong to the Association. Efforts are being made to bring as many women doctors as are eligible into the organization.

Charitable Gifts and Bequests.—The will of Mrs. Fannie J. Byrnes makes bequests of $5,000 each to the Hahnemann and Flower hospitals, New York City.

By the will of the late Mrs. Abigail A. Geissinger of Danville, Pa., a large fortune is bequeathed to the George F. Geissinger Memorial Hospital for maintenance. Prior to her death Mrs. Geissinger donated $2,000,000 for the erection, equipment and endowment of the institution.

By the will of the late Clara Snyder of Philadelphia the sum of $100 is bequeathed to the Frankford Hospital for furnishing two rooms.

International Congress on Ophthalmology.—Diplomatic officers of the United States in foreign countries have been instructed to communicate to the governments to which they are accredited an invitation by the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the American Academy of Ophthalmology and Oto-Laryngology, to participate in an international congress of ophthalmology to be held under the auspices of those societies in Washington, D. C., April 25-28, 1922.

Medical Society Elections.—THE CENTRAL PENNSYLVANIA HOMEOPATHIC MEDICAL SOCIETY, at its quarterly meeting held in Columbia, August 13, 1921, elected the following officers: *President,* Dr. G. A. Sayres, Lancaster; *secretary-treasurer,* Dr. C. G. Swartz, Lancaster.

THE CHATTANOOGA VALLEY MEDICAL AND SURGICAL ASSOCIATION, at its annual meeting held in Warm Springs, Ga., July 15, 1921, elected the following officers for the ensuing year: *President,* Dr. F. K. Boland, Atlanta; *Vice-President,* Dr. Marcus Skinner, Selma; *Secretary-Treasurer,* Dr. W. J. Love, Opelika, Ala.

THE NORTH DAKOTA MEDICAL ASSOCIATION, at its annual meeting held in Fargo, May 17, 1921, the following officers were elected for the ensuing year: *President,* Dr. H. E. French, Grand Forks; *President-Elect,* Dr. E. P. Quain, Bismarck; *First Vice-President,* Dr. W. C. Fawcett, Starkweather; *Second Vice-President,* Dr. H. J. Rindlaub, Fargo; *Secretary,* Dr. H. J. Rowe, Casselton; *Treasurer,* Dr. J. P. Aylen, Fargo.

THE CHICAGO MEDICAL SOCIETY, at its annual meeting held June 16, 1921, elected the following officers for the ensuing years: *President,* Dr. John S. Nagel; *Secretary,* Dr. John R. Harger; *Counsellors at Large,* Dr. J. H. Way, Dr. Clara Seippel, Dr. Thomas P. Foley, Dr. Edward H. Oschner and Dr. H. F. Bruning. *Alternate Counsellors at Large,* Dr. N. S. Davis, Dr. N. White, Dr. A. Haeffner, Dr. W. S. Bougher, and Dr. M. Janpolis.

THE NEURO-PSYCHIATRIC SOCIETY OF MILWAUKEE, at its annual meeting held June 17, 1921, elected the following officers for the ensuing year: *President,* Dr. F. C. Stanley; *Vice-President,* Dr. W. G. Wegge; *Secretary-Treasurer,* Dr. C. W. Roberts.

THE OHIO COUNTY (W. VA.) MEDICAL ASSOCIATION, at its annual meeting held in Wheeling, June 3, 1921, elected the following officers for the ensuing year: *President,* Dr. D. A. McGregor, Wheeling; *Vice-President,* Dr. Turner Morris; *Secretary,* Dr. M. B. Williams; *Treasurer,* Dr. W. S. Fulton.

THE AMERICAN ASSOCIATION FOR THE STUDY OF THE FEEBLE-MINDED, at its forty-fifth annual convention held in Boston, May 31, 1921, elected the following officers for the ensuing year: *President,* Dr. Joseph H. Ladd, Slocum, R. I.; *Secretary-Treasurer,* Dr. Benjamin Ward Baker, Manchester, N. H.

THE NEW JERSEY STATE BOARD OF MEDICAL EXAMINERS, at a meeting held in Asbury Park, July 7, 1921, elected the following officers: *President,* Dr. James J. McGuire, Trenton; *Secretary,* Dr. Alexander Macalister, Camden; *Treasurer,* Dr. Joseph H. Bryan.

THE LEHIGH VALLEY MEDICAL ASSOCIATION, at its forty-first annual meeting held at Delaware Water Gap, Pa., July 29, 1921, elected the following officers for the ensuing year. *President,* Dr. A. C. Herman, Lansdale; *Vice-President,* Dr. M. C. Rumbaugh, Kingston; *Secretary,* Dr. Alexander Armstrong, White Haven; *Assistant Secretary,* Dr. R. Batchelor, Palmerton; *Treasurer,* Dr. D. H. Keller, Bangor.

THE MEDICAL WOMEN'S NATIONAL ASSOCIATION at its annual meeting held in Boston June 6 to 8, 1921, elected the following officers for the ensuing year: *President-Elect,* Dr. Grace Kimball, Poughkeepsie, N. Y.; *First Vice-President,* Dr. Mable R. Noble; *Second Vice-President,* Dr. Martha Welpton, San Diego, Calif.; *Third Vice-President,* Dr. Sue Radcliff, Yonkers, N. Y.; *Recording Secretary-Treasurer,* Dr. L. Rosa H. Gantt, Spartanburg, S. C.; *Corresponding Secretary,* Dr. Isabelle T. Smart, New York City. *Counsellors:* Dr. Bertha Van Hoosen, Dr. Ellen C. Potter, Dr. Flora Pollack, Dr. Mary T. Greene, Dr. Margaret F. Butler, Dr. Elvenor Ernest, Dr. Martha Tracy.

Obituary Notes.—Dr. GUSTAV MANN, a graduate of Edinburgh University, Scotland, died at Tampico, Mexico, July 18, at the age of fifty-six years.

Dr. ROBERT T. FRENCH of Rochester, N. Y., a graduate of Buffalo Medical College in 1888, died suddenly of heart disease August 18, at the age of fifty-seven years. He was a member of the American Medical Association and the Rochester Academy of Medicine.

Dr. HOWARD WILLIAM LONGYEAR of Detroit, Mich., a graduate of the College of Physicians and Surgeons, New York, in 1875, died suddenly on June 2, at the age of sixty-seven years. He was a member of the American Surgical Society, the American Gynecological Society, consulting physician to the Women's Hospital, consulting gynecologist to the Providence Hospital, and consulting surgeon to the Harper Hospital.

Dr. ELIJAH GREEN of Martinsville, Ind., a graduate of the Indiana Medical College in 1876, died on June 7, at the age of seventy-one years.

Dr. CHARLES STOCKERT of Lincoln, Neb., a graduate of Rush Medical College in 1893, died on May 30, at the age of fifty-two years.

Dr. UNION WORTHINGTON of Salt Lake City, a graduate of Tulane University School of Medicine, died in Santa Monica, Cal., May 31, at the age of fifty-nine years. He was formerly demonstrator in anatomy at the Gross Medical College, Denver, and later a member of the staff of St. Mark's Hospital, Salt Lake City, and chief surgeon of the Oregon Short Line Railway.

Dr. JOHN BRYANT of Independence, Mo., died in Berkeley, Cal., on July 15. He was graduated from the Washington University Medical College, St. Louis, in 1865 and from Jefferson Medical College, Philadelphia, in 1866.

Dr. GEORGE F. BAER of Pittsburgh, a graduate of the Hahnemann Medical College and Hospital, Philadelphia in 1905, died on July 10, at the age of thirty-six years.

Dr. EDWIN L. BEEBE died at his home in Buffalo on July 17, at the age of fifty-one years. He was graduated from the College of Physicians and Surgeons, New York, in 1893. He was made captain of the 74th New York regiment in 1904, and was

raised to the rank of major surgeon in 1914. He was with the 12th infantry of New York during the World War. On his return to Buffalo at the close of the war he was made city physician.

Dr. CLARA ROGERS RUTTER, a graduate of the Boston University School of Medicine in 1879, died at her home in Lawrence, Mass., July 15, at the age of sixty-seven.

Dr. ARCHIBALD A. C. FAIRBAIRN of Minneapolis, a graduate of Queens University Faculty of Medicine, Kingston, Canada, died in a local hospital on July 9, at the age of seventy-eight years. He was formerly chief surgeon for the Northern Pacific Railroad.

Dr. WILLIAM E. KEILY, a graduate of the Medical College of Ohio, Cincinnati, in 1877, died at his home in Cincinnati on July 14, at the age of seventy-two years. He was a former president of the Cincinnati Academy of Medicine.

Dr. LUCIEN C. MCELWEE of St. Louis, Mo., a graduate of the Missouri Medical College, St. Louis, in 1882, was killed in a street accident on July 3. He was fifty-eight years of age.

Dr. ROBERT BANCKER TALBOT of New York City, died of pneumonia at Racquette Lake, N. Y., July 16, at the age of sixty-nine years. He was graduated from the College of Physicians and Surgeons, N. Y., in 1877. He was associate surgeon at the Women's Hospital.

Dr. GEORGE WAYLAND DODGE of Moravia, N. Y., a graduate of the New York Eclectic Medical College in 1894, met death by accident on July 7.

Dr. JAMES MIDDLEDITCH of Barneveld, N. Y., a graduate of the University of Buffalo College of Medicine in 1881, died of cancer of the liver on July 11, at the age of sixty-seven years.

Dr. PHILIP ERHARD of Syracuse, N. Y., a graduate of the Syracuse University College of Medicine in 1902, died on July 9, at the age of forty-four years.

Dr. MILTON BURR DAVIS, a graduate of the Long Island College Hospital in 1883, died on July 15, at the age of sixty-one years.

Dr. ELIAS GALLEY BROWN of Allaben, N. Y., a graduate of the College of Physicians and Surgeons, New York in 1895, died of cancer of the stomach in New York City, June 28, at the age of fifty years.

Dr. JOHN FRANK, retired, a graduate of the College of Physicians and Surgeons, New York in 1880, died at his home in Bayonne, N. J., July 19, at the age of sixty-five years.

Dr. JOHN J. DEFENDORF, Health Officer of Ionia, Mich., died after a brief illness on July 8, at the age of seventy years. He was graduated from the Detroit Homeopathic Medical College in 1872.

Dr. PHILIP ERHARD of Syracuse, N. Y., died after a brief illness on July 7, at the age of forty-four years. He was graduated from the Syracuse College of Medicine in 1902.

Dr. JOEL M. INGERSOLL of Rochester, a graduate of Bellevue Hospital Medical College in 1879, died in Canandaigua, N. Y., July 2, at the age of sixty-four years.

Dr. WILLIAM R. FRISBIE of Washington, D. C., a retired pension examiner, died at the Carroll Springs Sanitarium, July 3, at the age of eighty-five years. He was graduated from the College of Physicians and Surgeons, Keokuk, Ia., in 1880.

Correspondence.

THE PELLAGRA OUTLOOK.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The pellagra outlook is a subject of no small importance, not only to the South, but to the entire United States. This statement is fully warranted by the fact that for two centuries the disease has been regarded as a scourge in Italy and southeastern Europe, while they have found no positive means of arresting its progress nor have scientists been uniformly agreed as to the cause. Judging from the reports of the United States Public Health Service, there can be no question that pellagra is present in various sections, but the conditions at present are no different from what they have been for nearly ten years past.

The presence of pellagra at any point in this country is a blot; it is a shame that this Government is not so far qualified and authorized that it can step in and correct the supposed defects or deficiencies that are responsible for this disease. It is a social barrier, breaking up families by premature death; it is an economic disaster, interfering with production and manufacturing; it is a matter of vast hygienic and dietic importance, not only because of the present but for the rising generation. There is no telling what is likely or liable to follow the disordered condition of the nervous system to which pellagra gives rise. Such being the case, is there no indication, hope, prospect or possibility that we may find on the medical horizon the sign reading "This Way Out"? My impression is that within five years, with proper attention to the dietary, pellagra in the South would be only a matter of history. My first injunction would be to follow the directions given by McCollum, to secure more of the leaf food because it contains the essential protein or rebuilding material. But it possesses another and special value because the leaf is charged with a positive electrical current, while the root crops and stems are charged with negative current. Even a vegetable so simple as the onion, tested with the delicate galvanometer, shows a negative sign at the root, while at the top we have a positive sign. But this is not all, as the readers of this Journal may recall that I referred in my paper, "The Diet and Health" (MEDICAL RECORD, July 10, 1920) to the exceptional value of the mineral salts and protein in a dietary which included alfalfa, corn, and peas. The trouble with the dietary in the South is due to the lack of protein and mineral salts, but the mineral deficiency is of paramount importance as one of my correspondents, Dr. A. J. Johnson, of Pensacola, Florida, has demonstrated in the treatment of quite a number of cases suffering from pellagra. When the controversy first arose I inquired of Dr. Johnson what the outlook was, asking him to give me some data from his viewpoint, and here follows the reply:

> In reply to your inquiry relative to my experience with pellagra, will state, first of all, that so much interest being manifested concerning this disease—its increased prevalence and near pestilence and famine in the South, is about all "bosh," as I see it. As a matter of fact there *is* more of it in evidence just now simply because we see the "red flag" out, as it were—the erythema and other active symptoms during this season of the year—and a large per cent. of these mani-

festations will disappear as soon as the cool weather approaches and the "powers that be," health officers, will not need to bestir themselves very much, either. Other years have shown an increase in the number of cases to be followed next year by very little of it in evidence, and so on and so on.

Pellagra, like smallpox, has lost its terror to a great extent; few people die with it and many recover. It lacks a great deal of being a pestilence or plague. The South is fairly prosperous, especially west Florida, and distressingly healthful just now. I have studied and treated pellagra for at least twelve years, and at this time have under observation several cases at different stages, some chronic or recurrent and some recent cases. Acting upon your suggestion, early this summer, I have tried out a number of cases on the colloidal calcium treatment, and the results are all that could have been expected. All of the cases have shown decided improvement and one typical case is almost entirely well.

Mrs. H., 34 years of age, occupation, housewife, has for more than one year suffered with nervousness and indigestion which would not yield to treatment ordinarily given, and she tried a number of remedies. It was late this spring when the skin lesion appeared, thereby settling the question of diagnosis. She had pellagra, was sick with it a year ago, but nobody called it that, and this is typical of the disease—many get well spontaneously and some go on and develop serious symptoms. The skin lesion in this case was confined to the face and forearms. There was burning in stomach and in the extremities—neuralgic pains all over. She was in great distress and approaching insanity. There was acid salivary and skin reaction, with moderate knee-jerk. Could scarcely eat a thing. A few weeks of colloidal calcium and remedies having specific influence upon the chronic deviation made a decided change for better and there can be no doubt of an ultimate cure in a very short time.

Evidently, Dr. Johnson takes a practical view of the pellagra situation as it applies throughout the entire South.

JOHN AULDE, M.D.

1024 WALNUT STREET,
PHILADELPHIA, PA.

A FEW FACTS, JUST TO KEEP THE RECORD STRAIGHT.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In a letter published in the MEDICAL RECORD, July 30, 1921, "As to Being Out of Step," I stated incidentally that "In my opinion Dr. Rooney is largely responsible for the chaotic conditions now existing in New York State, and New York City in particular, for the lack of a State law to enforce the Harrison act."

Dr. James F. Rooney, now president of the Medical Society of the State of New York, honors me by making a reply under the caption "Now It Can be Told" appearing in your columns, August 13, 1921, and after a brief introduction, proceeds "to recapitulate some of the history of narcotic legislation of recent years to show that this statement is false." Naturally I resent the implication of intentional misrepresentation, but I virtually expected it, and so far as personal considerations are concerned, shall content myself by recording a flat denial. That is more than Dr. Rooney has done in answer to Attorney Greenfield, his reply being nothing more than an adroit circumvention, begging the question. The charge of misrepresentation itself, however, is an important matter and, with your permission, I will proceed to show that my opinion was based upon considerable knowledge of the circumstances, and a fair deduction from the evidence known to me.

A man who tells the whole truth voluntarily may be lacking in tact, not to say discretion. Still, if Dr. Rooney has made up his mind to tell it, why doesn't he? He dismisses what happened in respect to action on his part this year up to the adjournment of the House of Delegates relating to pending narcotic legislation in these few words: "So far as securing an endorsement for any bill either on the floor of the House of Delegates or in the Council this year the facts are these: Both of these bills were referred to a reference committee of the House of Delegates, composed of Dr. Charles G. Stockton of Buffalo, chairman; Dr. T. J. Farrell of Utica, and others, who, after hearing the arguments upon these measures, referred the whole question to the House of Delegates. Even Dr. Mabbott may recall that it was I who made the motion to refer these bills to the Council for action."

Now I certainly did not state that my opinion was based upon Dr. Rooney's acts in so limited a field. He appeals to my recollection as to what happened on the floor of the House of Delegates. Fortunately, I am not compelled to rely entirely upon memory, as I was secretary of the New York County delegates sitting in the House and took copious notes, aided by which I afterwards made a report of the proceedings, which I read before the meeting of the Medical Society of the County of New York, May 23, 1921.

Dr. Rooney, as chairman of the Legislative Committee of the State Society, had appeared at legislative hearings and before the Governor, opposing the Fearon-Smith bill; he had endeavored to enforce a rule to suppress the voice of those who disagreed with him. He had sent out a circular letter to County Society secretaries and to members of the House of Delegates, which was largely an argument directed in opposition to the Fearon-Smith bill. In this letter he at least suggested the endorsement of the second Smith-Lord bill, when he described the Fearon-Smith bill as "so burdensome," etc., "whereas the Lord-Smith bill places no restrictions upon the practitioner of medicine that he must not already suffer under the Federal Law." His reply postcard gave no suggestion that he was opposed to both bills:

The Medical Society of the County of ..... favors the enactment into law regulating the use of narcotic drugs of the SMITH-FEARON BILL
the LORD-SMITH BILL
Remarks: .....
Secretary Delegate.

The actual report of his committee at the meeting took the usual course, as stated by Dr. Rooney, going to a reference committee, and was reported out as stated. This is where Dr. Rooney makes an important omission. My notes taken on the spot state that "Dr. Rooney moves that this House of Delegates endorse the two Smith-Lord bills now before the Governor for signature."

"After prolonged and disputatious debate, the question was divided. The first Smith-Lord bill was endorsed, and all other bills relating to Narcotic Drug Control, then before the Governor, were referred to the Council of the State Society for such action as might seem best. In other words, the House of Delegates failed to express an official opinion or choice, and left it a vexed and serious problem." (My report.)

I should be obliged to trust in part to memory to corroborate Dr. Rooney's statement to the effect that it was he who made the motion to refer these bills to the Council for action. My impression is that Dr. Daniel S. Dougherty suggested this disposition of the matter, obtaining the floor for the express purpose of doing so, and that Dr. Rooney took quick advantage of the suggestion and moved a substitute to the remaining part of his own motion, thus evading a vote on the second Smith-Lord bill, and referring the whole matter to the Council. The substitute motion was carried.

In his recent letter Dr. Rooney seems to deplore, and incidentally admit, that chaotic conditions exist. He proceeds until, it seems to me, he plays into the hands of his critics: "Whether or not the addict is sick, as I believe; whether as a result of his own volition or not; whether he is a criminal or a non-criminal; the same brutal treatment would not be meted out to him if instead of being addicted to narcotic drugs he had, let us say, typhoid, venereal disease—the result of his own act—diphtheria, or any of the other infectious diseases, even leprosy." And that is where Dr. Rooney makes his "big mistake." For the Fearon-Smith bill would have given us a State law to supplement and enforce the Harrison law, enabling the State to control the victim of drug addiction and compel him to avail himself of modern treatment for cure. Does Dr. Rooney object to enforced quarantine or isolation of diphtheria or leprosy? I believe Dr. Bulkley has demonstrated the comparative non-contagiousness of leprosy as seen in New York, and diphtheria has lost most of its terrors in the presence of antitoxin as a remedy, and toxin-antitoxin immunization. Still, to avoid discrimination, why not put them all, as indirectly suggested by Dr. Rooney, in the same class; but not as ambulatory cases to be treated in our offices!

Now Dr. Rooney states that in the meeting of the Council (of which I am not a member) "he suggested that the first Smith bill abolishing the Narcotic Control Commission be recommended to the Governor, and that he be requested to veto all of the other bills. In this matter the only law concerning narcotic drugs would be Federal." And "the Governor followed out to the letter the request of the Council."

So, therefore, Mr. Editor, it seems to me that on the facts which I have presented and on Dr. Rooney's admissions, I have proved that I was justified in considering him "largely responsible." Having refreshed his memory, I leave it to Dr. Rooney and those competent to judge.

J. Milton Mabbott, M.D.

19 Fifth Avenue, New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, August 4, 1921.

Tuberculosis Conference in London.—The International Union against tuberculosis held a successful three days' conference in London during the third week of July. Sir Robert Philip of Edinburgh was again the president. The keynote of the meeting was the emphasis placed upon the desirability of increasing the number of chairs of tuberculosis in the centers of medical training. The first paper read was by Sir George Newman, Chief Medical Officer of the Ministry of Health, the title of which was "State Action in the Prevention of Tuberculosis." He dealt with the history of Government action, recapitulating to the foreign delegates the various steps taken by British Governments, although he had to admit that up to the present century little or no State action had been especially directed against the disease. The first really important step was its compulsory notification act of 1908, but the true turning point in the history of the antituberculosis campaign was to be discovered in the findings of the Departmental Committee of 1912. The speaker placed the present day requirements in the treatment of tuberculosis under six heads: (1) Notification of the disease. (2) The dispensary which should be the consultation center for the neighborhood, affording clinical and laboratory facilities for arriving at an early diagnosis. Another great function of the tuberculosis dispensary is the supervision and improvement of home conditions. (3) Sanatoriums and hospitals. There should be open-air sanatorium schools, both for "the pretuberculous" and for those with definite lesions. There should be hospitals and convalescent homes for those with non-pulmonary and surgical tuberculosis. Sanatoriums should have training sections, where patients with more or less arrested disease may be "hardened up" prior to their return to industrial life. A complete scheme may in the future include industrial colonies and village settlements, though these may lie beyond State financial resources of the present time. (4) After-care work, in which is included not only the supervision, care, and if necessary, financial assistance of a patient on discharge from sanatorium, but a thorough study and a conscientious effort to put him in the best possible environment both at home and at work during the whole of his lifetime. (5) Research work. (6) Medical officers of health. It is necessary that the various public health services should be administered by, and as, one department. In practice it is often found convenient for the homes of tuberculous patients to be visited under the supervision of the tuberculosis officer, though any sanitary defects discovered are usually reported to the medical officer of health, and dealt with by him. The past seventy years in which statistical returns had become available, had witnessed a great decline of the mortality from tuberculosis among civilized people. In 1847 in England and Wales there died from phthisis, excluding acute miliary tuberculosis, 3,189 persons per million living. By 1872 that figure had fallen to 2,384, another twenty-five years reduced it to 1,356, and in 1913, the year before the European War, the figure had fallen to 961 persons per million living. There was in most countries a slight rise during the war years, but in 1920 the standard death rate from phthisis had fallen in England and Wales to 842 per million living, a decline since 1847 of 74 per cent. This considerable decline has been happening in greater or less degree in all civilized nations.

Sir Humphry Rolleston read a paper on "The Rôle of the Medical Profession in the Prevention

of Tuberculosis." He said a periodic state census of all persons should be taken so as to classify them by means of von Pirquet's test into those with open tuberculosis, those with latent infection, and those as yet free from such infection. From this should follow the segregation of the first group, not only temporarily in sanatoriums, but subsequently after passing through training colonies for long periods or permanently in partially self-supporting village industrial settlements, where remunerative work should be adapted to subnormal men. The education and disposal of the healthy children of the inhabitants of these settlements would require careful consideration. The huge undertaking of the segregation of the actively infective would, according to Professor B. Moore, at first cost from £40,000,000 to £50,000,000 annually, though falling subsequently in geometrical progression; but the advantages and eventual economy of such a scheme would vastly outweigh the initial difficulties. The two remaining groups of the population, those with latent infection and the smaller category without any tuberculous infection, should, as far as possible, be under medical observation, and particularly those with latent infection. The tuberculin method of examination would obviously be far more effective than the ordinary physical examination, with the stethoscope, the weighing machines and so forth. In the discussion that followed this paper Dr. Rist of Paris took the view that the conference might wisely resolve that the teaching of tuberculosis as a special matter should be made compulsory in all schools of medicine, Dr. Gask of St. Bartholomew's Hospital, London, held that the medical profession had failed in their duties to the nation in not insisting with all their might upon proper preventive treatment. Dr. Minor of Asheville, N. C., considered the problem a social rather than a domestic one, the problem of educating the population to a greater height of intelligence. However, he agreed that the activities of the social worker, the sanitary engineer, the educator, and the philanthropist would be useless without the cooperation of the trained physician. Early discovery was the most important factor in the prevention of tuberculosis. Professor Jonathan Meakins of Canada pleaded for the man who was the rock foundation of the medical profession, the general practioneer. He was the guide, counsellor, and friend of the community, and upon his head and hand rested the greater part of the work in controlling tuberculosis and that was in propaganda and education of the people. Lack of opportunity for healthy recreation was responsible for much. What could be expected when a man spent eight hours in work, eight hours in sleep, and the cinema filled up the remaining eight hours? Dr. Cawadais of Greece claimed that the medical men and not the politicians, should lead in organizing hygiene in general, and in the anti-tuberculosis campaign in particular. In Greece there were practitioners in hygiene as well as in therapeutics. At the close of the meeting Dr. Minor expressed the appreciation of all the visitors at the delightful welcome extended to them and the admirable arrangements made for their convenience.

During the meeting a paper of great importance was read by Professor A. Calmette of the Pasteur Institute on "Healthy Carriers of Tuberculosis." The speaker said the result of examining data as to the incidence of the disease compelled the inference that in man tuberculosis was the outcome of civilization. If the disease appeared among surroundings where no case of phthisis could be discovered, it appeared obvious that the malady was able to introduce itself only through the presence of some bacillus carrier, unknown to be so and to all seeming quite healthy, but who spread virulent germs about him from time to time. This had, to all intents and purposes, been proved, and knowledge of this unexpected danger made the organization of social defence greatly more difficult. It was patent that they must not think of forbidding suspected individuals from entering certain professions, or from traveling or living with the healthy, but they might hope through appropriate supervision and education to render them harmless. Professor Calmette pointed out that the possibility of efficiently protecting the children and the general population of countries which are still comparatively free from tuberculosis can only be contemplated on the condition of reorganizing, wherever possible, a system of detection based upon a judicious use of tuberculin tests and on clinical examination of the glandular system mainly by means of radioscopy. Sir German Sims Woodhead of Cambridge, who opened the discussion on the paper dealt with the relationship of the bovine tubercle to tuberculosis in man. It was known that geographical considerations had a great deal to do with the arguments brought forward with regard to the spread of tuberculosis. For example, in Japan, it was very evident that the human bacillus played a more important part in the process of infection than it did in such a place as Edinburgh. Whatever the popular belief might be there had been very great advances in our knowledge, not only of the distribution of tubercle, but also of the treatment. It was now possible to distinguish the bovine tubercle bacillus from the human type, and also to determine how it infected. Contrary to the view frequently held, the tubercle bacillus did much damage when it was in milk; it was often there and got there very easily. It had been proved that from 6½ to 10 per cent. of the fatal cases of tuberculosis were the result of bovine infection. Referring to the anti-waste campaign the speaker said he was afraid many of them were prone to save money in a very uneconomical manner at the expense of public health and education. Professor Leon Bernard of France suggested that as they were now in a position to consider resolutions they should send one to the British Government and other governments concerned in favor of larger supplies in the interest of public health and ultimately in the interests of public economy. Dr. Gerald Webb of the United States said that the question upon which they should be alert was that of tuberculosis carriers. In so many cases a parent before becoming a manifest consumptive had been a carrier of disease and had disseminated millions of bacilli in his immediate neigh-

borhood. Sir George McCrae said that in Scotland they considered themselves to be the pioneer nation, so far as the treatment of tuberculosis was concerned, and far ahead in that matter. They were busily engaged in combating what they believed a root of a great deal of tuberculous disease and the most formidable ally the white scourge had got and that was the question of houses. He was ashamed to say that the housing conditions were deplorable.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 11, 1921, clxxxv, 6.

1. Typhoid Fever Cases in Three Hospital Centers of the American Expeditionary Force. William H. Robey.
2. A Report of the Harvard Infantile Paralysis Commission on the Diagnosis of Acute Cases in 1920, with Special Reference to the Incidence of Cases without Paralysis. Francis W. Peabody.
3. Significant Reactions of the Arterial Tension. Manifestations of the Angio-Kinetic Energy, Clinically Observed and Interpreted. Claes Julius Enebuske.

1. Typhoid Fever Cases in Three Hospital Centers of the American Expeditionary Force.—William H. Robey tabulates data on 79 cases of typhoid fever, all of whom were supposed to have received three inoculations of mixed antityphoid vaccines. There were nine fatal cases in the series. Contrary to the claim made by some other writers who believe that antityphoid vaccination results in a milder course, they were unable to observe any modification in the course of their cases. While it was thought that the general symptomatic picture was sometimes obscured, there were in most cases sufficient findings to substantiate the diagnosis. The writer cannot conclude that if these patients were efficiently vaccinated their general picture differed materially from the numerous cases he has seen in civil practice during the time when typhoid fever was much more common than it now is. He concludes, however, that the value of antityphoid vaccination is beyond question, and that the need of making antityphoid vaccination universal should be impressed upon physicians who should instruct the public.

2. A Report of the Harvard Infantile Paralysis Commission on the Diagnosis of Acute Cases in 1920, with Special Reference to the Incidence of Cases without Paralysis.—Francis W. Peabody describes the work of the Harvard Infantile Paralysis Commission during a small epidemic of infantile paralysis in eastern Massachusetts which began in August, 1920. In all 133 cases were visited. Fifty-one of these were found not to have poliomyelitis. In 75 cases a diagnosis of infantile paralysis was definitely made. Lumbar puncture was performed in 54 cases. It was usually not done if the child was paralyzed and the diagnosis of poliomyelitis was clear. Special interest attaches to the cases seen in the preparalytic stage of the disease. There is nothing pathognomonic about the clinical picture before the onset of the paralysis, but there is much that is suggestive. In the preparalytic stage the most helpful diagnostic method is lumbar puncture, for in a large proportion of cases there is an increase of cells in the spinal fluid. When an epidemic of poliomyelitis is in progress the error of diagnosis based on the clinical picture and spinal fluid examination would undoubtedly be very small. A review of the therapeutic results reported since 1916 left the Harvard Infantile Commission unconvinced as to the demonstrated value of any method of treatment thus far suggested, so they collected data regarding the natural course of the disease and the frequency of the development of paralysis. In this series there were only 13 cases in which the clinical picture, the pleocytosis in the spinal fluid, and the subsequent history of the case justify the diagnosis of acute poliomyelitis in the preparalytic stage. Of these 13 only four became definitely paralyzed, while nine, or 69 per cent., did not develop paralysis. Considering the fact that the evidence at hand indicates that about 65 per cent. of patients infected by acute poliomyelitis never develop paralysis even if untreated, it is important to be extremely critical in regard to therapeutic measures. The most valuable criterion of the efficacy of treatment is a real understanding of the natural course of the disease, and it is hoped that others who come in contact with larger groups of cases will seek the same type of information.

Journal of the American Medical Association.

August 13, 1921, lxxvii, 7.

1. Graduate Instruction in Surgery. George P. Muller.
2. The Sanatorium Care of Tuberculous Soldiers by the Federal Government. George Palmer and Henry W. Hoagland.
3. Puerperal Mastitis. Franklin A. Dorman and James K. Mossman.
4. Co-operation Between a Central State Laboratory and Local Municipal and County Laboratories. Augustus B. Wadsworth.
5. Measures for Increasing the Supply of Competent Health Officers. John A. Ferrell.
6. Retropharyngeal Abscess. Ira Frank.
7. Fundamental Factors in the Control of Tuberculosis, with Special Reference to the Sanatorium. Henry Boswell.

3. Puerperal Mastitis.—Franklin A. Dorman and Henry Hoagland have compiled statistics on this subject from a consecutive series of 2,000 patients delivered at the Woman's Hospital, New York. The incidence of mastitis in this series of cases was 2.8 per cent. Their patients were kept in the hospital fourteen days post partum; nine of these cases occurred after the customary date of discharge. The onset of the infection in these cases showed that from the seventh to the twelfth day was the commonest time of incidence. Mastitis should be clearly visualized as a local infection, and inflammation due to germs, and should not be confused with the lay term "caked breasts." The prophylaxis of mastitis resolves itself into prevention of trauma to breasts and nipples and elimination of contact infection as far as possible. The writers' technic in the case of damaged nipples is to use a constant dressing of either tincture of benzoin or bismuth and castor oil, from 1 dram to 1 ounce, or the lead shield, the latter being the most valuable. With a damaged nipple all nursing should be through a glass nipple shield. In cases of bleeding nursing should be temporarily discontinued. In the prevention of contact infection, the nipples are, when not in use, covered with a sterile compress or pad of gauze, 4 inches square, held in place by adhesive strips. The effect of this dressing on the patient is educational, establishing a *noli me tangere* attitude toward the nipple. The further prophylaxis involves the rapid clearing up of all infantile infections, and in case of one-sided mastitis, the prohibition of consecutive nursing from the infected side to the normal one. In the first 1,000 cases in which this particular protective dressing was not employed, the mastitis incidence was 36 cases, with five abscesses; in the last 1,000 cases, coincident with the adoption of this dressing, the mastitis incidence was 21, with three abscesses. The treatment of mastitis as soon as diagnosed is a cardinal point in success. Certain therapeutic measures seem to have almost universal acceptance, namely, the use of cathartics, the employment of a binder for pressure and support, the limitation of fluid in the diet, and the use of ice locally until the presence of suppuration is suspected. The moot points in treatment are those which involve the emptying of the breasts by massage, pumping or nursing. The writers believe that the breasts, in the absence of nipple injury, are most safely emptied by the infant, and that the continuation of nursing increases the chances of successful lactation. Massage and pumping must be most carefully employed, but may be necessary to supplement the child's nursing. When the presence of suppuration is suspected a change from cold to heat gives comfort and hastens localization. All breast manipulation should cease, including nursing. Free incision with counter drainage and irrigation with Dakin's solution will hasten recovery. In conclusion the writers urge: (1) More effort toward the prevention of contamination in the first and second weeks of the puerperium, (2) general training of the staff and nursing force, that the earliest recognition of infected breasts may be achieved; (3) prompt treatment of the infection by some rational method which will stand the test of figures showing a minimum of suppurative termination.

7. Fundamental Factors in the Control of Tuberculosis, with Special Reference to the Sanatorium.—Henry Boswell summarizes his views as regards the control of tuberculosis as follows: (1) Tuberculosis is a preventable disease. (2) A certain percentage of people are carriers of the disease. (3) The campaign for the control of tuberculosis must be one of education and not of quarantine. (4) It must extend over a long period of time and be on a big scale. (5) It must take cognizance of the fact that as the disease decreases the fight must be more carefully made, because our race becomes one of nonimmunes. (6) It will require constantly increasing sums of money, which must be secured from the public. (7) It can be secured only by keeping in touch with the people, to insure their co-operation. To do this the workers must not travel too far ahead of public sentiment, or forget public ideals. (8) No campaign can be successful unless it is a part of a general health movement and coordinated, further, with all welfare agencies and the Bureau of Animal Husbandry. (9) The educational system must include the extension department of the bureau, keeping in touch with the tuberculous population, presenting information to them in their own language, catering to their ideals, and to local and sectional peculiarities. (10) The sanatorium is the fountain head from which all this should work and through which public sentiment for the final work may be crystallized. The sanatorium is a failure so far as the prevention of the disease is concerned, unless it is operated as an educational institution rather than as a hospital. (11) A place must be had where the indigent tuberculous population may be cared for during the remaining days of their lives, in order to protect an increasingly large number of the "nonimmune" race from the dangerous carrier.

The Lancet.

July 23, 1921, ccl, 5108.

1. An Address on Accuracy in Diagnosis. Being the Concluding Part of the Presidential Address at the Annual Meeting of the British Medical Association Delivered on July 20, 1921. David Drummond.
2. Lumleian Lectures on Some Points in the Etiology of Skin Diseases. Lecture III. Arthur Whitefield.
3. A Case of Primary Tumor of the Pleura. E. H. Eastwood and J. P. Martin.
4. A Case of Cure of Detachable Retina. Robert Foster Moore.
5. Operative Urethroscopy: An Improved Urethroscope. W. Wyndham Powell.
6. The Law of the Heart. E. H. Starling.

2. Lumleian Lectures on Some Points in the Etiology of Skin Diseases.—Arthur Whitefield with this number completes his course of three lectures. The first of these treated of the external causes of skin diseases, these being largely infection and irritation. In the second lecture he discussed the internal factors related in an etiological way to various forms of dermatitis, and emphasized the point that the working out of the whole physical condition of the patient had brought dermatology into a closer relationship with general medicine. Thus, the deeper insight which they had begun to gain into the true etiology of disease as it affected the skin had already in many instances been the means of securing a greater efficiency in the treatment of the patient. In the third lecture he calls attention to the fact that in the search for foci of infection the skin has received less attention than it merits. He does not find, however, that the focus of infection is always in the skin, but thinks it more often elsewhere. He has noted many cases of the most diverse eruptions which he considers to be proved to be due to chronic infective periodontitis. In some cases lupus erythematosis may be due to a chronic streptococcic poisoning, most frequently derived from the tonsils or teeth. Alluding to the influence of the nervous system on diseases of the skin, he says there is no doubt that in many instances prejudices of the observer have led to the drawing of unjustifiable conclusions, and that slip-shod clinical examination has resulted in the attributing of eruptions to the nervous system when they are plainly due to another cause. On the other hand, one cannot deal with large numbers of patients suffering from skin diseases such as urticaria, dermatitis herpetiformis, eczema, and psoriasis, in which up to the present time no specific cause is known, without being struck by the frequency with which one gets a history of mental shock or overstrain. It may be that the mental condition acts indirectly through its influence on the digestive system in causing certain skin diseases. As an instance of the relationship between the central nervous system and the skin lichen planus may be mentioned. For many years expert dermatologists have been convinced of the close relationship of lichen planus and the nervous system. Drs. Thibierge and Ravant drew off some of the cerebrospinal fluid by means of lumbar puncture. While nothing abnormal was found in the pressure or constitution of the fluid, the eruption was very favorably influenced by the procedure. The writer's experience of this method has been almost entirely favorable. In all cases so treated by him the effect on the subjective symptoms has been dramatic, and in all but two the eruption has lost its infiltrative character soon after the withdrawal. The author then discusses reflex irritation as a cause of skin disease, and expresses the opinion that there is some evidence in favor of this theory.

4. A Case of Cure of Detachable Retina.—Robert Foster Moore reports that during the last two years in the medical wards of St. Bartholomew's Hospital he has met 13 cases of detachment of the retina in patients in which it was not a complication of renal retinitis. He has admitted all such patients who were willing, and treated them on the following lines: They have been confined to bed, and 5 per cent. sodium chloride and 5 per cent. sodium citrate solutions, with the addition in each case of 4 per cent. novocaine, have been injected by means of a hypodermic syringe in amounts of about 15 minims, under Tenon's capsule over the site of the detachment. The injections cause some reaction so it is not thought advisable to repeat them oftener than about every third day. The sodium chloride is injected one day, and three days later sodium citrate; three days later sodium chloride, and so on for nine or ten injections. A man 44 years of age, with a large myopic complete crescent and a large transparent retinal detachment, was admitted on April 1 and treated on the above lines. When he was discharged on May 10 no detachment could be seen. Moore states that he does not fail to appreciate that the condition may recur, but he feels sufficiently encouraged to continue with this line of treatment in the hope that it may hold out some prospect for help in a condition looked upon as almost hopeless.

British Medical Journal.

July 23, 1921, ii, 3160.

1. President's Address: Eighty-ninth Annual Meeting of the British Medical Association. On the Medical Profession: A Horizon of Hope. David Drummond.
2. A Special Address on Industrial Hygiene: Its Rise, Progress, and Opportunities. Thomas Oliver.

1. President's Address: On the Medical Profession: A Horizon of Hope.—David Drummond, addressing the eighty-ninth annual meeting of the British Medical Association, held at Newcastle-on-the-Tyne, July 19 to 23, 1921, spoke of the future of the medical profession more from the viewpoint of its efficiency in the State than from an academic and strictly scientific aspect. He discussed the question as to whether the members of the profession are satisfied with the position which the profession holds in the scheme of national polity and whether they are satisfied with themselves. The first part of this question is answered by the fact that the whole medical profession of the country is in the process of organizing itself into a vast unified guild of a medico-political kind, which later will embrace the entire world, because it has become convinced that the whole hygiene of the folk requires its utmost and careful consideration in all its aspects and because it is determined to be adequately represented in the government of the country. He points out that with the progress of medical science the people have become more discriminating than they formerly were, and that if the physician is to render full measure of service to the public he must correct certain deficiencies in himself. There are inequalities in technical attainments which render the service to the public imperfect which are dependent upon differences in education and training. These may be met by improved

methods of instruction, but the power of acquiring knowledge is not the only factor needed. The personal character of the student and future practitioner must be borne in mind as a factor responsible for inequalities in the value of services rendered. As medicine is a progressive and constantly changing art, its followers, if they are to continue efficient, must be students all their days, and this raises the important and extremely urgent problem of post-graduate education. Professor Drummond discusses the various forms that this may take, and lays stress mainly on the practitioner's self-education and on the need of verification and checking up of his work. Thus, in order to clear up any doubt as to the nature of fatal illness, necropsies should be the rule; this is very far from being the case in present-day practice. Necropsies have become less frequent in recent years than in the past, and this cannot help but have a retrograde influence. Some delay in the advance of accurate diagnosis is due to the neglect to obtain data for trustworthy statistics by postmortem examination. Furthermore, there is much waste of available statistics, and to remedy this the hospitals should be provided with officials highly trained in statistical methods and able to correlate and systematize the material now rarely utilized. Full-time professorships would further this work. Professor Drummond emphasizes the supreme importance of cultivating the faculty of observation, so as on the one hand to be able to recognize the earliest departures from health, and on the other to possess a sound acquaintance with physiological variations, and thus to assess correctly the value of abnormalities. Speaking of the present examination tests which all students of medicine must pass, he notes that there are many drawbacks. Attempts have been made to minimize these by eliminating the factor of competition and having the student "pass" rather than "class." Professor Drummond favors the recommendation made by the General Medical Council that the student be given credit for previous class and ward work as reported on by his teachers.

Annals of Surgery

June, 1921, lxxiii, 6.

1. A Gravimeter Method for Determining the Superficial Area of Wounds. Beverly Douglas.
2. Acute Hæmatogenous Osteomyelitis. Frederic W. Bancroft.
3. Treatment of an Open Infected Wound. Richard J. Behan.
4. Recurrent Unilateral Subluxation of the Mandible. Excision of the Interarticular Cartilage in Cases of Snapping Jaw. Astley P. C. Ashhurst.
5. Treatment of Carcinoma of the Tongue. Douglas Quick.
6. Benign Stenosis of the Oesophagus. Nathan W. Green.
7. Mechanical Factors in the Management of Recent Empyemas. Frank S. Mathews.
8. Clinically Doubtful Breast Tumors: Their Diagnosis and Treatment. Edwin I. Bartlett.
9. Cultures from the Appendix. Charles E. Farr.
10. Results of Treatment of Twenty Recent Cases of Intracapsular Fractures of the Femur by Abduction and Plaster Fixation. Eugene C. Murphy and George M. Dorrance.
11. Cancer of the Large Intestine. James I. Russell.

8. Clinically Doubtful Breast Tumors: Their Diagnosis and Treatment.—Edwin I. Bartlett agrees with Bloodgood in that the clinical studies enable one to arrive at a positive diagnosis only in cases where there are skin changes or in cases of acquired unilateral retraction of the nipple, or in cases of a lump in the breast of women under twenty-five. It is a well-known fact, however, that a large majority of breast tumors are "clinically doubtful," and the diagnosis must be arrived at by some means other than clinical studies. The only help outside of the clinical pictures comes from pathological studies, and if the diagnosis is to be made before the patient leaves the operating table, these studies must be done at the operating table. If the solution of this problem is the study of the pathology of breast lesions at the operating table, then every surgeon who operates upon the breast should be familiar with the gross and microscopic pathology or should have always at his command at the operating table a pathologist for immediate gross or frozen-section diagnosis. The study of breast tumors at the operating table is best brought about by the means of an exploratory incision. One has a choice of three proceedings: (1) Enucleation of the breast gland, (2) excision of the tumor with a narrow zone of breast tissue, and (3) exploratory cutting down onto or into the tumor before removal. The first procedure is time-consuming and divides every primary lymph-vessel from the tumor to the skin, to the axilla and to the mediastinum. It is an extremely dangerous procedure and should not be practised. The second method does not involve the division of all of the skin lymphatics, but does mean cutting across every other lymphatic from the tumor. While this method has not the objections of the first, still its objections are too numerous. The third procedure is the one advocated. It involves the radial incision directly upon the tumor, and as soon as the diagnosis is made or the necessary piece taken, the whole wound and tumor are thoroughly carbolized. After a few trials and a thorough study of each case, one can make a diagnosis from the gross appearance alone in a very high percentage of the cases. In these instances one has almost entirely avoided dissemination because the carbolic is applied immediately after the incision, with a resulting and complete coagulation. If the diagnosis cannot be determined by the gross appearance, the microscope must be employed. Summarizing, the writer states that, laying aside all other considerations and confining one's self solely to the problem of giving the greatest number of chances of cure in malignant conditions, one must take into consideration, not necessarily all, but rather a certain few clinical signs and symptoms, and one must do the complete operation or explore in every doubtful case. The exploration should be done without delay. The breast should not be removed and an interval allowed to elapse between the time of removal and the pathologist's report. One should not remove the breast or the tumor for the purpose of immediate or subsequent pathological study. One should cut down upon the tumor and should be sufficiently schooled in gross pathology to be able to make the diagnosis at a glance. Thorough coagulation with pure carbolic should be done immediately after the incision of a malignant tumor, and the complete dissection should proceed without delay. No incomplete operation for tumor of the breast should be attempted in the absence of facilities for immediate diagnosis, and the diagnosis must be confirmed in every case before the patient leaves the operating table.

9. Cultures from the Appendix.—Charles E. Farr made a study of a consecutive series of appendices, including both chronic and acute cases, but excluding all cases of perforation and of gross peritoneal infection, for the purpose of determining the bacterial content of the exterior of the appendix, and the mesoappendix, with its blood-vessels and lymphatics. It may be and probably is true that the organisms so isolated play a large rôle in the etiology of appendicitis, but the problem at hand was to determine the potential threat of the appendix to the peritoneum, its viscera, and the abdominal wall. In 131 consecutive cases the colon bacillus alone or with other organisms was found in 57 per cent. of the appendices. Of 45 acute cases the colon bacillus, alone or mixed, was present in 53 per cent. No other single bacterium appeared in any large number of cases. Eighteen appendices gave no cultural growth. The two infected wounds of 36 acute cases closed without drainage (giving 5.5 per cent. infections); each showed the colon bacillus. Of the 131 cases, 113, or 86 per cent., gave some form of growth; 122 were closed without drainage. Primary union was obtained in 117 (96 per cent.). From these observations it is concluded that the appendix is potentially an infecting agent even when the most careful technique is used. Too much care cannot be exercised in delivering and removing it. Occasional parietal and deep-seated infections will occur under the most approved technique.

Southern Medical Journal.

June, 1921, xiv, 6.

1. Neutrophilic Myelocytes in the Cerebrospinal Fluid of a Patient Suffering from Myeloid Leucemia and Their Significance for the Diagnosis of Myeloleucemic Infiltration of the Leptomeninges. Lewellys F. Barker.
2. The Diagnosis of Pernicious Anemia. J. P. Schneider.
3. The Direct Aspiration of the Contents of the Biliary Tract Through the Duodenal Tube: Clinical Application and

Therapeutic Possibilities of the Method. Sidney K Simon.
4. Pediatric Pranks. J. Ross Snyder.
5. Intramuscular Blood Injections as Nutritional Aids. Thos. D. Parks
6. The Value of the Nurse in Public Health Work in the South. Miss Jane Van DeVrede.
7. Impressions Derived from One Hundred and Thirty Neuro-Surgical Cases Studied During Twelve Consecutive Months. Charles E. Bowman.
8. Complete Severance of the External Carotid Artery, Arterior, External and Internal Jugular Veins and Sterno-Mastoid Muscle from Razor Cut: Recovery. Jere Lawrence Crook
9. Ununited Fractures. Alonzo Myers.
10. Fibrous Cavernositis-Induration of the Corpora Cavernosa. Perry Bromberg.
11. The Treatment of Placenta Previa. Edward Speidel.
12. The Eye in Relation to the Ear, Nose and Throat. Meyer Wiener and H. W. Loeb.
13. Tonsils from a Clinical and Pathological Standpoint. Elbyrne G. Gill and Kenneth D. Graves.

2. The Diagnosis of Pernicious Anemia.—J. P. Schneider states that in general three main clinical types of pernicious anemia are met with: The anemic type in which the subjective and objective findings are hematological; the gastrointestinal type in which stomatitis, gastric symptoms, diarrheas, etc., and not seldom proctitis, are stressed in the patient's complaint, and finally the neurological, in which type subjective and later objective neurological findings are uppermost. In 107 cases tabulated by the writer on the basis of principal complaint, 62 were anemic in type, 23 gastrointestinal, and 22 cord. In the common type in which the symptoms of anemia *per se* are in the foreground (weakness, dyspnea, palpitation, vertigo, throbbing of the vessels of the neck, etc.), there is usually a sufficiently well-developed blood picture to allow of a definite diagnosis if one considers also the clinical course and bile studies. The severity of the symptoms of anemia are not in proportion to the degree of anemia, but in rather direct relation to the rapidity with which the blood is falling. In the gastrointestinal type the principal complaint is food distress. The patient may complain particularly that hot or cold or sour food or drink causes intense burning pain of the gums or tongue or both. There may be distention, nausea, vomiting, and diarrhea, one or more, and proctitis. It is in the gastrointestinal type that malignancy is often suspected. On the other hand, malignancy, particularly a bleeding, necrosing carcinoma of the *pars media* of the stomach, may be regarded as pernicious anemia. The differentiation may be made by the duodenal test. When the bleeding is enteric the normal duodenal pigments, bilirubin and urobilin, are reduced to levels comparative with the blood level. When a hemolytic process destroys blood the bleeding is parenteral and the pigment resulting must be removed through the medium of the spleen-liver complex and high values for bilirubin and urobilin with the addition of urobilinogen will be found. In the third type, the neurological, the diagnosis is more problematical because subjective symptoms alone may be present and antedate objective neurological findings as well as a positive blood picture for many months. In 80 per cent. of all cases of pernicious anemia, however, there will appear sooner or later objective findings. In a recently published study of 78 cases of pernicious anemia the pigments urobilin and urobilinogen were present in pathological amounts in all but three cases, the average total units being 3,300 units. Barring intercurrent disease, the prognosis can be somewhat evaluated by the degree of leucopenia, the platelet count, and the hematopoietic-hemolytic index. When in a given case there is present a tendency to hemorrhage, a marked leucopenia and a minus hematopoietic-hemolytic index, the evidence is overwhelmingly in favor of the disease having arrived at the stage of marrow failure.

Western Medical Times.

July, 1921, xii, 1.

1. Cancer and Its Treatment. R. O. Butterfield.
2. Children and Their Nervous Manifestations. Aurelius R. De Janis.
3. Pain in Peptic (Gastric and Duodenal) Ulcer. W. H. Foreman.
4. How Can We Resist Disease. J. G. B. Bulloch.
5. Capital Punishment. G. Frank Lydston
6. The Urinary Chlorides in Disease. John C. Warbrick.
7. The American Medical Editors' Association Decides More Time Should Be Devoted to Chemistry in Our Medical Curriculum. George H. Tichenor, Jr.

1. Cancer and Its Treatment.—R. O. Butterfield emphasizes strongly that cancer is not merely a surgical disease; in many cases it is both a medical and surgical disease, but principally medical. After extensive study he is convinced that cancer is not a germ disease; that it is not contagious and not hereditary in the accepted meaning of the term; that it is the result of autointoxication, the local manifestation being determined by an irritation at the focus. The cancer patient is one who drinks but little water and passes but little urine. In every case in which the writer has made a urinalysis he has found a deficiency of carbonates. This rises from a deficiency of water intake and the lack of oxidation. The resulting condition is that of hyperalkalinity of the whole system. This condition may be called the precancerous stage. In this type of case all the emuctories are functioning below normal, a condition comparable with senility. In the matter of cancer treatment the hope of saving the patient lies first in an early diagnosis, teaching the laity to watch for suspicious manifestations; second, in active treatment with the object of thoroughly destroying the local growth, eliminating the poison from the system, and activating the metabolic processes. For deep-seated growths we must depend upon the knife alone or in conjunction with the electro-cautery. For the removal of superficial growths Butterworth has found Marsden's method the best. He has, however, worked out a method of injection for selected cases of superficial growths that he feels is superior to any other method. It has been successful in almost every case in which the growth could be reached by the hypodermic needle. The method is painless and can be used without a general anesthetic, whereas the plaster methods are all very painful unless an anesthetic is used. Having removed the growth, one must get the metabolic processes to functioning as perfectly as possible to avoid recurrence.

Wiener klinische Wochenschrift.

June 30, 1921, xxxiv, 26.

Treatment of Cancer of the Uterus.—Adler gives some figures of the treatment of 52 inoperable uterine cancers dating from 1913-4. Of this number 13 still live, free from relapse. As a coincidence there was a small series of 6 operable cases of which but one survives. The author used radium at a time when we knew much less about it than now, and believes that radium technic is a most difficult subject. He does not believe in a standard dose or a system of treatment. He does believe in individualizing treatment and it is most fearfully hard to know just when to stop. There is a severe alternative between giving too much radium and causing fistulæ and giving too little and stimulating some of the cancer cells to further growth. Despite statements to the contrary, there is a primary radium mortality—from sepsis (Bumm, Schaefer). He nearly lost a patient in this manner. A source of aggravation is the disappearance of so many women in the course of treatment. Some who are optimistic believe they have been cured; others have some fault to find with the treatment. Whatever is to be said of radium alone applies equally to the combination with *x*-rays. The author seems to have used the latter only since 1919, when he obtained a Reiner installation. In regard to operative cases there is no room for more radical intervention, as the Wertheim technic has been carried to the limit. The Schauta vaginal operation is suited only to part of the material and in the past ten years the primary mortality has been less than 4 per cent. Operation can go no further, and thus far radiation cannot take its place, but is indicated as after-treatment. For the present the operable case must be operated on, vaginally or abdominally, according to exact indication.

Dangers of Serotherapy in Horsemeat Consumers.—Kopaczewski warns against the use of antitoxins, serums, etc., in peoples who live on the meat and milk of the horse. These subjects, among whom are Russian Tartars, appear to have become sensitized to the action of the products of horse serum.—*La Presse Médicale.*

Book Reviews.

OPTIMISTIC MEDICINE or the Early Treatment of Simple Problems Rather Than the Late Treatment of Serious Problems. By A FORMER INSURANCE MAN. Philadelphia: F. A. Davis Company, 1921.

"THE time has come, the walrus said." Do you remember your Alice in Wonderland days when your imagination played all sorts of delightful pranks and gave such a filip to the irresponsible child life? Well, the walrus spoke the truth, but he never realized, did he, just how much his little speech could apply to the doings of a body so august as the medical profession? The time *is* ripe and the publication of Optimistic Medicine strikes one of the telling hours on the clock. Physicians have worked along, slowly gaining help here and there from allied sources, in the advancement of their knowledge of healing. Perhaps they might not acknowledge the sources of help, perhaps they might. But in the last fifteen years assistance, definite and clear, has come from one of the most capable sources in the world, one of the recognized authorities in its allied interest with medicine. Life insurance and all it means is a power for tremendous impetus toward health and longevity. Insurance progress woke up the medical profession to the value of increased health from middle life, so-called, through old age. Not only has it offered working knowledge for a healthier middle age, but in addition it points out a happier outlook for the individual as these fulfilling years are lived. The author, a former insurance man, unconsciously stamps on the reader's mind the picture of a man who has had the power and brains to study people understandingly and from a rather unique angle as they passed before him. He takes the busy physician, tells him to put on his glasses and his old smoking-jacket, sets him in front of a big open fire and talks; and as he speaks, the quiet, quizzical, humorous outlook he has gained through his intimate relationship with men and women comes into his words. He presents in this book a tolerance for human nature, its ignorance, its pitfalls, and its fine endeavors, while at the same time, and in the same kindly manner, he puts it up to his medical man by the fire.

There has been no attempt to advance any new theory of medicine, but a practical use has been made of the attitude of hope as a therapeutic measure in bringing about a normal adjustment of each individual, sick or well, toward life. One gets to detest the abused word "psychological," but it does play an important part in Optimistic Medicine, even though the term is so seldom used. There is no refuting the author's knowledge of medicine, but added to the medical viewpoint, is a knifethrust for the doctor who does not handle his patients with a big, human understanding. The chapters on The Celibate of Fifty or Sixty, Retaining Efficiency Late in Life, Mental Torture of the Body, and Getting Normal are too delightful to miss. One knows the author must have possessed at least two old-maid aunts who probably were dim shadows in his rampant boyhood. Their impression seemingly still lingers in his mind as he writes "Few people probably realize the sense of isolation which overtakes people who have gradually been left to themselves. The celibate is peculiarly liable to this fault." Again, his attitude as to what advice should be given by the family doctor to those lonely souls, the spinster—that is what he calls her—and the old bachelor, makes one unconsciously chuckle with glee, for he reads human nature with so true a focus. Imagine the single woman of today being called a spinster! Heaven save the mark! After one puts down the book comes the thought, "I knew that and that." Perhaps a resolve is made by the reader to put forth a stronger, braver endeavor to lighten the lives and to bring hope and more health to those who lean so heavily and so trustingly on the lightest word from their family physician.

THERAPEUTISCHE TECHNIK FÜR DIE ÄRZTLICHE PRAXIS. Ein Handbuch für Ärzte und Studierende. Herausgegeben von Prof. Dr. JULIUS SCHWALBE, Geh. San.-Rat. Fünfte, verbesserte und vermehrte Auflage. Price, 260 Marks. Leipzig: Georg Thieme, 1921.

THE regular biennial editions of this work were interrupted by the war so that it has now been eight years since the appearance of the fourth edition. To those who are familiar with the work it will be necessary to say only that it has been quite thoroughly revised and somewhat enlarged. There has been added a chapter on dental technique and that on gynecological technique has been rewritten. For the benefit of those who do not know the book it may be said that it consists of more than a thousand pages devoted to therapeutic technique of every variety. It is impossible to review it adequately, but nothing seems to have been omitted. There are chapters on pharmaceutics, dietetics, mechanotherapy, radiotherapy, etc., etc., and a large section of the book is given over to the more strictly surgical technique. Among the authors one will find such well-known men as Czerny, Brugsch, Boas, Zuckerkandl, Ficker and Wassermann, and by that list the value of the work may perhaps be judged. It is a reference work of some value in spite of the fact that, like most German works of this class, it will be found to contain methods that are often quite different from those followed in this country.

MANSON'S TROPICAL DISEASES; a Manual of the Diseases of Warm Climates. Edited by PHILIP H. MANSON-BAHR, D.S.O., M.A., M.D. (D.T.M. and H.) Cantab., M.R.C.P. Lond. Seventh edition, revised and enlarged, with 31 colour plates, 6 half-tone plates, 404 figures in the text, and 31 charts. New York: William Wood & Company, 1921.

IN the seventh and enlarged edition of "Manson's Tropical Diseases, edited by Philip H. Manson-Bahr, a most complete and modern study of the field of tropical medicine is authoritatively presented.

This volume is already familiar to those interested in diseases of the tropics and therefore needs no introduction; but in this edition certain important additions have been made, including the recent work of Noguchi and the discovery of the leptospira conveyed by *Stegomyia fasciata;* the researches into Rocky Mountain and typhus fever; and the Marris atropine test, possibly the most important contribution made during the war in the diagnosis of enteric fevers. The Marris test depends on the fact that a hypodermic injection of atropine sulphate, grain $\frac{1}{50}$ to $\frac{1}{30}$, is followed by a rise in pulse-rate, amounting to at least fifteen beats per minute, in health or in diseases other than typhoid and the paratyphoids; whereas in cases of enteric fever, no rise, or only a very small rise in the pulse-beat is to be noted. Marris' test is applied to inoculated patients. Here, obviously, the Widal or usual serodiagnostic detection of typhoid fever is wholly unreliable; so that the value of the atropine test, in addition to its speed and simplicity, is enhanced by the ability claimed for it to sort suspected innoculated patients into two classes, "enteric" or "not enteric."

Three unusual appendices conclude this excellent volume. The first is an appendix on medical protozoology, which is complete and mostly the work of Dobell; then an appendix on medical helminthology, entomology, etc.; and finally an appendix dealing with laboratory methods as applied to clinical medicine in the tropics. This latter section is quite complete and in every way practical. The general lucid and lucent style in which the subject matter is presented, and so characteristic of the former editions of this book, has been preserved throughout.

TUBERKULOSE-BIBLIOTHEK; BEIHEFTE ZUR ZEITSCHRIFT FÜR TUBERKULOSE. Leipzig: Johann Ambrosius Barth.

"ZUM Tuberkulose-Gesetz" is the title of the first monograph in the Tuberkulose-Bibliothek, under the editorial direction of Prof. Dr. Lydia Rabinowitsch of Berlin, a one-time American teacher at the Woman's Medical College of Philadelphia. The following are the names of the contributors: Prof. Dr. B. Möllers, Prof. Dr. M. Kirchner, Dr. O. Mugdan, Dr. Chr. Harms, and Prof. Dr. A. Schlossmann. Each of these gentlemen gives his views of what the new German tuberculosis legislation ought to be. Although the pamphlet is interesting, nothing new can be learned from it by American tuberculosis workers, since our own anti-tuberculosis laws, provisions, and sanatoria in the majority of the States of the Union are superior to anything suggested in this monograph.

Society Reports.

THE INFANT WELFARE CONFERENCE.

(From Our London Correspondent)

The second English speaking conference on infant welfare promoted by the National Association for the Prevention of Infant Mortality and the National Baby Week Council, was opened at the Central Hall, Westminster, London, on July 5 last. The meetings covered three days, the conference ending on July 7.

VISCOUNT ASTOR presided at the opening meeting and in the course of his speech said, they wanted to resolve themselves into an anti-waste conference and send out the message, "We are anti to waste of child life due to preventable causes." Public apathy was due to the fact that the victories of preventive medicine were unseen, while failures were always more prominent. This country could not afford to lose the progress gained during the past years.

DR. JANET M. CAMPBELL, senior medical officer of the Ministry of Health, in a paper dealing with "Maternity Homes" said that the ministry had now recognized between sixty and seventy homes in England and Wales, with about 700 beds, while over twenty proposals for new homes were under consideration. That was in addition to maternity beds in homes for young married mothers, and in addition to old-established maternity hospitals and poor law lying-in institutions. In spite of our modern knowledge of the causes and prevention of infection, of the successful application of this knowledge to the practice of surgery, and of the elaborate training given to medical students and nurses in surgical technic, we were, as regarded midwifery, almost back in the position at the beginning of the century before the midwives act was passed.

The Child Welfare Exhibition was opened in the afternoon of July 5, in the same building by SIR ALFRED MOND, Minister of Health, who said that of all the many subjects under the charge of the ministry there was no branch from which one derived more satisfaction, and in which were seen more results for the benefit of the country and the rising generation than maternity and infant welfare work. However great the need for economy in these days, he felt quite sure that they should not economize in this direction, and he was very pleased to see such a large and practical exhibition. There was no doubt as to the value of bringing home to people visually the methods and simple devices which assisted in the proper rearing of infants. More people sinned from ignorance than from crime, and ignorance could be removed in that way. No government department, however anxious, could produce the far-reaching results required to assist the millions of babies born every year, and it was far more important to do as they were doing by means of that exhibition to bring the mothers into close contact with practical methods and suggestions. He was a believer in voluntary effort, and it would be a pity if the experience of the war should be wasted.

Among the many interesting papers read was one by Mrs. CYRIL SMITHETT, the title of which was "Residential Provision for Mothers and Babies." She dealt with the problem of the unmarried mother and her child and said in part that during the war a great deal was heard about "war babies" and considerable fear was entertained that they would become a serious burden on the state, but as a matter of fact, the numbers were a good deal exaggerated, and taking into account the abnormal conditions of the country's life under the strain of so huge a conflict, there was really not so alarming an increase of illegitimate children as had been anticipated. However that might be there was no doubt that since the war, in the aftermath of reconstruction, and while the stormy waters of our national and individual life were still rolling restlessly, there had been a decided augmentation in the numbers of what in country villages was known as the "love child." Many and various were the reasons advanced for this state of affairs, but in the opinion of the author it was mainly due to three great factors: (a) The sudden relaxation of discipline which for the war years exercised a certain restraint on women, either in the services or in government employment. (b) The craving in every girl at the present day for pleasure; and (c) The extraordinary lack of influence on the part of the modern parent, who was apt to shirk all responsibility beyond clothing and feeding the girl. There was no doubt that in all classes the craze for amusement was tending towards immorality in its devotees, and the stories of the divorce courts showed clearly that the working girl was by no means the only sinner. Mrs. Smithett, who is the National Secretary, Reception Hostels Committee, Young Women's Christian Association of Great Britain, explained the methods by which this association aided these errant girls and their babies. The association has established homes in which they are fed and cared for while at the same time no restraint is placed upon the mothers, and when they are ready to go out again into the world, they are when necessary found work, if possible with the child. If this is not practicable, the baby is placed with a foster mother, and the girl in service as near as can be arranged, sufficient wages being insured for the mother to pay in full for the child's keep, and time off to allow of her visiting it regularly.

Another notable paper was by MISS J. HALFORD, secretary of the National League for Health, Maternity and Child Welfare. She pointed out that while it was true that Belgium and France were the first to initiate medical infant consultations, and so laid the foundations of the modern infant welfare movement, it could not be denied that it was the United Kingdom which built most rapidly and successfully on those foundations and also extended and developed the work in many more directions than had been thought of originally. Residential provision for mothers takes the form of Lying-in Homes, Convalescent Homes, and Rest Homes, both ante and post natal. It could be said at once that as yet the supply was in no way equal to the demand. More and more local authorities, however, were opening Lying-in Homes and it was obvious that these had come to stay. They were, nevertheless, expensive institutions to equip and run since they could not fail to be small hospitals, however normal might be the cases with which they mainly dealt. In the seven municipal maternity homes from which information had been received, all of which provided for an average of less than a dozen patients at a time, the nursing staff ranged from 3 to 7 and in one case there were 5 nurses and 6 midwifery pupils, and in a second there were 5 pupils to 4 nurses. The domestic staff averaged 4. The off-duty times for the nurses in most cases included 3 hours daily, half-day weekly, and one day each month or each two weeks. The domestic staff had mostly half a day weekly and additional evenings or afternoons. In only three cases was the cost per week per inmate given, and this amounted to £7, £5 4s. 6d., and £3 15s. 3d. respectively. The patients stayed two weeks in five of the homes, from 10 to 14 days in another, and an average of 19½ days at Liverpool; they paid from £1 to £2 2s. per week.

Comparing these with maternity homes run by voluntary agencies, only one of which had over 12 beds, the nursing staff with one exception was more numerous than in the municipal, and in three instances the staff, including pupils, exceeded the number of patients. The cost per head per week ranged from £1 7s. to £6 1s. 2d. Only two out of eight homes restricted the stay to 2 weeks, the others ranging from 17 days to 4 weeks. The fees charged averaged £1 10s. per week. Of convalescent and rest homes for mothers accompanied by their babies there were still lamentably few throughout the country, the National League for Health, Maternity and Child Welfare leading the way with two such homes it had already established. To be successful, they needed to be small and homelike, and experience showed that the personality of the matron was far more vital in these homes than it was in hospitals, for instance. Where, as in the case of the League's homes, only nursing mothers were admitted, the amount of help given, seeing that two were benefited at the cost of one, was very great at a low cost, a comparatively small staff only being required. In the case of many mothers their stay of two weeks in

a lying-in home was the only holiday they ever got. Even more of a real holiday was a short stay in a convalescent home, the confinement safely over, and nothing to do but enjoy to the full good fare, good care, and good air. One special difficulty with which one had to contend in running a convalescent home for mothers was that of keeping the beds filled punctually. All the arrangements might have been made satisfactorily and yet at the last minute the mother had to forego her chance of the much-needed rest because some member of her household fell ill and there was no one to replace her, or more often than not the father shirked, adding her work and responsibilities to his own even though he himself might be out of work. It was, of course, always necessary to obtain the husband's written consent for his wife to enter the home, but even so, he might at any minute come and fetch her away, if the children got on his nerves, or the household jobs got beyond him. The author showed that it cost far more to keep a baby in a Home, however economically managed, than it did in a home without a capital H. If only more of the right kind of foster-mothers were available, and adequate but comparatively inexpensive supervision in the homes were available, with regular medical inspection at the infant welfare centers, there was little doubt that they should supersede institutional care for well babies. The real home atmosphere, so essential if babies were to do well, could not be replaced even in the best of institutions; any aggregation of babies must always be dangerous owing to the risks of infection, and the cost, even allowing for that of supervision, would be decidedly less. But house shortage and consequent overcrowding in the homes was still so prevalent that it seemed impossible to hope for any immediate reduction in the number of homes for babies, many more of which under present conditions were still needed.

R. STENHOUSE WILLIAMS and J. MACKINTOSH discussed milk in its economic aspect and drew the following conclusions from investigations made by them. First, that owing chiefly to increased labor charges, the price of milk in the future must be greater than it was before the war, although not necessarily maintaining the recent high prices. Second, that if a milk of better keeping quality is desired it can only be obtained by a further addition to the costs of production. Commenting on this expression of opinion, the authors say that while it may sound lugubrious, it is questionable whether the outlook is really as gloomy as it appears to be, since there are many savings which may be effected as the result of improved methods, and these will eventually materially influence the cost to the consumer. Some of the savings which might be effected within the industry are thus epitomized: The milk producer on his part may increase the yield of milk from his herd by adopting the practice of milk recording, which will enable him to find out and dispose of his poor cows and will afford a safe basis for an economical and improved system of feeding and for the gradual improvement of his herd by breeding for higher yields of milk. The producer may also adopt more cleanly methods in the production and handling of milk and thereby lessen the loss through souring or other faults. The distributing section of the industry may contribute by taking greater care that milk, when under their control, is not deteriorated by the use of insufficiently cleansed utensils, and by handling it in such a manner that the consumer can be sure of receiving a good article.

Dr. E. W. HOPE, M.O.H., Liverpool, read a paper on the supply of milk to expectant mothers, nursing mothers and infants. He pointed out that it had now become clear that in a considerable proportion of cases by supplying the mother with milk, on easy terms, her ability to suckle the infant was restored and this principle had been largely followed. The guiding principle in this work was not the relief of destitution, but rather provision for the ailing, whether expectant mothers, nursing mothers, or infants. The extent of the work would be recognized by showing that upward of 20,000 persons were receiving milk during the year 1920, of which number approximately, and in round numbers slightly more than, 1,000 were expectant mothers, 9,000 were nursing mothers, and 6,000 were infants under 12 months of age. There were also 4,000 children between the ages of 1 year and 5 years. Approximately 325,000 gallons of fresh milk and nearly 17 tons of dried milk were distributed in Liverpool during the year 1920. The work had been in operation for approximately 15 years and had been gradually increasing in magnitude up to the year quoted. The greatly reduced infant mortality rate during the past 20 years was undoubtedly largely due to the improvement in milk distribution. It must be remembered that the work was carried on in conjunction with the Infant and Maternal Welfare clinics, and in the case of infants the mixture was prepared in conformity with the instructions of the doctor. It would be appreciated, therefore, that an immense amount of care had to be exercised in the preparation of a large number of mixtures to meet the varying ages and needs of the infants.

Dr. FREDERICK L. HOFFMAN read a paper on the influence of weather conditions on morbidity and mortality in early infancy, founded upon the results of an investigation into the sickness occurrence among infants in the cities of York and Homestead, Pa., with particular reference to the relations of weather conditions to infant diarrhea. The investigation was made jointly by the State Department of Health of Pennsylvania and the Prudential Insurance Company of America, in co-operation with the United States Weather Bureau and local health-promoting agencies. For the city of York the total number of cases considered was 1,092, while for the city of Homestead the number of cases was 1,056. These figures represented practically the entire infant population of the two communities. The purpose was primarily to determine how far environmental conditions in the broader sense might possibly be correlated as causative factors in the excessive incidence of diarrheal diseases during the summer months. It was unfortunate that for the purposes of the investigation the summer of 1920 was the mildest on record for many years. The results were exemplified by a series of tables. The first table showed infant morbidity correlated to the method of feeding. It was gathered from this table that the children who were breast-fed only, during the entire period of observation suffered a sickness rate of 2.0 per cent., whereas those who were artificially fed throughout the entire period of observation suffered a sickness rate of 13.7 per cent. Midway between the two were the children that were breast-fed and artificially fed, who suffered a sickness rate of 7.1 per cent. According to the second table, in which the results produced in children subjected to a changed method of feeding during the period of observation was noted, the children whose feeding was changed from breast to partially artificial methods suffered a sickness rate of 6.4 per cent., whereas the children who were changed from the breast-fed to the wholly artificial method of feeding suffered a sickness rate of 10.4 per cent. For Homestead the data, unfortunately, were only for the period August to October. In this investigation the results were somewhat at variance with those derived from the York investigation. But even in the Homestead figures the breast-fed children showed the lowest sickness rate, or 1.6 per cent., while the children subjected to a change of feeding during the period of observation, or from breast feeding to artificial feeding, suffered the highest rate, or 5.1 per cent. The artificially fed children suffered a sickness rate higher than the breast-fed, but the data must be considered as inconclusive. Another table indicated an excessive sickness frequency from diarrheal diseases when the maximum temperatures coincided with high minimum temperatures. Summarizing the results of the two investigations, the ratio of morbidity from all diseases was 68.7 per 1,000 infants for York and 28.4 for Homestead. For diarrheal diseases separately the rate was 58.6 per 1,000 infants for York and 16.1 per 1,000 for Homestead. The proportion of diarrheal diseases in the total morbidity was therefore 85.3 per cent. for York and 56.7 per cent. for Homestead.

Pfeifferian Septicemia.—Richardière and Laplane report the case of a child which presented the typical picture of cerebrospinal meningitis. Lumbar puncture revealed Pfeiffer's bacillus.—*La Presse Médicale.*

AMERICAN THERAPEUTIC SOCIETY.

Twenty-second Annual Meeting, Held in Washington, D. C., June 3 and 4, 1921.

(*Continued from page 350.*)

Second Day—Saturday, June 4.

The Treatment of Epileptic Manifestations in Children from the Standpoint of the Constitutional Basis.—Dr. E. BOSWORTH MACCREADY of Pittsburgh read this paper. (See page 358.)

Dr. BEVERLEY R. TUCKER of Richmond said that one hated to discuss a paper of this kind in five minutes for it contained so much of thought and suggestion that it was difficult to know where to begin or where to stop. One reason that more advance had not been made in the treatment of epilepsy was the assumption of the attitude that epilepsy was a disease. For some time he had reversed that attitude and had taken the position that convulsions were merely a symptom, just as headache or fever. With the older attitude patients usually got very poor examinations and very poor treatment, but if the state was approached from the view that the recurrent attacks were the symptom of some underlying condition, then one was compelled to make a more complete and thorough examination. Age had a great deal to do with the character of the recurrent attacks. Cases beginning in early life were due either to some constitutional inferiority handed down from ancestors or to obstetrical birth deformity. He had seen cases in which children's heads had been photographed with evidences of intracranial pressure. One child had an accumulation of cerebrospinal fluid between two of the sulci in the frontal lobe. There was no cyst wall, simply the cavity between the pia and arachnoid. The accumulation of fluid amounted to an ounce, which was evacuated and the cyst for a time was relieved; later it returned. The pituitary cases usually appeared during adolescence; in fact, he rather hesitated to make a diagnosis of pituitary epilepsy that had not occurred during adolescence. He rather agreed with Dr. MacCready that it was pluriglandular rather than simply pituitary. In fact, he doubted very much whether there was a true one-gland condition; probably all gland conditions were pluriglandular, with one gland paramountly affected. Later cases were found beginning in middle life; that was usually due to variable vascular tension while the patient was getting used to the blood pressure increase. During this period recurrent convulsions in no way distinguishable from idiopathic epilepsy occurred, and sometimes when the blood pressure became stable the attacks spontaneously ceased. This was a small group of cases. A small growing neoplasm or a small hemorrhage (sometimes a hemorrhagic diathesis) would give convulsions. Then, too, it should be realized that a convulsion was a convulsion, whether it was single, occurred in a series, or was recurrent, whether it was irregular, or whether it showed periodicity. Convulsions occurred in meningitis, brain tumor, tetanus, eclampsia, etc. These were just the same as the convulsions that occurred in a case of epilepsy. Dr. Tucker said he felt so strongly on this point that he would like to see the word epilepsy dropped altogether from medical nomenclature, for it undoubtedly stigmatized the patient, even in the toxic and traumatic cases; but if one delivered a patient and gave a cerebrocortical defect to a child, and the child had convulsions, the stigma should belong to the physician rather than to the child. He did not pretend to have solved the problem of epilepsy, but he was convinced that if the subject was approached as a symptom, whether recurrent or single, a better understanding of the subject would be gained than had been reached in the last hundred years or so.

Dr. CHARLES E. DE M. SAJOUS said that the material contributed by the Therapeutic Society was so valuable and helpful in every-day work that he hoped the time would come when it would be possible to see the volume of transactions published promptly. There was one feature of epilepsy which he wished to emphasize, for it had enabled him to help to some recoveries. He had been called one night to see a little girl whose convulsions numbered from 30 to 100 per night. She had now been well for seventeen years, although she had gone through three confinements. Recovery was due to the consideration of the intoxication originating in the intestinal canal. One should bear in mind that focal infection in epilepsy was one of its important pathogenic factors. In the study of every case he investigated every possible source of infection or toxemia, besides, as Dr. MacCready had said, any pressure symptoms or history of traumatism. The essential feature, as emphasized by Dr. Tucker, was that we were dealing with a symptom, the cause of which could sometimes be discerned and eliminated. Barium-meal and fluoroscopic determination of intestinal efficiency should be resorted to in every case. In one instance, *x*-ray examination of the abdomen revealed several calcified glands in the splanchnic area. As Dr. MacCready has also said, there was often an element of anemia in these cases, but also such usually proved to be due to the hemolysis consequent upon a focal infection. When thyroid gland was administered, one should not lose sight of the fact that it acted as a catabolizer, and that large doses favored hemolysis. Small doses should alone be given in these cases.

Dr. JACOB DINER, referring to Dr. Sajous' remarks in regard to the earlier publication of the Transactions, said that the action of the Society in increasing the dues would facilitate that end. At the same time, it should be remembered that the papers and the discussions usually appeared within a few months and were available in the MEDICAL RECORD. If they did not appear before that time it was because the papers were not in the hands of the editor, and an effort had been made to obviate that. If there were such a thing as adopting a slogan for each meeting on bringing out the literature for the meetings, the last meeting and this one would furnish excellent material. At the last meeting, emphasis had been placed on the importance of treating the patient and not the disease; and if he had to choose a slogan for this meeting he would choose: Seek the cause and not the symptom. This point had been ably brought out by Dr. MacCready and by Dr. Tucker in the discussion, whereas it was often lost sight of by the practitioner. Certain diseases had been named instead of naming certain symptoms; and these symptom-complexes had been applied to the diseases so named, instead of regarding them merely as symptom-complexes possibly present in many pathological conditions. If this meeting would do nothing more—it had done much more—than calling the attention of the physician to the necessity of following the French slogan that underlying all manifestations of trouble they should *chercher la femme*, we should have the slogan: *Cherchez la cause*.

Dr. GEORGE H. HOXIE of Kansas City inquired in regard to the prognosis of the epilepsy due to pituitary disturbance. In his own work the treatment by the administration of pituitary extract had been very unsatisfactory and he could not see any permanent benefit from it. He questioned the etiology of the disorder as being anything more than a cortical irritation from causes as varied as the number of the cases.

Dr. MACCREADY requested that Dr. Tucker answer Dr. Hoxie's question, as he had had more experience in that direction.

Dr. TUCKER replied that if pituitary treatment was applied to all cases of epilepsy that occurred during adolescence the results would be discouraging; but if the cases were carefully selected, with clinical and radiographic evidence and treatment applied on the first appearance of convulsions during the period of adolescence, as he had indicated the previous day, good results might be expected. Out of 17 cases reported in 1919, 4 at that time had not had convulsions for over 3 years; he selected these cases, thinking it was fairer than the more recent cases. Now, 9 cases had had no attacks for over 3 years and 4 of these had had no convulsions for from 6 to 9 years; two had had pituitary gland substance irregularly. If they took it regularly they would not have attacks; if they dropped it, the attacks would recur. So far as he could estimate, these 17 cases represented only about 8 per cent of the cases that came to the office in ordinary private practice. The group was small and depended on the selection of cases. One case had been lost track of; another

one had been included in the second group, but the patient was found to have three brothers and sisters in an institution, so it was taken out of the adolescent group. He repeated that if the cases were selected one could expect results.

Acromegalia with Leucemia.—Dr. HYMAN I. GOLDSTEIN of Camden, N. J., presented this paper, which consisted of a comprehensive review of the literature of the subject and a report of a case. This patient, a male, 43 years of age, had been under his observation for ten years, since 1911, at which time he was apparently in good health except for very slight disturbance of vision and occasional headache. His family and past history were unimportant. His history during the next few years was more or less that of progressing acromegaly. A study of the blood as early as 1915 and 1916 showed a nearly normal picture, except that the white blood cells showed a distinct tendency to increase up to 20,000, though the differential count was apparently normal in all respects. In 1918 the blood picture had changed considerably. The blood examinations then showed red blood cells 3,750,000, white blood cells 26,000, hemoglobin 78 per cent. The differential count at this time showed a marked reduction in polymorphonuclears to 35 per cent, and a distinct increase in small lymphocytes to over 50 per cent. For an uncomplicated acromegaly this was an unusual blood picture. The question came up whether this was the beginning of the leucemia, without evidence of lymphomegaly and splenomegaly. During the past ten or twelve months there had been marked changes in the blood picture, with a white blood count varying from 80,000 to 115,000 and a lymphocyte percentage of 90 to 97. The huge spleen and the lymphomegaly now left no room for doubt that this was a case of leucemia in an acromegalic. Whether this was more than a coincidence the writer was unprepared to say. The unusual features of the case were the absence of pressure symptoms though the *x*-rays showed a much enlarged sella turcica; loss of sexual power for a period of six years or more, followed recently for the past two and one-half years, by a return of all sexual power; the occurrence of lymphatic leucemia, with splenomegaly and lymphomegaly for the past sixteen months. The writer had found no other case of acromegaly recorded in the literature, associated with leucemia, and such a large sella turcica and without ocular disturbances, or any pathological changes in the eye grounds, and a normal basal metabolic rate. Following *x*-ray treatment there was improvement in the bones, spleen, lymph glands, and pituitary.

Dr. WILLIAM F. MILROY of Omaha, Neb., referred to a case of acromegaly which occurred in his experience, probably twenty or more years ago. The woman was under observation for about a year but he did not now recall the whole duration of the symptoms. The woman was 35 or 40 years of age. She developed to an extreme degree all of the hypertrophies characteristic of the disease, and suffered from glycosuria. Finally her tongue became so greatly enlarged that her mouth could not contain it. This enlargement was hypertrophic, not inflammatory. Gradually her mouth was forced continuously wide open and she became unable to take or swallow food and died from inanition on this account. This occurred before the *x*-ray was available for diagnosis. The autopsy showed the anterior lobe of the pituitary body, almost spherical in form and enlarged to some six or eight times its normal size. Apparently there was no involvement of the posterior lobe. The sella turcica was completely flattened out. No report was ever obtained from the pathologist who made the autopsy of the microscopic findings. The speaker had hesitated to refer to this case because of the incompleteness of the report, but did so at the request of Dr. Goldstein and because one saw but few of these patients die as a direct result of the disease, the case going to autopsy.

Disease as Seen Through Therapeutics.—Dr. M. LEVEN of Paris presented this paper as a contribution from the French Therapeutic Society. The paper was read by Dr. Sajous. (See page 360.)

Dr. SAJOUS said he had been impressed by what the writer had said in regard to purgatives, and thought that a knowledge of endocrinology would indicate the importance of avoiding excessive purgation in conditions of the intestinal canal, and all purgatives, perhaps, before operations were instituted. Purgation swept from the intestinal canal a product named "secretin" by Starling, which not only served to liberate and activate pancreatic enzymes, but also to promote the production of succus entericus. Normally, the temporary deficiency of the physiological activators of intestinal functions, shown by temporary constipation, slight lassitude, etc., readjusted itself. If, however, during this period an abdominal operation was performed, it found the alimentary tract, including the pancreas and liver, functionally deficient. Moreover, Dr. Sajous's researches had shown that, besides these functions, the intestinal enzymes contributed to the succus entericus active bactericidal and antitoxic properties which did much, working in conjunction with the bile, to prevent autointoxication. Hence many of the evil effects credited by an increasing number of surgeons to preoperative purgation.

(To be continued.)

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held May 11, 1921.

THE PRESIDENT, DR. GEORGE M. PIERSOL, IN THE CHAIR.

THE program of the evening was The Treatment of Summer Diarrheas.

Differentiation for the Purpose of Treatment.—Dr. J. CLAXTON GITTINGS read this paper, stating that summer diarrhea might be considered as occurring in two main types, one due primarily to infection of the intestinal wall and the other due to a disorder involving the intestinal contents. The distinguishing feature of type I was that bacteria, usually introduced in food or drink or by contact with infected articles, invaded the wall of the gut and set up definite anatomical changes. Type II might be viewed as a functional disturbance rather than a somatic disease, since the basic disorder involved the intestinal contents rather than the intestinal walls. Infectious diarrhea had two chief symptoms, ileocolitis and dysentery. Although hot weather, and especially the combination of heat, humidity, and stagnant air, undoubtedly predisposed to any of the diarrheal diseases, the infectious form was seen occasionally in cool weather. Presumably the infecting organisms invaded the wall of the gut early, causing infiltration of the mucosa. In severe types the inflammation spread to the submucous layer and involved the solitary lymphatic nodules. The latter might break down and ulcerate, resulting in small punched out cavities. Since the disease was a systemic as well as a local infection we usually found parenchymatous degeneration to a greater or less extent in liver, kidneys, and spleen. The intestinal lesions in the functional form of diarrhea showed a wide variation in intensity, but the chief change consisted in a superficial catarrhal inflammation. It would seem that this was due, for the most part, to the irritation of abnormal or excessive products of fermentation. The onset in both types was sudden, at least during the hot weather. Toxemia would be present in both types, depending upon the severity. As a rule, however, the patient with functional diarrhea would show a higher initial temperature and more severe toxic symptoms than were seen in ileocolitis. Prostration at first depended upon the severity of the toxemia and of the diarrhea and vomiting. It was apt to be more severe at first in the cases of functional diarrhea. Later it was equally well marked in the infectious type. In functional diarrhea flatulence and foul odor to the stools were early symptoms, but the number of stools soon tended to diminish and blood was seldom seen. Abdominal pain occurred at first, but was not a symptom of major importance. In ileocolitis the stools consisted in large part of mucus, and the odor might not be especially offensive. Frequency was marked and persistent, blood was a characteristic finding, while abdominal pain and rectal tenesmus were present in a majority of cases. Cholera infantum, a form of functional diarrhea, usually was given a separate place because of its special characteristics. As a rule it occurred in babies who had been suffering from chronic intestinal disor-

ders. The first symptoms were prostration and fever, soon followed by severe and protracted vomiting and a profuse watery diarrhea. The stools were as frequent as in the worst cases of ileocolitis, but, after the initial emptying of the gut, consisted of serous transudate rather than mucus. The reaction was acid at first, but soon became alkaline. Tenesmus was rarely seen, and, as the disease progressed, the fluid ran from the bowel without any control by the sphincter. The abdomen was shrunken. Tenderness and rigidity of the abdomen were lacking. In such cases dehydration of the tissues occurred early and became extreme and the loss of weight was shockingly rapid. The urine was scant, highly acid, and usually showed albumin. Death occurred in stupor, often within 48 hours of the onset. Because of the excessive loss of fluid from the bowel and the absence of any signs or symptoms of a severe inflammation or congestion of the intestinal mucosa, it would seem that cholera infantum might be a form of general toxemia rather than a specific affection of the intestinal tract.

The Water Treatment in Diarrhea.—Dr. JOHN D. DONNELLY read this paper, saying that one of the complications of gastroenteritis, when accompanied by vomiting and severe or prolonged diarrhea, was dehydration. This was the result of a rapid loss of water from the body, causing a depletion of fluid in the circulation and in the tissues which brought about a concentration of the blood. Concentration of the blood produced a diminished blood volume, increased its viscosity, diminished its rate of flow, which in turn led to an accumulation of toxins and waste products, passive congestion of the kidneys, oliguria, diminished oxidizing power of the body cells, and favored breaking down of body tissues. This state of dehydration called for immediate replenishment of water in the infant's body. In the absence of vomiting, if the dehydration was only slight, water by mouth usually sufficed—four to ten ounces daily between feedings, according to the age. If this method was not practical, water might be introduced by a nasal tube into the stomach. This offered advantages in that it was painless and devoid of danger or of unpleasant after-effects, with possible exception of irritation of the nares. This could be obviated by the instillation of liquid petrolatum into the nose before the introduction of the tube and the use of white vaseline as a lubricant on the tube itself. Once dehydration was definitely established and in the presence of severe or prolonged diarrhea and vomiting, recourse must be had to introducing fluid into the infant by means other than by way of the mouth. Four routes were offered: by rectum, subcutaneously, intravenously, and intraperitoneally. Rectal intolerance usually was established so early that the enteroclysis became not only useless but actually harmful. Hypodermoclysis of sterile physiological saline solution might be used in threatened dehydration or in those cases where dehydration was slight; 5 or 6 per cent. glucose solution might likewise be used. This procedure was somewhat painful and the amounts which could be injected into small infants fell short of the needs of the average case of moderate or severe dehydration. Intravenous administration of fluid had obvious advantages. In the Children's Hospital they had used sterile solutions of normal saline, 5 per cent. sodium bicarbonate, 5 per cent. glucose, and a glucose-acacia solution made up with glucose 5 gm., acacia 10 gm., normal saline 100 c.c. The practical difficulties of entering the infant's veins and the danger of the introduction of large amounts of fluid by the longitudinal sinus had made them reserve this method for the treatment of marked dehydration cases only where the call for replenishment of the depleted vascular system was an urgent one. The use of the intraperitoneal route for the introduction of fluid was a comparatively recent therapeutic measure. They had avoided the intraperitoneal injections in all cases where there was any abdominal distention as the possibility of penetrating the intestinal wall under such circumstances could not be denied. There was no local irritant action when the solutions employed were isotonic; otherwise abdominal distention, signs of local discomfort and peritoneal irritation would follow. Following the introduction of fluid in dehydrated infants their general appearance became better, fontanelles more full, pallor lessened, they tended to be quiet, their facial and body evidences of dehydration disappeared, vitality increased, the pulse showed signs of increased volume and tension, toxicity was lessened, and urine secretion increased.

Dietetic Management of Summer Diarrheas.—Dr. WILLIAM N. BRADLEY read this paper, in which he said that summer diarrheas were so distinctly and definitely preventable that it seemed advisable to consider for a moment the dietetic prophylaxis of the subject before proceeding to the management of the pathological condition. One needed only to call to mind the oft-repeated statement that six bottle-fed babies died to every one that was breast-fed, to realize the tremendous immunity to disease which the breast-fed infant possessed, and particularly was this true with reference to diarrheas. That a very large percentage of women could and would, with a little encouragement and advice, nurse their babies was proved by recent statistics of the prenatal department of the Starr Center. If early weaning should become necessary, it should always be avoided in the summer months if possible. At the first sign of disturbance the stomach and intestines should be immediately cleansed of all irritating substances by a laxative or colonic irrigation or both if necessary; all food should be withheld for a period varying from six to forty-eight hours, being replaced by boiled water, cereal decoctions, or saccharine tea, etc. According to the bacteriologic etiology of the summer diarrheas, two types were distinguishable, namely, the fermentative and the infectious. Both types might bear a distinct relation to bacteria. In the former the bacteria, being chiefly saprophytes, did not seriously injure the tissues and in the latter chiefly parasites which directly or indirectly injured the intestinal walls. Both types might be present and the distinction became an artificial one. The fermentative or typical summer diarrhea was characterized by intoxication or infection, or both. It was due to preponderance in the intestine of one form of bacteria, usually saprophytic, either acid-forming or putrefactive. If the former type of bacteria were in excess, then the carbohydrate and fat elements in the food must be reduced or entirely withdrawn for a time. If the putrefactive were found to be in excess, then the protein element must be withheld. By far the greater number of diarrheas was caused by the excess of the former, the acid-forming bacteria. The stools of this form of diarrhea were loose, green, acid and irritating, and might contain mucus. The relief of the condition and the restoration of the digestive functions lay in suitable dietary management. The infectious type of summer diarrhea known as ileocolitis was distinguished by inflammation. It was frequently difficult to draw a sharp distinction between these two types. In both there were toxic substances resulting from bacterial growth causing symptoms and in some cases pathologic changes. In infectious diarrhea the bacteria principally concerned were the dysentery bacillus, the gas bacillus, colon bacillus and streptococcus. The stools of this type, alkaline in reaction, showed increasing frequency, with the presence of blood and mucus and finally pus. Membrane might be present in the severer cases. Diarrhea caused by the first, or dysenteric group should be fed largely on carbohydrates. Lactose solution was probably the best form because of the development of lactic acid which had an inhibitory effect upon the gas bacillus. This should be given in a 5-7 per cent. solution, either alone or with barley water. As the acute symptoms subsided, thickened cereal gruels, fresh beef juice and broth thickened with meat fiber might be substituted for the weaker decoctions. In particular he would suggest the use of flour ball with either the cereal or broth diluent or in the form of brown flour soup, using one or two teaspoonfuls with each feeding. Here again the return to any form of milk food should be begun with caution and abandoned at the first sign of relapse. Diarrheas related to the second group of organisms, the gas and allied bacilli, should be treated by feeding a moderately high protein, the carbohydrates being kept low, and by introducing acid-forming bacteria into the diet. Either skimmed milk, buttermilk, or caseon milk might be used, starting with a weak formula and increasing according to the progress of the patient, as indicated

by the stools. Fat should be kept low. Convalescence would be slow, covering a period of from six to eight weeks or longer with frequent tendency to relapse.

The Abuse and Use of Drugs.—Dr. JOHN F. SINCLAIR read this paper, saying that the drugs which had been most grossly misused were undoubtedly the laxatives, especially castor oil and calomel. These were of undoubted value when properly employed in appropriate doses, as an initial laxative, at the very beginning of a gastrointestinal attack, but, when they were administered again and again, they unnecessarily depleted the system of the water and mineral salts in which it stood greatly in need and weakened rather than supported the bodily defenses. Furthermore, in those cases which were first seen late in the attack after gastrointestinal disturbances had progressed beyond the acute stage it was frequently ill-advised to administer either castor oil, calomel, or other laxative, for the reason that the baby could not survive if the reserves of water and salts were still further and rapidly depleted. In the case of castor oil it was also true that it tended to produce vomiting and that large or frequently repeated doses might cause sufficient irritation of the intestinal mucosa to bring about the appearance of blood in the stool quite apart from any inflammatory condition which might then or subsequently exist. Next to the laxatives the greatest misuse or abuse of a drug was in connection with the administration of opium. On the one hand the laity and certain physicians pressed the use of opium, usually in the form of paregoric, to such limits that it was not infrequent in hospitals having infant wards to receive patients who were suffering from unmistakable opium poisoning. Probably, however, the more frequent error made was in withholding opium entirely when a proper dosage would allay excessive peristalsis and relieve pain. Where the symptoms and signs pointed to an irritation rather than to an inflammation of the intestinal tract the procedure was simple. A prompt and energetic use of castor oil or calomel followed by calcined magnesia or milk of magnesia was indicated, and this medication should be followed by a period of temporary starvation. In the acute inflammatory or infectious types preliminary use of castor oil or calomel followed by magnesia was indicated and should precede brief periods of starvation as had been described above. If these cases did not promptly show an abatement of the diarrhea, and especially if there was evidence of excessive peristalsis and pain, opium in the form of camphorated tincture was indicated. In the more severe and active forms of the inflammatory types under consideration it was not unusual to meet with varying degrees of acidosis brought about by the dehydration and loss of mineral salts previously referred to. To anticipate and prevent any such eventuality it was a wisely established practice to administer sodium bicarbonate in 15 grain doses every three hours routinely to all infants who were more than very mildly ill with inflammatory or infectious forms of gastrointestinal disease. Should this prophylactic measure not be successful in warding off acidosis, as was sometimes the case, one must give larger doses by mouth or administer it either intravenously or subcutaneously. The urine must be made alkaline and must be kept so.

Dr. ARTHUR NEWLIN said that it seemed to him, from a purely clinical view, that, if one left aside the question of bacteriological examination of the stools the difference between the fermentative and the infectious form was merely a question of degree. The child with an infectious diarrhea would show changes in the walls of the alimentary canal. We frequently saw cases in which the child would start with what was apparently a fermentative diarrhea, which shortly afterward became infectious with blood and mucus in the stools. As far as the clinical aspects of the case were concerned, it was difficult, and practically impossible, to make two separate entities of the types. He did not think that we could lay down the law that the thing to do was to evacuate the bowel and then put the child on some sort of nonirritating diet. The treatment varied with the articles that the experience of the practitioner had found to be satisfactory. The usual method was to give a laxative, either castor oil or a saline. He believed that in the earlier stages a saline was better than the oil and more efficacious. Small doses of Epsom salt acted as a sedative to the stomach and insured a thorough evacuation of the bowels within twenty-four to forty-eight hours. One of the dangers was to starve the children too long and keep them on either salines or oil, thus weakening their resistance. Once in a great while a case of vomiting, with small, infrequent stools, was mistaken for a simple case of infectious diarrhea, whereas a more careful examination of the abdomen would have shown it to be a case of intussusception or appendicitis. Very often pyelitis was accompanied by diarrhea and the pyelitis was overlooked. He thought that very frequently we were fooled into thinking that the child was better, in one of these forms, especially the dysenteric form of gastroenteritis, by finding a few stools that showed marked improvement without there having been any change in the diet.

Dr. A. GRAEME MITCHELL said that in spite of work done on the study of this subject, these summer diarrheas continued to take their toll in infant deaths. It was not possible to treat these cases routinely as a group. When it came to the dietetic management, it was quite necessary to differentiate the types. It was not always possible to do this, but certain clinical points helped. The type of stool helped us to differentiate between the fermentative and the infectious type. For the dietetic treatment it was necessary to know whether the organisms were acid-forming or protein splitting organisms. That could usually be told clinically by the reaction of the stool. If it was found highly acid, the chances were that acid-forming organisms were at fault. In that case the dietetic work was pretty definite. Remembering that organisms of that type thrived on carbohydrate, it would be wrong to give carbohydrate percentages in the food. If the protein-splitting organisms were at fault, the reaction of the stool would be alkaline; and one must not give protein food, because it encouraged their growth. The water treatment, which Dr. Donnelly had taken up so well, was, of course, the treatment to be used in all types, if dehydration were present. The peritoneal route was supplanting all others, because more fluid could be given, because it was a life-saving procedure, and because administration by the sinus was not the fool-proof procedure that the intraperitoneal administration was.

Dr. JAMES H. MCKEE said that the main thing in these summer diarrheas was expressed by Dr. Bradley, when he spoke of them as being mostly preventable. He thought, in the first place, that we needed a great big arousing of the sociological conscience. We talked a great deal about the things that might be done in communities to prevent these summer diarrheas; but, after all, the old Scriptural saying, "By their fruits ye shall know them," should be applied here. We had not playgrounds; we had not recreation centers; we had not the adequate instruction on the subject of clothing; we had not the places where the children might be taken when the temperature of the rooms was such that we knew that the children were "fried all day, and parboiled all night," which was what practically happened. We all knew the effect of external temperatures upon these affections. With regard to the question of food, then, Dr. Bradley expressed the thought that so many more mothers might nurse their babies; but half a loaf was better than no bread at all, and, if they could not nurse their babies fully and adequately at the present day, the complementary feeding was the thing to resort to, and not the supplemental feeding.

Dr. HARRY LOWENBURG said that one thing that Dr. Gittings did not emphasize sufficiently was the etiological influence of food. He rather seemed to stress the importance of external heat. His own feeling was that food was the determining etiological factor, whether we were dealing with a carbohydrate or a fat disturbance, or with a protein disturbance. If we regarded the situation in this light, we had a working basis for therapy; but if we insisted on external temperature as being of too great importance, it did not enlighten us as far as treatment went. About laxatives, his own personal experience had led him to decide carefully whether or not the patient needed one. He never used calomel, because it was too slow and too irritating.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Colorado State Board of Medical Examiners.

Denver, January 4, 1921.

(Concluded from page 307.)

PATHOLOGY.

1. Differentiate atelectasis and bronchiectasis.
2. What is the commonest cause of bleeding from the nose, excepting bleeding the result of trauma?
3. What is the usual location of apoplectic hemorrhage of the brain? What underlying pathological condition of the blood vessels predisposes to such hemorrhage?
4. Which heart valve is most commonly attacked in acute endocarditis? What lesions of the valve may result from such infection?
5. What pathological condition of the heart is accompanied by ascites without edema of the extremities?
6. Name two common complications of lobar pneumonia.
7. What is the Schick test and what is its significance?
8. In what location does the tubercle bacillus most frequently attack bone?
9. What pathological changes in the urinary tract result from prostatic hypertrophy?
10. An unmarried woman of 33 consults her physician on account of a tumor of the right breast of 6 years duration; size of the tumor is uninfluenced by menstruation. There has never been associated pain nor discharge from the nipple. There has been no loss of weight. On examination the right breast is half again as large as the left. Along the outer margin of the right pectoralis major is an evident mass about 8 cm. long, 5 cm. broad, and 2 cm. thick. On palpation the tumor is flattened in front and behind, has sharply defined margins, is adherent neither to the skin nor the underlying tissues, and apparently has no connection with the breast, the gravity causes it to ride downwards and overlie the breast margin. No glands can be felt in the axilla. What is the probable nature of the tumor? Is it malignant or benign? *The patient has active tuberculosis.*

OBSTETRICS.

1. Name four varieties of placenta prævia. (*b*) State your plan briefly how you would care for this type of hemorrhage in childbirth; especially your technique from the very first of your treatment.
2. State your manner of handling (*a*) the 3rd stage of labor (normal). (*b*) Give your technique and indications for the manual detachment of the placenta.
3. What manner of treatment do you advise and use for a post-partum hemorrhage?
4. Give the symptoms gained in a careful examination of a transverse position in labor.
5. How would you care for a transverse position after labor has been fully started?
6. Differentiate blue asphyxia and white asphyxia in the new-born.
7. What treatment do you use in resuscitating the white asphyxia?
8. Give the clinical symptoms of an extrauterine pregnancy.
9. Give your technique in the management of a normal L. O. A. labor in the 2nd stage.
10. Make a diagram of a normal pelvis given in centimeters or inches showing 4 lines of measurements.

SURGERY.

1. Discuss diseases of the salivary glands.
2. Discuss tumors of the posterior triangle of the neck.
3. Give signs, symptoms and diagnosis of (*a*) parietal lobe, (*b*) cerebellum (tumors).
4. The acute abdomen: Give differential diagnosis.
5. Pyelitis: Give differential diagnosis.
6. Describe fractures about the elbow.
7. Describe dislocations of the hip. Give differential diagnosis.
8. Describe Pott's fracture and Colles' fracture.
9. Describe the varieties of flat foot and give the causes.
10. Female middle aged, fell from a porch, distance of 4 feet. The scalp was lacerated over the left parietal region; no loss of consciousness. She was unable to move her legs. Patellar reflexes were abolished. There was analgesia below the navel. She could not pass the urine. She gave a history of typhoid, lues, and pneumonia. Discuss the case.

ANSWERS.

PATHOLOGY.

1. *Atelectasis* is a condition in which the lungs have not been expanded, and the walls of the airspaces lie together.

Bronchiectasis consists of dilatations in the bronchi.

2. The *commonest cause of bleeding from the nose* (next to trauma) is plethora, or ulcers, or infectious diseases.

3. The *usual location of apoplectic hemorrhage*, is in the corpora striata and optic thalami; the lenticulostriate and lenticulo-optic branches of the middle cerebral artery are most frequently involved. Vascular degeneration, arteriosclerosis, and atheroma are the main pathological conditions of the bloodvessels which predispose to such hemorrhage.

4. Mitral regurgitation is the most common valvular lesion.

5. Ascites, without edema of the extremities, is met with in tricuspid regurgitation.

6. Two common complications of lobar pneumonia:—Pleurisy, and empyema.

7. *The Schick test* is a test used to ascertain if a person's blood or tissues contains a sufficient amount of antitoxin to protect him from contracting diphtheria. If there is none, or too little antitoxin, insufficient for protection from diphtheria, a positive reaction occurs within one or two days. The test is used to find out what persons are liable to take diphtheria if exposed and also to ascertain what persons should be allowed to look after diphtheria patients. Those who give positive reactions should receive immunizing doses of diphtheria antitoxin.

8. Distribution of Tuberculous Bone Lesions. *Cranial Bones.*—Rarely become carious with an external abscess.

Vertebræ.—Affected with central osteomyelitis or superficial caries.

Ribs.—Periostitis with abscess.

Long Bones.—Epiphyses, caseation, necrosis, osteomyelitis, or chronic abscess—this is much the commonest situation. Diaphyses rarely are the seat of periostitis, osteomyelitis, or chronic abscess.

Pelvis.—Near the sacro-iliac joint or any of the epiphyses, e.g., the crest of the ilium.

Carpal, Tarsal, and Phalangeal Bones.—Commonly affected by osteomyelitis, necrosis, or caries. The os calcis, astragalus, scaphoid, or one phalanx, may be separately diseased, but usually more than one bone or joint are affected. (Groves's *Synopsis of Surgery.*)

9. *Enlargement of the Prostate* "is a condition commonly found in patients over fifty years of age, which interferes with the act of micturition, and may destroy life by setting up secondary changes in the bladder and kidneys, like those produced by urethral stricture. Little is known as to the causation. There may be general enlargement of all the tissues of the prostate, or it may consist of a number of masses which look like adenomata. Fibromyomata are said occasionally to be present. The changes induced are—(1) the prostatic sheath of pelvic fascia is thickened; (2) the close connection between the capsule and the sheath is loosened, so that it is easy to enucleate the gland; (3) as the gland enlarges it projects upwards between the mucous membrane and the sphincter vesicæ, so that an intravesical enlargement is seen. This may be a collar-like projection, looking like the cervix uteri, or, if one lateral lobe only projects into the bladder it takes the form of what used to be called the 'middle lobe.' (4) The prostatic urethra is lengthened, and may be laterally compressed or distorted, and the intravesical prominence may be a hindrance to the passage of an ordinary

catheter; (5) the bladder is hypertrophied from the excessive work thrown upon it, and may become fasciculated and pouched. In the pouch, which lies behind an intravesical enlargement, residual urine collects, and, if cystitis comes on, phosphatic stones may be formed there." (*Aids to Surgery.*)

10. The tumor may be a lipoma (benign); or it may be a myoma (benign); or it may be a tuberculous tumor. It is strange that with the active tuberculosis there has been no loss of weight.

OBSTETRICS.

1. *Four varieties of placenta prævia:*—(1) *Complete or Central*, when the placenta completely covers the internal os. (2) *Incomplete*, when it does not completely cover the internal os. (3) *Partial*, when it overlaps the internal os. (4) *Marginal*, when it just reaches the internal os.

Treatment of placenta prævia, at term: (1) Introduce one or two fingers within the os (the hand being in the vagina) and dissect the placenta from the uterine wall for about three inches from the os uteri in all directions, pushing it to one side if necessary. (2) Rupture the membranes, and if there is an unfavorable presentation turn the child and make the breech engage in the os; or, if the head presents forceps may be used if speedy delivery is necessary. The strength of the woman is then the main point to be cared for, and if in a reasonable time the uterus seems to be incompetent, the child may be delivered by art. In some cases of central placenta prævia, where rapid delivery is required, cesarean section may give good results for mother and child. (Landis' *Obstetrics.*)

2. In the *third stage of labor* the physician should seize the fundus of the uterus through the abdominal wall and knead and rub it until it contracts vigorously; then he should press it down in the direction of the axis of the pelvic inlet. This should last for about a quarter of an hour after the child is born. The placenta, after it is expressed, should be carefully taken by the physician so as to be sure that it is *all* expelled; at the same time care must be taken that no particle of membrane remains behind. Fluidextract of ergot may be administered. The *dangers* are: hemorrhage, retained placenta or clots or pieces of the membrane, and sepsis.

Treatment of adherent placenta: "A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exists, at a point where the placental border is thick, and then passed to and fro transversely through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily until everything has come away." (King's *Obstetrics.*)

3. *Treatment of Postpartum Hemorrhage.*—Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin, or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging of gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

"In the presence of actual hemorrhage the treatment varies according as the placenta is still within the uterus or has already been expelled. In the former case the uterus should at once be grasped through the abdominal wall and firmly kneaded. If firm contractions come on, all is well, but if the hemorrhage continues and the uterus relaxes as soon as the kneading is stopped, the placenta should be expressed by Credé's method; and if this cannot be accomplished and the patient's condition is alarming, manual removal may become necessary. . . . If the hemorrhage does not cease after the delivery of the placenta, the cause should be ascertained and suitable treatment instituted. Tears should be located and their edges brought together by sutures. On the other hand, if the hemorrhage is the result of the retention of placental tissue, the carefully disinfected hand should be carried up into the uterus in order to seek for and remove the retained cotyledon. Under such circumstances the hand acts as a most efficient irritator, causing the uterus to contract energetically. After separating the retained portion of the placenta the hand should not be withdrawn at once, but should be allowed to recede gradually as it is forced down by the contraction of the fundus. If the hemorrhage is due to atony, the uterus should be vigorously kneaded, and from forty to sixty minims of ergot or of ergotol administered hypodermically. . . . If these measures are not attended with the desired result, a very hot intrauterine douche of several liters of sterile salt solution should be employed. . . . If the hemorrhage persists in spite of the douche, our only hope of controlling it is by packing the uterus tightly with sterile gauze. Before resorting to the use of the pack it is always advisable to palpate the interior of the uterus, as occasionally a portion of the placenta may have been retained, even though immediately after expulsion the organ may have apparently been entire."—(Williams' *Obstetrics.*)

4. TRANSVERSE POSITION. "*Abdominal Signs.*—The abdomen is unusually wide from side to side, while the fundus frequently does not rise above the umbilicus. Both fetal poles are absent from the excavation after labor is established. A third sign is the presence of the head in one of the other iliac fossa, and a fourth is presence of the breech on the opposite side.

"*Vaginal Signs.*—There is glove-finger protrusion of the bag of waters; the presenting part is smaller, more yielding, and less distinctly rounded than the hard globular head. *Especially significant is absence of any presenting part at the onset of labor.* After labor is well established the presenting part is a small, rounded prominence; it is distinguished from an ischial tuberosity by the absence of a companion; from it run the humerus, the clavicle, and the spine of the scapula in radiating lines. The neck is felt on one side of the presenting part, the "grid-iron" sensation afforded by the ribs on the other; the axilla can be made out; the elbow is identified by the olecranon; the position is determined by the location of the scapula to the right or left, anteriorly or posteriorly. The axilla and the elbow look toward the feet; the thumb points toward the head. When an arm is prolapsed the hand is to be distinguished from the foot, and the right from the left hand. On shaking hands with the fetus, the right hand of the examiner fits the right hand of the fetus, and *vice versa.*"—(Polak's *Manual of Obstetrics.*)

5. *Management of transverse position after labor has started:*—"The membranes should be preserved; to secure full cervical dilatation the bladder and rectum must be evacuated; the capacity of the pelvis, the size of the child, the relative position of the head and the dorsum, the situation of the retraction ring, and the degree of thinning of the lower uterine segment are all to be noted. When the cervix is fully dilated version should be performed, cephalic or podalic, by the bipolar or the internal method, followed by immediate extraction under anesthesia. *If the membranes have ruptured*, the degree of cervical dilatation, the condition of the uterus, of the patient, and of the fetus, determine the treatment. If the cervix is only partially dilated, and the child is alive and freely movable within the uterus, bipolar podalic version should be tried, a foot brought down and allowed to dilate the cervix before the extraction is completed. If the condition is complicated with prolapse of the cord, the cervix should be dilated manually or split, and an immediate

internal podalic version and extraction made. Reduction of the malpresentation is often possible, even in the presence of a spastic uterus, with the aid of the genupectoral or the Trendelenburg position and deep anesthesia. In impacted and irreducible shoulder presentation decapitation will be required. Cesarean section should be considered as a possible alternative when the child is alive and the uterus has not been infected."—(Polak's *Manual of Obstetrics.*)

6. In asphyxia of the newborn, the child either does not breathe at all, or only very feebly. There are two forms: (1) *Asphyxia livida*, in which the child is cyanotic; the face and skin generally are of a dusky purple hue, the conjunctivæ are injected, and the eyes protrude. The cord pulsations are generally slow and full. (2) *Asphyxia pallida*, in which the child is pale and generally relaxed; the surface is cold and the appearance anemic.

7. *Methods of resuscitation of an asphyxiated infant at birth.*—In every case, foreign matter must be removed from the air passages; then any of the following may be tried: (1) *Holden's method* of direct insufflation with oxygen. (2) The use of the *pulmotor.* (3) *Direct* (mouth to mouth) *Insufflation.* (4) *Schultze's Method*—For inspiration the child should be suspended by the shoulders, face from the operator, by placing an index finger in each axilla, holding the thumb in front and two fingers extended over the posterior aspect of each shoulder, expanding the chest, while the head is kept steadied and extended between the ulnar surfaces of the hands. For expiration the position is inverted by swinging the trunk and lower limbs upward and toward the operator's face, flexing the body in the lumbar region. *The first movement should be one of expiration*, which helps to rid the trachea of mucus. The objections to this method are, first, the chilling of the body; second, the shock involved, so that in feeble infants, if used at all, it must be done with great caution. This, and direct insufflation with oxygen, or by mouth to mouth, are the most effectual methods in asphyxia of the newborn. (5) *Sylvester's Method.*—The child is placed in a supine position, with the head well extended by a fold of blanket under its neck. For inspiration, the arms are drawn well above the head; for expiration, they are placed by the sides and the thorax gently compressed. The value of this method is increased by making forward traction on the tongue during inspiratory movement. (6) *Byrd's Method.*—The child is held supine upon the hands of the operator at right angles to the forearms. For inspiration the radial borders of the hands are lowered. For expiration they are raised. The child is successively folded and unfolded. (7) *Laborde's Method.*—With the child lying in a supine position on a table, or in a warm bath, with the head extended, gentle intermittent traction is made on the tongue about eighteen times to the minute. (8) When respiratory movements have been established *but remain persistently feeble*, a weak Faradic current, one pole of which is applied to the nuchal region and the other over the epigastrium, combined with the continued inhalation of oxygen, may induce deeper and stronger respiratory efforts. (9) Should all of the foregoing methods fail, and the fetal heart, however slow, continue to beat, an injection into the umbilical vein of 30-50 cm. of sterile normal salt solution, containing 0.5 per cent. of fructosate of sodium, may be given. The salt solution dissolves CO_2.—(From Polak's *Manual of Obstetrics.*)

8. *Extrauterine pregnancy* is a pregnancy in which the ovum is developed outside of the uterine cavity.

"When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The *os uteri* is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*"—(*American Text-book of Obstetrics.*)

9. *During the second stage of labor*, examinations should be made only when necessary. In multiparæ the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent laceration of the perineum by making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.—(*Pocket Cyclopedia.*)

10. The diameters and measurements of the female pelvis are easily remembered from the following table:

	Antero-posterior	Oblique	Transverse
Brim	4 inches	4½ inches	5 inches
Mid-plane	4½ inches	4½ inches	4½ inches
Outlet	5 inches	4½ inches	4 inches

In external pelvimetry four measurements are generally taken: (1) between the anterior superior spines of the ilium, normally about ten and a quarter inches; (2) between the external edges of the iliac crests, normally about eleven inches; (3) between the heads of the two great trochanters, normally about twelve and a quarter inches; and (4) between the spinous process of the last lumbar vertebra and the upper margin of the anterior surface of the symphysis pubis, normally about eight inches.

SURGERY.

1. DISEASES OF THE SALIVARY GLANDS.—*Inflammation of the Parotid Gland.*—1. *Epidemic Parotitis*, or mumps, is highly infectious, and is marked by fever, swelling of the parotid, and socia parotidis.

2. *Simple Parotitis* may be due to injury or calculus in the duct, and is marked by pain and swelling.

3. *Suppurative Parotitis* may occur in pyemia, and in scarlet or typhoid fever by extension along Stenson's duct. The gland becomes swollen and tender, the skin over it tense and edematous, and the pain severe. The pus is apt to burrow deeply in the neck owing to the density of the overlying fascia, so that, unless opened early, toxemia, and even pyemia, may ensue.

Obstruction of salivary ducts results from cicatricial contraction or the presence of salivary calculi. The gland rapidly enlarges when stimulated by eating; the swelling subsides afterwards as the saliva slowly gets past the obstruction. When a calculus is present there may be an offensive discharge. Complete blockage may produce a cyst, which bursts and causes a salivary fistula. Calculi are commonest in the sub-maxillary and sublingual ducts.

Tumors of the parotid gland may be mixed (consisting of cartilage, fibrous tissue, myomatous tissue, and structures resembling gland tissue), or malignant (carcoma, carcinoma, or epithelioma).

Salivary fistula arises from injuries dividing Stenson's duct. Much inconvenience is caused by saliva running over the cheek. If the buccal portion is involved, the duct should be slit up within the mouth; but if the fistula is in the masseteric portion, a tube

must be passed from the buccal opening to the opening on the cheek, and retained there for some time, gradually shortening it as the canal becomes re-established. —(From *Aids to Surgery.*)

2. *Tumors that may be found in the posterior triangle of the neck*, are: Lipoma (the commonest), fibroma, enlarged lymph glands, tuberculous glands, osteoma; Hodgkin's disease, bronchial cysts, and cystic hygroma.

3. *Tumors of the Parietal Lobe.* "Tumors of this lobe can be recognized by the presence of attacks of Jacksonian epilepsy preceded by sensory symptoms, and later by the presence of a marked loss of muscle sense or astereocognosy. If situated in the lower part of the parietal lobe, they may produce word-blindness and often agraphia."

Tumors of the Cerebellum. "Tumors of the cerebellum, in addition to producing the well-marked symptoms of increased intracranial pressure, produce somewhat characteristic focal symptoms. Vomiting is quite frequent. Early optic neuritis with blindness occurs very early, and paralysis of the external rectus muscle is very common and often bilateral. There is also apt to be rigidity of the neck, and involvement of the olfactory, oculomotor, and trigeminal nerves on the side of the tumor. One of the most characteristic symptoms is a severe occipital headache, most marked upon arising. Attacks of amyasthenia and general vertigo are also frequent. Another characteristic symptom is the so-called cerebellar ataxia. This latter is especially marked in children, who have a tendency to fall to one side in walking; usually toward that upon which the tumor is situated."—(Eisendrath's *Surgical Diagnosis.*)

4. *Acute abdomen* may be due to violent injury, ruptured ulcer of stomach or duodenum, acute pancreatitis, suppurative cholecystitis, appendicitis, ruptured appendix, acute intestinal obstruction.

Symptoms common to all these conditions are abdominal rigidity, severe pain, fever, shock, anxious expression, cold, clammy extremities, cold sweats, nausea and sometimes vomiting.

In case of *ulcer* there will be history of recurrent dyspepsia, hunger pain, sour eructations, hematemesis, and blood in stools. Tenderness is most marked in or near the epigastric region in the midline.

In *pancreatitis*, there will be symptoms of intestinal obstruction, nausea, vomiting (progressively bilious, feculent, and fecal), constipation; on auscultation of abdomen there will be complete absence of sounds of peristaltic movement.

In *cholecystitis*, there is a possible history of typhoid, the patient has a palpable gall bladder; there are tenderness and rigidity over gall bladder; sometimes fever.

Appendicitis will show tenderness over McBurney's point, rigidity of right rectus muscle.

Obstruction shows hyperperistalsis, gurgling, spasmodic pain definitely referred to one point.

5. *Differential Diagnosis.* "Pyelitis is to be distinguished from perinephritis abscess, cystic kidney, tuberculosis of the suprarenal body, and impaction of the colon. The accompanying table may serve, in a measure, to differentiate these conditions, which are distinguished only with extreme difficulty.

PYELITIS.	NEW-GROWTHS OF THE SUPRARENAL BODY.	TYPHLITIS WITH IMPACTION OF THE COLON.	PERINEPHRITIC ABSCESS.
1. History of renal calculi common.	1. Tuberculous diathesis.	1. History of obstinate constipation which has existed for a long time.	1. History of renal colic the rule. Traumatism to the region of the kidney.
2. Pain and tenderness in the region of the kidney. In extreme cases the pain becomes tearing or boring in character. Pain continuous, and may rarely be localized in the bladder.	2. Pain, boring in character, and located at the tenth rib on the right and at the eleventh on the left.	2. Some pain and tenderness along the ascending colon.	2. Pain quite general, and limited to one or other loin.
3. Temperature 100° to 103° F., and is usually of the hectic type.	3. Temperature normal.	3. Temperature normal or but slightly elevated.	3. Temperature of the hectic type with morning remissions and evening exacerbations. Fluctuates between normal or subnormal, and 102° to 104° F.
4. Contour of the loin not distorted.	4. Often slight fullness posterior and below the twelfth rib.	4. Contour of the loin distorted, and there may be bulging of the abdomen over the impacted colon.	4. Distortion of the normal contour of the loin.
5. In uncomplicated pyelitis the kidney is not palpable.	5. Hard tumor palpable above kidney.	5. A soft, dough-like tumor which is readily outlined.	5. It is usually possible to palpate a mass in the region of the kidney.
6. Urine contains pus, albumin, mucus, and at times blood. Large casts covered with bacteria are occasional findings.	6. Urine normal.	6. Urine contains a large amount of indican.	
7. Blood may show evidences of secondary anemia, with a moderate increase in the number of leukocytes.	7. Secondary anemia, leukocytes normal.	7. No leukocytosis.	7. A decided leukocytosis develops early, and continues throughout the disease.
8. *x*-Ray may reveal the presence of calculi in the renal pelvis.	8. *x*-Ray negative.	8. *x*-Ray negative.	8. *x*-Ray negative.
9. Catheterization of the ureter of the affected side recovers urine containing pus.	9. No pus in urine.	9. No pus in urine.	9. No pus unless kidney tissue is involved.

(Anders and Boston's *Medical Diagnosis.*)

6. "In examining an injury to the elbow, the injured side should be compared with the uninjured. The two condyles and the tip of the olecranon should receive first attention. During extension they form one line; during flexion they form a triangle of which the apex or olecranon is toward the hand. The head of the radius should be felt just below the external condyle. When the arm is flexed to a right angle, a ruler placed along the back of the arm does not touch the olecranon. The forearm is naturally in a position of slight abduction relatively to the arm.

"*Supracondyloid fracture* resembles backward dislocation of the radius and ulna, but (1) the relative positions of the bony points are unaltered; (2) the arm is shortened; (3) the projecting end of the upper fragment is felt above the crease of the elbow; (4) the deformity is reduced with crepitus, but readily reappears. If there is much swelling, it is impossible, without a skiagram, to come to a proper conclusion. Sometimes the lower fragment is displaced forward.

"*T-shaped fracture* is the result of direct violence, and consists of a transverse supracondyloid with a vertical fracture running into the joint and separating the condyles. The condyles are widened, and can be moved on each other; great swelling comes on rapidly.

"The *condyles* may be broken by direct violence. Fracture of the external always involves the elbow joint. Abnormal mobility and crepitus distinguish fracture of the condyles. Fracture of the internal condyle may or may not involve the joint.

"The *olecranon* is usually broken by direct, sometimes by muscular, violence. If separation is complete, the upper fragment is drawn up; if the fibrous expansion of the triceps is untorn, there is no displacement. The base of the olecranon is the usual site of the fracture. There is inability to extend the forearm, and effusion of blood into and around the joint quickly follows.

"The *head of the radius* is broken by direct violence or in connection with dislocation. Separation of the epiphysis occurs in children. If the head is completely detached, it does not move with rotation of the lower fragment, and crepitus is felt."—(*Aids to Surgery.*)

7. HIP JOINT DISLOCATIONS.—*Varieties—Backward:* (1) On to the dorsum ilii; (2) on to the sciatic notch. *Forward:* (3) on to the obturator foramen; (4) on to the pubis.

Dorsal dislocation: Head of femur lies on the dorsum ilii, and can be felt in the buttock. The obturator internus is ruptured in most cases. The short rotator muscles are lacerated. The trochanter lies well above Nelaton's line and approximated to the anterior superior iliac spine. The leg is shortened two to three inches. The iliotibial band is relaxed. The leg is flexed, adducted, and inverted. The femur crosses the lower third of the opposite thigh. The toe rests on the opposite instep. A hollow exists in Scarpa's triangle.

Sciatic dislocation: Similar to the above, except in the following:—The obturator internus tendon is intact and lies over the neck of the femur, holding it down in the sciatic notch. Shortening amounts only to one inch or less. The axis of the femur crosses the opposite knee. The great toe rests on the dorsum of the opposite great toe.

Obturator dislocation: The head of the bone lies on the obturator externus in the obturator foramen. The abductor muscles are lacerated. The trochanter is obscured, the iliotibial band is tense. The leg is lengthened, the toes point forward and outward. Flexion, abduction, and rotation outward are well marked. The head of the femur is felt in the perineum. The capsule is torn in its lower part. Pain refererd to the distribution of the obturator nerve.

Pubic dislocation: Similar to the above except: The femoral head is felt under Poupart's ligament. The leg is shortened about one inch. Abduction and eversion are more marked, the toes pointing outward.—(Groves' *Synopsis of Surgery.*)

8. *Pott's* fracture is very common, and is due to indirect violence, such as turning over on the inside of the foot. The strain tears through the internal lateral ligament of the ankle or tears off the tip of the malleolus: then the astragalus is pressed against the inner side of the external malleolus by the continuation of the violence. The fibula is overbent, and breaks about three inches above the tip of the malleolus. At the same time the foot is displaced outward or outward and backward. In many cases, however, the displacement is slight.

Treatment.—"An anesthetic should always be given, and the fracture reduced by relaxing the calf muscles and applying traction to the foot. The limb must then be fixed on the back splint, with side splints in addition. The foot must be at right angles to the leg, the bony points in line, and the posterior displacement corrected. The surest way of maintaining the foot in good position is to at once apply plaster of Paris. Other splints used are Dupuytren's and Syme's horshoe splint. Massage and passive movement at the end of ten days are advisable, the fragments being firmly grasped to prevent displacement."—(*Aids to Surgery.*)

Colles' fracture is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downwards from behind. The lower fragment is driven backwards and upwards, and rotated to the radial side, carrying the hand with it into the position of abduction, and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, viz.: (1) the hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture. *Treatment:* Disimpaction and reduction are brought about by grasping the hand by the "shaking-hands" grip, extending and adducing the hand and lower fragment. The arm is then fixed on a splint. It is very important in this fracture to start massage and passive movement not later than the end of the first week to prevent stiffness. Union is firm in three weeks.—(*Aids to Surgery.*)

9. FLAT FOOT in a simple form consists in a mere loss or flattening of the arches of the foot, but it is nearly always combined with some degree of valgus, *i.e.* of abduction and eversion of the front part of the foot.

Causes: Static Conditions, i.e. long standing in growing persons.

Congenital Conditions: very long feet.

Paralytic: Paralysis of the tibials and extensor muscles.

Inflammatory: Rheumatic or gonorrheal affections of the foot rapidly soften the ligaments, and the arches of the foot give way.

Traumatic: After Pott's fracture, or severe sprains or injuries of the ankle, there is a great tendency for flat-foot to be left.—(Groves' *Synopsis of Surgery.*)

10. The case, as reported, suggests (1) *Hysteria;* but (2) the woman may have had *locomotor ataxia;* what is the condition of the pupils, Romberg's symptom? or (3) she may have sustained *fracture or dislocation of a vertebra* in the upper lumbar region; what did the back show? An *x*-ray of the spinal column would be of service; (4) she may have had a *previous myelitis,* or *hemorrhage* into the spinal cord. Information is needed on several points; is there complete anesthesia?

Cerebral Rheumatism.—Marchand and Mignot report an alleged case of this affection. The patient, a man with rheumatic and alcoholic antecedents, developed suddenly a crisis of acute articular rheumatism, the treatment of which was limited to compresses of salicylic acid. On the third day of the attack cerebral symptoms set in—mental confusion and violent agitation—which made it advisable to intern him. By this time the joint symptoms had receded. On the day after internment death took place in coma. The entire duration of the crisis was six days. Autopsy showed an intense congestion of the meninges and cerebrum, with profound changes in the pyramidal cells, but there was in inflammation. The liver was the seat of fatty degeneration. Such a condition as cerebral rheumatism is recognized, and consists of a subacute meningoencephalic intoxication occurring in the predisposed subject, who is usually an alcoholic.—*La Press Médicale.*

Miscellany.

NEW BOOKS AND OLD.

XII. SOME NEW BOOKS

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

Papers and Addresses by William H. Welch.—From the Johns Hopkins press come three ponderous tomes containing the papers and addresses of Dr. Welch, whose name is known from one end of the world to the other as Professor of Pathology of the Johns Hopkins Medical School and as the talented advisor of practically all of the great medical projects developed in this country. Anyone who knows Welch, knows what an indefatigable laborer he is, but it is not until one views the bibliography as printed in the third volume that one really realizes what a tremendous worker and writer he has been. From the year 1875, in which he wrote his graduation thesis, to 1921, his contributions number four hundred and eleven.

The first volume contains his contributions to pathology and preventive medicine. These writings are preceded by a delightful introduction by Simon Flexner, who gives a biographical sketch of Welch which will be read with great interest. Of particular import is the account of his student life abroad and the great masters of medicine who were his teachers.

The second volume contains his bacteriological studies and his contributions to the various systems of medicine and surgery. One of the most interesting of these is his paper on the treatment of diphtheria by antitoxin, which was the subject of an address opening a discussion on this subject before the Association of American Physicians in Washington, 1895. His clearness of statement and his air of authority had much to do with the prompt introduction of diphtheria antitoxin into the practice of medicine in this country.

I find, however, that the third volume, containing as it does his contributions on medical education and medical history and biography, is much better reading. One of the most readable of these papers is an address delivered at the Massachusetts General Hospital on the sixty-second anniversary of Ether Day, October 16, 1908. This is entitled, "A Consideration of the Introduction of Surgical Anesthesia," and for a short study, is one of the best that has been done upon this subject. He quotes from the Elizabethan dramatist, Middleton, who makes a character in one of his plays say,

> I'll imitate the pities of old surgeons
> To this lost limb, who, ere they show their art,
> Cast one asleep; then cut the diseased part.

Welch goes on to state that, "we know that none of the procedures, and 'not poppy, nor mandragora, nor all the drowsy syrups of the world' were safe, effective, and available agents to benumb the senses during a surgical operation." He also calls attention to the remarkable fact that objections have been raised against the use of chloroform to relieve the pain in childbirth, and tells how Sir James Simpson quoted from a letter of a clergyman who declared that chloroform is "a decoy of Satan, apparently offering itself to bless woman, but in the end it will harden society and rob God of the deep earnest cries which arise in time of trouble for help." To this Welch adds, "if this clergyman remembered the primal curse, he forgot the earliest example of anesthesia when, in the resection of a rib for the creation of Eve, 'the Lord God caused a deep sleep to fall upon Adam.'"

Another paper well worth reading is the "Relation of Yale to Medicine." In this and in his remarks before the students of Yale, at Changsha, Hunan, in China, he pays a splendid tribute to Yale, for, being a Yale man, Welch can seldom resist extolling the virtues of his Alma Mater. One finds, too, a reference to an almost unknown physician, who was as well a clergyman and poet, Michael Wigglesworth, one of whose works was entitled "God's Controversy with New England, written at the time of the great drought, Anno 1662." One trusts that he was a better physician than poet. This is a sample:

> New England where for many yeers
> You scarcely heard a cough,
> And where Physicians had no work,
> Now finds them work enough.

Of great importance too are some of the biographies, especially of some of the masters of medicine that he knew well—Rudolf Virchow, John Shaw Billings, Silas Weir Mitchell, and of some who lived before as—Nathan Smith and Francis Donaldson.

I cannot close without commenting on another short paper entitled "The Times of Vesalius. Contributions of Vesalius other than Anatomical," which, while it contains nothing new, enables one to see clearly how the lesser lives were overshadowed by the three great sixteenth century giants, Vesalius, Paracelsus, and Ambroise Paré.

Every medical library should have these volumes containing the writings of Welch on its shelves.

Reminiscences of a Student's Life at Edinburgh in the Seventies.—This little book has the faint touch of pathos in it, which always accompanies returns of older men to the haunts of their youth. It is written under the pen name of Alisma (George Skelton Stephenson). It is a small affair, easily tucked in a pocket and can be read during a spare half hour. It starts in a curious way about the calyx of the wild rose about which there was a riddle in Latin which Professor F. M. Caird has translated delightfully. This riddle had its origin in a certain peculiarity in the calyx of the wild rose, in which two of the sepals are bearded, two are not, and one is bearded on one side.

> Quinque sumus fratres, unus barbatus et alter
> Imberbisque duo, sum semiberbis ego.

Translation.

> Five brothers take their stand
> Born to the same command;
> Two darkly bearded frown,
> Two without beards are known,
> And one sustains with equal pride
> His sad appendage on one side.

This riddle of the rose is of a great antiquity and has been commented on considerably by various writers.

The reminiscences in which there are delightful little accounts of people and places known to the author is illustrated with numerous portraits of fa-

mous Scotchmen of the period. Alisma was in the University at the time of the admission of women into the medical school which followed the dogged perseverance of Miss Sophia Jex-Blake. The entrance of women resulted in a very considerable disturbance, even going as far as riots and mobbing of the little band of six or seven young ladies who were courageous enough to start on the career of medicine.

One of the teachers referred to with great affection is Mr. Joseph Bell, one of the Extramural lecturers. He had remarkable powers of observation and deduction and it was he who inspired Sir Conan Doyle to conceive the character Sherlock Holmes. He also mentions John Hughes Bennett who had a moral antipathy to the new fangled name "Physiology." Bennett introduced cod-liver oil in the treatment of tuberculosis, of which plague he himself was an early victim. His life was marked by a controversy with Rokitansky, of Vienna, over the pathology of leukemia which Bennett called "leucocythæmia." Alisma goes on to state that he saw the famous Rokitansky only once, and that at the unveiling of a statue in the Vienna hospital grounds. This must have been in the good old days when the "perfect patient" at the *Allgemeine Krankenhaus* was said to be one who would have his diagnosis made by Skoda and the autopsy by Rokitansky.

The author closes with another visit to Edinburgh when he says that he felt very much like Rip Van Winkle and made all haste he could to get away.

Dr. C. W. G. Rohrer, of Baltimore, a bibliophile with a library that at once causes envy, has furnished me with a letter from Dr. Stephenson. Dr. Rohrer, by the way, is now printing in the *Medical Pickwick* a series of articles on the medical poets entitled "Medical Men and the Muses."

Dr. Stephenson says:

> I appreciate very highly your praise and the evident delight my little book has given you. The book was only written for such as your good self; it has given rise to many such letters as yours and has been most generously reviewed by all of its reviewers. I wrote it during the leisure of the last week of March, 1918, and I have since wished I had been a little more careful in its general construction.

These little reminiscences are well worth reading even though they are much tinged with that sweetly sad melancholy that always attends such writings and which is so akin to the sadly sweet melancholy of the romantic writings of youth.

Margaret Fuller.—Katherine Anthony has recently written what she calls a psychological biography of Margaret Fuller. It has the great merit of being brief and is exceedingly easy reading, while at the same time it gives one a very vivid picture of a very curious personality. Anyone interested in Freud's theories and the psychology of dreams will find much in the volume to their liking.

Margaret was a precocious child, over-educated by her father, given to describing her sensations and her dreams and making many statements that might have been written to-day by what Miss Anthony calls "those profoundly irritating Freudians." For example, "The passions are not unfrequently felt in their full shock, if not in their intensity, at eight or nine years old." This appeared in a book review written in 1846.

Margaret Fuller grew into a remarkable woman. One of her first experiments in feminism were the famous "Conversations" which she held in Boston from 1839 to 1844. She was a remarkable talker and a prolific writer. In 1844 she published her "Woman in the Nineteenth Century." As Miss Anthony states, "The only predecessor of Margaret's book was Mary Wollstonecraft's 'Vindication of the Rights of Woman,' published fifty years before." For two years she was editor in chief of the *Dial*, which was chiefly the expression of the personalities of Margaret Fuller and Emerson. In the first number she had an essay on critics in which she makes the following statement:

> The critic is beneath the maker, but is his needed friend. The critic is not a base caviler, but the younger brother of genius. Next to invention is the power of interpreting invention; next to beauty the power of appreciating beauty, and of making others appreciate it; for the universe is a scale of infinite gradation, and below the very highest, every step is explanation down to the lowest. . . . Nature is the literature and art of the divine mind; human literature and art the criticism on that; and they too, find their criticism within their own sphere.

She once made a trip to what was then the Far West and she describes an overnight stop at Ross's Grove, of which she says, "We ladies were to sleep in the bar-room, from which its drinking visitors could be ejected only at a late hour. . . . We had also rather hard couches, mine was the supper table." The experience of her Western trip appeared in a little volume entitled "Summer on the Great Lakes." It was read by Horace Greeley and through Mrs. Greeley, Margaret went on the staff of the *Tribune* as a critic. She later made a trip to Europe where she met Carlyle and many other notables, among them the Italian revolutionist Mazzini. She continued her travels to Paris where she met George Sand, and then to Italy where she lived a more or less exciting period of her life, enlivened by a love affair with an Italian nobleman by the name of Ossoli. Her baby was born in 1848, shortly after which she returned to Rome and soon after married Ossoli.

The revolution having failed, Margaret decided to return to America. She had misgivings both as to the safety of the voyage and as to her reception in New York society after her Fourieristic adventure. Perhaps fortunately, she did not have to experience what would doubtless have been her fate at the hands of her New York acquaintances. The sailing vessel on which she, her husband, and her child were passengers, went ashore, just outside of New York and the entire family, refusing to trust themselves on planks to the mercy of the waves, were drowned.

Miss Anthony's book is well worth perusal. The relations of the remarkable Margaret Fuller to society in general and to such men as Emerson, Carlyle and Hawthorne, make interesting reading.

The Passing of the "Plus Ultra."—With the beginning of the new year there passed out of existence an interesting medical journal, *Plus Ultra*, published in Madrid by Joaquin Nuñez. This rather remarkable publication lasted three years, then the high cost of publication forced the publisher to notify the subscribers that the journal would be stopped, and the collaborators passed to *Los Progresos de la Clinica*.

Plus Ultra was somewhat a departure in the European medical publishing in that it attempted to bring out a large journal, printed on a fine quality of paper, elaborately illustrated not only in the usual black and white cuts, but also in colored plates of a high degree of excellence. A considerable amount of attention was paid to contemporary biography, and a certain number of illustrated articles appeared on the subject of medical history. For the main part the articles were of a more or less practical nature, dealing with medical and surgical conditions. There was also a rather good review of the progress of medicine in other countries, and a considerable number of pages were devoted to book reviews, rather more comprehensive than is usually the case; these appeared under the head of *Crónica Bibliográfica*. The journal was marred by what was probably an inevitable introduction of advertising pages, printed in colors, in the midst of the reading matter. These, however, were inserted so as to permit of their being removed before the numbers were bound.

One regrets that such a valiant attempt at superior medical journalism failed so soon.

Napoleon and Medicine.—Several articles with this caption are appearing on the editorial pages of *La Presse Médicale*. In the issue of June 18, 1921, xxix, 48, it is stated that Napoleon, the superman, did everything to invite disease. He worked like a plough ox, turned night into day, ate rapidly of indigestible food, was under emotional stress daily, and indulged in sexual pleasures immoderately, yet was hardly ever ill in his life of ailments brought on himself. He suffered in his time from scabies, malaria, grippe, and twice from stomach crises of which nothing is known. These attacks occurred at the time of severe reverses and we are left in doubt as to whether the gastric crisis was responsible for the military non-success, or vice-versa. Incidentally we learn that the failure of the Russian campaign is now attributed to the attack of influenza which overtook him at Moscow but the author doubtless means that the attack was disastrous through the morbidity of the army rather than the chief. As far as he himself was concerned he owed little to the medical profession. It is said that Napoleon dominated every one with whom he came into contact, with few exceptions. Of six who defied him to his face three were medical men—Desgenettes, Percy, and Larrey. The conflicts arose over the care of the wounded. Once when Napoleon accused some of those wounded in the thumbs of self-mutilation Larrey withstood him to the finish. But aside from these men who clashed with the Chief on individual occasions there was Corvisart, his personal physician, who was doubtless privileged to speak plainly, who antagonized the Emperor continuously. At the outset of his career an obscure surgeon-major, Bienvelot was of service in showing the future Emperor how disease could cripple an army—malaria for example, contracted by ignoring the lessons of experience. It is said that Napoleon never forgot the teachings of this early associate.

The Medical Bibliophile Society.—Doctors have passed as book-lovers from time immemorial. In order to test the truth or falsehood of this adage, there assembled on the evening of May 30, 1921, at the professorial headquarters of the Medical Faculty and under the presidency of Dean Roger, some thirty physicians, for the purpose of forming a society to be known as the Bibliophile Physicians. This number is of course only a starter, which is certain to increase apace, because of the large number of book-lovers among medical men. The idea does not stop with a mere rendezvous for book collectors, but for a much wider circle of book-lovers in the most general sense. It is not necessary to love a book that it be printed on vellum and curiously bound, for the society will welcome good books in any disguise, and especially at the present time of substitute bookmaking. If the books be daintily printed and bound so much the better of course. The main thing at present is the substance and not the form, but the ambition of the future is to secure *de luxe* editions, which will be reserved for members of the society. The grand idea is this, that the better the book the better should be its dress.—*La Presse Médicale.*

Psychiatry, War, and Revolution.—Laignel-Lavastine's lecture with this title, reported in *Le Progrès Médical*, xlix, 22, bristles with data which are frequently hackneyed concerning historical psychopaths. Many writings along these lines by earlier authors are freely mentioned. A distinction is sharply drawn between mental contagion and collective psychosis. Psychopaths come to the fore in war and revolutions. The question as to whether they actually bring about wars and revolutions is not so easily answered. There is no doubt the the German Kaiser was psychopathic, but his part in bringing about the war, *i.e.*, whether he was an instigator or a puppet, is not clear. The true motive was perhaps the "collective Teutonic paranoia," evidences of which are traced back to the time of Tacitus. On the other hand, if we accept the views of Lombroso and others that revolution is merely an expression of evolution, a distinction is offered between war and revolution, which may even be diametrically opposed, war being regressive and destructive while revolution is progressive and constructive. Such a distinction might not work out satisfactorily. It is quite possible to have constructive war and destructive revolution. The two, therefore, must be considered jointly. Both produce states of emotional disturbance and psychoneuroses, so that we may not be able to determine whether psychopathy in certain subjects contributed to war and revolution or was the result of the same. A distinction must therefore be made between antecedent and sequential psychopathy, which may not be easy; since the former may contribute strongly to the latter. There were well-known psychopathic characters who contributed to the French Revolution. There was even a rumor that a certain woman had Robespierre under hypnotic control, which legend shows the popular belief that the leaders of the Revolution were obsessed by some outside influence. Conversely, Charlotte Corday was but one of several women who sought to assassinate the revolutionary leaders. The counter-revolutionist who faces certain death in attempting the assassination of the revolutionary leader belongs to the martyr type, which is rife during religious persecutions.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 10.
Whole No. 2652.

NEW YORK, SEPTEMBER 3, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

THYROID ACTION AND FEVER.

BY E. H. P. WARD, A.B., M.D.,

WHITE PLAINS, N. Y.

IN the ganglia at the base of the brain, where the afferent paths terminate in the thalamic region, is located the chief executive center of the organism where sensory impulses from within and without the body are received, the situation sized up as indicating bodily well-being and security or the reverse, and the appropriate reactions immediately set up to meet whatever conditions or emergencies may exist; these reactions being subject to modification or inhibition by the lower reflex centers, and also by the higher cortical centers to which the sensory impulses may be immediately relayed. The thalamic executive center has at its command two types of reaction with which to meet unfavorable conditions which may arise from within or without the organism in the form of excessive heat and cold, physical danger or injury, or poisons in the alimentary tract or in the blood and tissues: the *active* type of reaction involving activity of the voluntary muscles, and the *passive* type in which voluntary activity plays no part.

The active type of reaction requires complicated adjustments of the bodily mechanism to provide for the pressure and distribution of the blood, the supply of fuel and oxygen, the increased muscular tone, etc., necessary for the more or less violent and prolonged muscular and mental exertion involved, and the thalamic center can effect these adjustments instantly by direct nervous control. But it can *sustain* them more easily and economically by increasing the secretion of *adrenaline* which has been developed by the organism for this specific purpose and which acts, without the expenditure of nervous energy, directly on the appropriate muscle and gland cells and on them only, leaving the executive thalamic center free to devote its attention to more important matters. And in addition to responding thus to excessive sudden or prolonged demands, adrenaline is probably secreted continuously in small amount to provide for the normal vascular tone and muscular activity of the body.

Now this adrenaline adjustment is remarkable for its simplicity and effectiveness, but it has a disadvantage in that once effected it is no longer under nervous control; the adrenaline, once secreted into the blood, remains there until used up in accomplishing its specific purpose. Hence if it becomes necessary to change quickly from an active to a passive state, and these adjustments maintained by adrenaline have to be modified or reversed, the adrenaline already in the blood or continuously secreted becomes an obstacle; which may indeed be overcome by active vasodilatation, etc., but this is a waste of energy if it has to be sustained for any length of time. It seems, however, that special provision for this difficulty is made by the *thyroid secretion* which plays the leading rôle in reactions of the passive type and by first neutralizing adrenaline clears the field for other adjustments. And since so important a part of thyroid action consists in neutralizing adrenaline, it is desirable to review briefly the effects of the latter.

Adrenaline accelerates and strengthens the heart beat and constricts the splanchnic and skin vessels but leaves the pulmonary and cerebral vessels dilated and even increases vasodilatation in the voluntary muscles; it dilates the bronchi widely and by stimulating the hydrolysis of glycogen in the liver increases the sugar in the blood. Thus muscular and mental activity are provided for. The vessels of the kidneys are at first constricted along with the other abdominal vessels, but dilate again while the blood-pressure is still at its height in time to eliminate the waste products of this activity in a flow of urine made abundant by this combination of high blood-pressure and renal dilatation. Meanwhile the gastrointestinal functions—both digestive and excretory—are suspended by the adrenaline, which causes cessation of the movements of the stomach and intestine and relaxes them to their full extent while contracting the pyloric, ileocolic, and internal anal sphincters and the muscularis mucosa, relaxing the gall-bladder and constricting the gall-duct; and the secretions of the digestive tract are minimized by the splanchnic ischemia (Cushny). This relaxing of the abdominal viscera and emptying them of blood makes them less liable to injury during severe muscular exertion, and the closing of the sphincters keeps the intestinal contents from being regurgitated or expelled by the pressure of the strongly contracted abdominal muscles. Adrenaline probably increases the tone of the voluntary muscles and when called forth in excessive amount by cold or in anticipation of great muscular effort, it may produce the involuntary movements of shivering, chattering of the teeth, and rigors; the shivering and trembling of an athlete before a contest, or of a soldier before a battle, being probably due directly to excessive adrenaline action. Adrenaline also produces a characteristic effect on the eye which serves to increase the field of vision and provides for the wide-awake alertness which ac-

companies muscular and mental activity; and the increased flow of tears washes the cornea to provide for sharpness of vision. The tears also warm the cornea, and the increased flow of watery saliva keeps the throat moist when breathing dry cold air.

The action of adrenaline on the vessels of the skin is of special interest and presents certain peculiarities. The skin vessels are constricted by adrenaline and the secretion of sweat minimized, and thus the skin is thrown out of action both as an excretory and as a heat-dissipating organ. In the excessive adrenaline action called forth by cold and by the excitement preceding great activity, this constriction of the skin vessels may be extreme, causing blueness and chilling of the surface especially in the extremities, and may be accompanied by contraction of the *erectores pilorum* muscles, causing the hair to be ruffled up in animals and goose flesh in man; but ordinarily the skin vessels are not so strongly constricted as the splanchnic vessels, and this is probably an adaptation to cold. In the presence of excessive cold the thalamic center, reacting to thermal impulses from the skin, stimulates an abundant secretion of adrenaline which by increasing muscular tone causes shivering or rigors, which may almost imperceptibly pass into more or less purposeful voluntary movements, and thus increases heat-formation; and by simultaneously contracting the skin vessels and the erectores pilorum and suspending perspiration, minimizes heat-dissipation; and thus the body temperature is raised. But as soon as heat can be spared from the interior, the skin must be warmed up too; and this is probably effected by the cold air acting as a skin-irritant and reflexly dilating the skin vessels, thus allowing the hot blood to flow through them and warm up the skin. And since the skin is practically always exposed to air below 98 F., it seems probable that the skin vessels are constantly reflexly dilated to a greater or less degree by the irritant action of cold; and thus their normal caliber would represent the resultant of the opposing forces of adrenaline constricting them and cold reflexly dilating them, and adrenaline could completely constrict them only when present in excessive amount. Of course in civilized man, wearing clothing, this condition would obtain principally in the exposed parts—the face, neck and hands. Thus, I believe, we may explain the action of adrenaline on the skin vessels, and especially those of the face; it is constantly counteracted by an active vasodilatation produced reflexly by the irritating effect of cold. This explains the remarkable but well-established fact that when the vasoconstricting action of adrenaline is counteracted by any cause not strictly localized, it is always the skin vessels which dilate first and always those of the face and neck before the rest of the skin. Thus the vasodilatation in *blushing* occurs first in the face and neck, and many drugs flush the face first and do not cause flushing of the rest of the skin unless their action is prolonged. *Amylnitrite* is perhaps the best example; inhaled and carried in the blood to all parts equally, it always dilates the skin vessels of the face first; if more of it is inhaled, it flushes the rest of the body; while in large amount, it finally finds its way into the more tightly constricted splanchnic vessels and by dilating them causes a marked fall in blood-pressure with throbbing of the arteries, weakness, faintness, etc. The *thyroid secretion* is no exception to this general rule, and when it neutralizes adrenaline the blood-vessels dilate first in the face, then in the rest of the skin, and finally in the splanchnic area.

The thyroid secretion must neutralize adrenaline chemically or counteract it physiologically, for in its presence the adjustments effected by adrenaline are reversed. Da Costa ("Modern Surgery") considers the condition of myxedema due largely to the effects of adrenaline unopposed by the thyroid secretion, and adrenaline is beneficial in exophthalmic goiter. In conditions of hyperthyroidism the tissues, deprived of adrenaline, lose their tolerance of it and their reactions to it become exaggerated. Judging from disorders due to its deficiency or excess, and from the results of its therapeutic and experimental administration in man and animals, the thyroid secretion produces the following effects:

A. Effects due to neutralizing adrenaline:

1. General muscular weakness, especially in lower limbs.

2. Pigmentation of the skin (see my Notes on Adrenal Action, MEDICAL RECORD, Nov. 20, 1920).

3. Circulatory effects: dilatation with throbbing of the heart and blood-vessels, with lowered blood-pressure and acceleration of the pulse (tachycardia) to compensate for the impaired circulation; first the skin vessels are dilated (first in the face and neck, then in the body and limbs) and this results in flushing of the skin with profuse perspiration, and if prolonged to edematous infiltration of the skin with extravasated serum (erythema); there may be headache (cf. amylnitrite); later the splanchnic vessels are dilated, leading to congestion of the abdominal viscera which, if of moderate degree, leads to diuresis; if of greater degree, to renal congestion with albuminuria and to gastrointestinal catarrh with anorexia, indigestion, and constipation; while if intense, this splanchnic congestion leads to gastroenteritis with nausea, vomiting and diarrhea, nephritis, and fatty degeneration of the internal organs, with perhaps delirium (from cerebral anemia) and collapse; the thyroid secretion by neutralizing the relaxing effect of adrenaline on the walls of the stomach and intestine, and its constricting action on the sphincters, prepares for the peristaltic movements of vomiting and diarrhea which are probably reflexly stimulated by the intense congestion, as in failure of the right heart. *Thirst* results from the loss of water from the blood by perspiration, extravasation of serum into the skin, etc., diuresis and diarrhea.

4. The respiration is rapid and shallow, which may be partly an adaptation to the circulatory changes; but the chest expansion may be greatly diminished in exophthalmic goiter and in fever, and this may be due to a weakening and loss of tone of the respiratory muscles resulting from lack of adrenaline. An exaggerated form of this type of respiration is seen in panting, laughing and crying.

5. The thyroid secretion may directly stimulate the sweat-glands, the kidneys, and the gastrointestinal mucosa, or the increase in these secretions may possibly be accounted for by the passive or reflex influence of the hyperemia.

B. Other effects of the thyroid secretion:

1. It is supposed to exert a *solvent* or autolytic action on toxic substances in the tissues, comparable to the action of the iodides on gummatous tissue, etc., and due to its iodine content.

2. It has a remarkable specific action on *metabolism*, increasing the combustion of carbohydrates, fats, and proteins (including even the proteins of the tissues), as shown by the increased consumption of oxygen and elimination of CO_2, the increased elimination of N. P., etc., in the urine, and the disappearance of glycogen from the liver which may be so rapid as to overload the blood with sugar and cause glycosuria. This increased combustion leads to a rise of temperature and may cause fever even in spite of the rapid heat-dissipation from the flushed and perspiring skin. And the destruction of body proteins (which can be prevented by a rich protein diet), along with the increased combustion of fats and the loss of water by sweating, diuresis, and diarrhea, leads to a rapid loss of flesh and weight.

3. Thyroid secretion in excess causes *tremor* in the arms and legs, and even choreiform movements; this may result from interference with the parathyroids, or it may be that sodium (chloride) is retained in greater proportion than calcium in the extravasated serum and, by displacing calcium in the nerves, leads to irritability.

4. Hyperthyroidism is often accompanied by wandering pains, neuralgia, etc.

5. Prolonged hyperthyroidism (exophthalmic goiter) in young persons generally leads to persistence of the *thymus* gland with hypertrophy of its lymphoid tissue and lymphocytosis. Apparently the thyroid secretion exerts some stimulating chemical or other effect on the thymus, for after thyroidectomy this hypertrophy and lymphocytosis subside.

6. There seems to be no good evidence that the thyroid secretion ever directly produces *exophthalmos*, nor does thyroidectomy cure this condition in exophthalmic goiter. It is probably due to active congestion of the loose orbital tissues, especially the lachrymal glands, and is produced by direct nerve control independent of, but in certain cases associated with, the stimulation of the thyroid gland which produces hyperthyroidism.

The reactions of the passive type, in which the thyroid secretion plays so important a part, are characterized by a more or less complete reversal of the adjustments for muscular activity produced by adrenaline, and a more or less complete suspension of voluntary activity with a lowering of muscular tone. This leads to a great reduction in heat-formation, and it is to compensate for this and keep the body at the normal temperature that the thyroid secretion stimulates combustion; which is no longer in the muscles principally but in the tissues of the body generally and especially in the liver, and which uses up fats and proteins as well as carbohydrates; and which is all the more necessary on account of the increased loss of heat produced by the thyroid secretion. Not all of the effects of the thyroid secretion seem to be of value in every reaction in which it is called forth, and some of its effects (*e. g.* the tremor) seem to be of no value in any reaction. This secretion is like a "shot-gun" prescription, adapted to many different purposes but not exactly to any one purpose. The passive reactions in which it is concerned are the following, its increased activity being usually indicated by a transient swelling or congestion of the gland providing for increased formation and absorption of the secretion:

I. *Violent or prolonged muscular effort* may cause congestion of the thyroid gland, and the secretion may in this case serve two purposes:

A. It may have a *safety-valve* action, relaxing the constricted blood-vessels and thus lowering the resistance against which the heart has to work, in case the latter becomes fatigued or exhausted; cardio-inhibition providing for temporary relief until the thyroid secretion has time to act. The effect of the secretion is to dilate the skin vessels with flushing and perspiration of the face and body (which may be a "cold sweat" if the body is not overheated), increased pulse-rate, and muscular relaxation and lassitude. If the action is more marked, dilating the splanchnic vessels too, there may be faintness, nausea with perhaps vomiting, prostration, throbbing of the heart and arteries, dyspnea, and even collapse.

B. The *heat-dissipating* action of the thyroid secretion may be called upon if the body temperature is raised above normal by violent or prolonged muscular exertion. Ordinarily it dilates only the skin vessels with flushing and more or less profuse perspiration, first of the face and neck and hands, then the rest of the body; accompanied by slight muscular relaxation and lassitude, which diminishes heat-formation. But if the heat is excessive, as in hot weather, the thyroid secretion may be stimulated in larger amount and, in addition to free perspiration, cause splanchnic dilatation with lowered blood-pressure, throbbing heart and blood-vessels, accelerated pulse, panting respiration, muscular weakness, and perhaps faintness and nausea; or even giddiness, vomiting, diarrhea, and collapse with coma—the symptoms of heat-exhaustion, the blood collecting in the splanchnic area and leaving the skin pale and cold because still wet from the preceding perspiration. In hot weather the neck is liable to swell from congestion of the thyroid gland, which is stimulated to activity in order to provide for free circulation in the skin and free perspiration as a means of heat-dissipation to keep the body cool. And, paradoxical as it may seem, the thyroid secretion by increasing combustion provides for maintaining the normal body temperature during weather too warm or too humid for muscular exertion. For during such weather the temperature, while too high to permit of muscular exertion (which would produce far too much heat), is still as a rule considerably below 98° F. Hence the body slowly loses heat to the surrounding air, and it is only by the action of the thyroid secretion that its temperature is maintained at normal. And it is because this action increases combustion of the body fats and proteins that it leads to loss of flesh during hot weather, and an increased demand for protein foods to spare the tissue proteins; and this is why lack of exercise leads to loss of weight—during inactivity the body-temperature is maintained by the action of the thyroid secretion at the expense of the proteins of the tissues; perhaps it

interferes with protein anabolism and thus liberates an excessive amount of intracellular heat (see my Notes on Motility, MEDICAL RECORD of August 21, 1920). In cretinism and myxedema the skin is dry, there is a complete absence of perspiration; and it is said that in conditions of chronic mild hypothyroidism the skin may not perspire noticeably even after severe exertion in hot weather.

Thus the thyroid secretion serves to adapt the organism to high external temperatures, by virtue of both its heat-dissipating and moderate heat-producing effects; just as adrenaline serves to adapt the organism to low temperatures by virtue of its heat-conserving and great heat-producing action. These two agents constitute the heat-regulating mechanism of warm-blooded animals, both being controlled by the executive thalamic center in response to heat and cold stimuli acting on the skin. [Some animals which do not perspire freely provide for heat-dissipation by evaporation from the lungs, the rate of respiration being increased in the dog from 15 to as high as 300 per minute; this too may be an effect of the thyroid secretion—an exaggerated effect of its usual action in producing rapid and shallow respiration (panting) which even in man increases heat-dissipation.] It is said that when the thalamic region is cut off from the lower portions of the central nervous system, a fall in body-temperature produced by cooling of the surface no longer stimulates the reaction of shivering, nor does septic infection any longer produce fever. And lesions in the neighborhood of the basal ganglia (heat puncture) cause a marked rise in temperature, and this occurs after the muscles are paralysed by curare but not if the liver is free of glycogen; and this rise of temperature is the result of an increased combustion not only of carbohydrates but also of proteins. Therefore it seems probable that this hyperthermy following heat puncture is due to the action of an increased thyroid secretion stimulated directly by this injury to the region from which the thyroid is controlled. Hot baths also induce hyperthermy by increasing combustion, including destruction of tissue proteins, and this too is probably a result of an increased thyroid secretion stimulated by the heat.

II. The thyroid secretion plays a leading rôle in the passive reaction to danger, mental shock, and physical injury in cases where these emergencies cannot be met by voluntary activity.

A. The *freeze-reaction*, which may be accompanied by the conscious emotion of fright, fear or anxiety, constitutes the passive reaction to danger, and *exophthalmic goiter* is merely this reaction abnormally prolonged. When an animal receives a stimulus which signifies or suggests danger, it may do one of three things: (1) It may run away; (2) it may advance to investigate or attack; or (3) it may become immobilized or "freeze"; and any of these reactions may be accompanied by fear. The sensory paths are broken up into relays on their way to the cortex because many of the adaptations called for by sensory impulses can be effected by local reflexes more rapidly and more economically without unnecessarily disturbing the higher centers. Now the ganglia in the thalamic region constitute the last and most extensive relay station where all afferent paths converge and terminate on their way to the cerebral cortex, both the main sensory tracts from the cord and also the tracts from the organs of special sense. Thus the nuclei of the thalamic region constitute a higher reflex center where all sensory impulses from within and without the body are received, compared, and coordinated, and the general systemic reactions to them are instituted. Many of these reactions, such as those adapted to excessive heat or cold, poisons in the alimentary tract or blood and tissues, and to a large extent the reactions (which we are considering under this heading) to danger, mental shock, and physical injury, are carried out without the knowledge or assistance of the cortical centers, which may indeed become aware of them only objectively, from their results, if at all (while on the other hand many of these systemic reactions may be modified or supplemented by local reflexes from the lower centers in the medulla, cord, and peripheral ganglia). And even when the afferent impulses are relayed from the nuclei of the thalamic region to the cortex, in order to bring to bear upon the case the more specialized judgment of the cortical centers, or to call upon the motor cortex for voluntary activity, the thalamic center must meanwhile arrange for the fundamental adjustments of the bodily mechanism which are a necessary preparation for this activity; or perhaps provide for a complete suspension of voluntary activity, as in the case of the freeze-reaction.

Thus when a stimulus indicating danger is received the thalamic center immediately relays the message to the cortex (where it may arouse the conscious emotion of fear), and meanwhile instantly effects the adjustments for the reaction, active or passive, which it judges best suited to the emergency, its judgment being subject to review by the higher cortical centers. These adjustments are effected immediately by direct nervous stimulation or inhibition, but their continuation is provided for by adrenaline or the thyroid secretion. Thus, when an animal runs away or fights, the violent and prolonged muscular exertion involved is provided for by an abundant secretion of adrenaline which produces its characteristic effects, including perhaps contraction of the *erectores pilorum* muscles, which in man cause goose-flesh and a chilly creepy feeling along the spine, but in animals makes the hair stand on end, serving to make the animal seem larger and more formidable, and also to reduce the force of blows and confuse their aim.

If, on the other hand, the animal freezes, this passive type of reaction requires complete and perhaps indefinitely prolonged immobility and, while it is no doubt initiated by instant reflex inhibition, its continuance must be provided for by an increased thyroid secretion—especially if adrenaline happens to be left over in the blood in large amount from a preceding state of activity; for it seems impossible for an animal strongly under the influence of adrenaline to remain perfectly motionless for any length of time.

Thus the freeze-reaction is instituted by sudden inhibition — cardiac and muscular — the "heart stands still" and the animal is "paralyzed with fear." Then the thyroid secretion is stimulated and the gland becomes acutely congested, causing a sense of constriction and fullness and a

throbbing in the throat—the "heart beats in the throat"; the secretion is poured into the blood, neutralizing adrenaline and lowering blood-pressure, and the heart and arteries throb and the pulse becomes accelerated; the skin vessels are dilated and the face and body may be flushed for a moment and "beads of perspiration break out on the face" and body, but the rapidly succeeding splanchnic dilatation leaves the skin pale and cold and the condition becomes "a cold sweat"; the strength and tone of the muscles is reduced, especially in the legs, and the animal stands motionless and "rooted to the spot"; the erectores pilorum are fully relaxed and in animals this causes the hair to lie down very flat, making the animal seem smaller and less conspicuous; the respiratory movements become shallow and rapid and this limitation of movement helps the animal to escape detection—it is "afraid even to breathe," whereas when the danger is past it can once more "breathe freely"; in extreme cases the splanchnic dilatation may lead to faintness, nausea, vomiting, diarrhea, or even involuntary passage of urine and feces due to relaxation by the thyroid secretion of the adrenaline-constricted sphincters. The eyes protrude (exophthalmos) and this serves to increase the field of vision, and the eyes may even lose their convergence (cf. exophthalmic goiter) and roll around independent of one another sweeping the entire field of vision for a possibility of escape. Meanwhile the prolonged inactivity would lead to a great fall in body temperature if the thyroid secretion did not provide for increased heat-formation in its characteristic way, which may even cause a rise in temperature making the victim feverish from fear. Finally there is the tremor of fear (cf. exophthalmic goiter).

Now which one of these three reactions to danger—run, fight or freeze—a given individual or animal may show at a given moment in the face of a given danger depends upon the nature of the danger, the instinctive characteristics and past experience of the animal, and the circumstances of the moment. Generally speaking, an unknown or unfamiliar danger is more likely to produce the freeze-reaction, which enables the animal to escape detection while awaiting developments and weighing the circumstances in order to decide upon the safest course of action before committing itself to a retreat or a combat which might prove disastrous. There may be a period of indecision in which now one reaction, now another, may gain the ascendancy, and the incipient symptoms of the different reactions may succeed and replace one another in rapid succession, the chilly, creepy, goose-flesh feeling due to adrenaline alternating with the hot, flushed, perspiring skin due to the thyroid secretion and thus producing chills and fever. The mild reaction accompanying confusion known as *blushing*, while it may be due momentarily to reflex vasodilatation, is, when prolonged into the flush of embarrassment, probably due to an increased thyroid secretion; and here, as in all other cases of dilatation of the skin vessels, the face and neck are flushed first and perhaps alone. Hyperthyroidism seems to favor a condition of abnormal mental acuteness which serves in the presence of danger or difficulty to help find a way out. When the suspense is over there follows, especially in women, a "reaction" in which the exophthalmos is relieved by the shedding of tears and the rapid shallow respiration culminates in the movements of laughing or crying; the tears and the respiratory movements of laugning and crying are identical, and both are accompanied by swelling and congestion of the thyroid gland, being distinguished only by the facial expression and the mental emotion which accompany them. But if for any reason the suspense is prolonged, or if the thalamic center is overstimulated by the danger or difficulty, or if the higher cortical centers do not exert their normal control over the thalamic center, due, perhaps, to their failure to sublimate the emotion of fear, then the excessive or prolonged stimulation leads to the hyperthyroidism of exophthalmic goiter, the *exophthalmos* being due to the tension of unshed tears.

B. *Shock.*—If a sudden danger seems very great, the victim may faint from cardiovascular inhibition; or if after developing the freeze-reaction no way of escape is found and the danger seems more imminent, the splanchnic dilatation resulting from excessive thyroid action developing gradually will cause the victim to collapse from fright and "play 'possum." This is really a condition of extreme *shock;* and when shock comes on gradually or is of the delayed type, and when it is prolonged, it is no doubt due to excessive thyroid action. The symptoms of shock are identical with those of the freeze-reaction, only more severe and developing more rapidly and thus skipping some of the details. At first the pulse is slow in shock, from cardiac inhibition, but when the thyroid secretion becomes effective there is vascular dilatation with perspiration, which immediately becomes a "cold" perspiration, because the splanchnic dilatation collects the blood in the abdominal viscera, leaving the skin cold and pale and bloodless; the pulse becomes weak and rapid, the respiration rapid and shallow; and there is faintness, nausea, and collapse with relaxation of the sphincters, and perhaps vomiting as the strength returns. Fright, bad news, physical injury, especially if preceded by fear of injury, may cause immediate collapse, even instant death—probably by cardiac inhibition. But a preexisting hyperthyroidism, whether due to fear or other causes, as toxemia, is a factor strongly predisposing to shock even though it has previously given rise to no symptoms; and severe shock is especially liable to occur in exophthalmic goiter during anesthesia or operation, and the "thymic death" is probably a death from shock intensified by a condition of hyperthyroidism. Then, too, shock may result directly from the effects of the thyroid secretion, as when during thyroidectomy some of the colloid material is absorbed from the wound and induces severe or fatal shock; and it may even produce an elevation of temperature—*thyroid fever.*

The temperature in shock is usually subnormal, probably as a result of the increased heat loss by free perspiration in its early stages and the complete collapse which follows. Ordinarily this chilling would lead to increased adrenaline secretion with rigors, etc.; but this would be fatal in the case of shock resulting from wounds, because it would increase hemorrhage, and one of the main uses of shock is to lessen hemorrhage. And it takes time for the heat-producing action of the thyroid secretion to become effective, especially in a state of pro-

found collapse with everything at a standstill. But this action may produce fever following shock in cases where the physical injury is comparatively slight and the shock is of the nervous type, and this so-called *emotional* fever not infrequently follows accidents and operations and may be preceded by a chill and accompanied by hysterical excitement. Hysterical fever is probably of this type, and the inexplicable elevations of temperature which may occur in neurasthenia. And the aseptic *traumatic fever*, or post-operation rise of temperature, which often appears after aseptic operations, or after a contusion or simple fracture, with no preceding chills or indisposition, is probably a result of the heat-producing property of the thyroid secretion following shock; and the *fever of tension* from stitches may be of a similar nature. Sometimes after operations in hot weather the symptoms of *sunstroke* develop, due probably to the combined effects of shock and of excessive heat in stimulating hyperthyroidism and diminishing adrenaline secretion.

Thus shock is due to an excessive thyroid secretion called forth in a passive mode of reaction—an exaggerated form of the freeze-reaction—evolved by the organism as a means of meeting dangers, or pain, or physical injury which it cannot actively combat; and if this secretion is already present in excess as a result of fear or of hyperthyroidism from any other cause, it takes less of a stimulus to increase it to the point necessary to produce shock. And since the thyroid secretion produces shock largely by neutralizing adrenaline, any condition such as fatigue or hunger or heat which implies a scarcity of adrenaline predisposes to shock. Thus bad *morale* predisposes to shock by diminishing adrenaline through fatigue or hunger or excessive heat, and inducing hyperthyroidism through the effect of uncertainty, anxiety, worry, fear, pain, or physical injury. Shock is nature's method of inducing anesthesia, controlling hemorrhage, and limiting injury, and extreme shock may save the life of an animal by enabling it to "play 'possum" and be mistaken for dead; and as a last resort, it at least assures a painless death.

III. There is little essential difference between the effects of gross physical injury and of the chemical injury which results from the action of poisons swallowed or produced in the gastrointestinal tract, or circulating in the blood; at any rate, these latter conditions seem to call forth the same reaction—an increased thyroid secretion, which here makes the most complete use of its many effects.

A. In the *emetic* and *purgative* actions, which are characteristic effects of so many poisons when formed in, or introduced into, the alimentary tract, while the actual movements which empty the stomach and bowel and some of the increased secretions are no doubt due to reflex action, it seems probable that an increased thyroid secretion clears the field for these reactions by neutralizing the effect of adrenaline on the gastrointestinal tract and the splanchnic vessels. Under adrenaline the alimentary tract is fully relaxed, thrown out of action, and locked up by the sphincters and drained of blood; and certainly this whole condition must be reversed to allow of the emetic and purgative actions, especially if much adrenaline happens to be present in the blood. And while it might be reversed momentarily by direct nervous control working against the locally-acting adrenaline, this would be a waste of nervous energy, especially if prolonged. This emetic action is characterized by profuse salivation with increased mucous secretion by the nose, throat, and bronchi, tears, and cold perspiration; also depression and muscular weakness with acceleration of the pulse, passing perhaps into prostration and alarming or fatal collapse. Nausea and vomiting result if the poison is sufficiently concentrated and soluble in the stomach, purgation from its effects in the intestine if it reaches there. Many of these substances are excreted into the intestine from the blood and exert their irritant action if introduced in this way. The activity and congestion of the alimentary tract with the accompanying symptoms of vasodilatation certainly indicate that the adrenaline adjustments are no longer maintained; and it seems reasonable to infer that here, as in the other passive reactions, they are reversed by an increased thyroid secretion, although reflex dilatation of the splanchnic vessels at the start may hasten and intensify the local action of this secretion.

Practically all irritant poisons, if in sufficient quantity and concentration, and not too insoluble in stomach or intestine or too quickly absorbed into the blood, produce this emetic or purgative action, or both; while many of them (as phosphorus, arsenic, and the heavy metals) are also absorbed and, gradually excreted back into the alimentary tract or deposited in the liver, etc., exert a continued irritation, resulting in a prolonged hyperthyroidism characterized by vasodilatation with gastrointestinal congestion and catarrh, or even gastroenteritis, the disappearance of glycogen from the liver, fatty degeneration or infiltration of the internal organs, increased destruction of tissue proteins, and often more or less fever. But many of these irritant poisons, such as certain of the alkaloids, exert after absorption into the blood a specific action on various parts of the central nervous system, the heart, and the peripheral organs—the latter sometimes resembling in its mode of action the effects of adrenaline; and these effects often complicate and mask the emetic action. The toxin of cholera is an instance of a bacterial poison with this local irritant action on the gastrointestinal tract, and indigestion with fermentation and decomposition of food may have a similar effect. Very often in conditions of prolonged gastrointestinal irritation *tetany* develops, especially in children, and may result from interference by the thyroid secretion with the parathyroids.

The passage of gallstones presents a remarkable example of the specific action of the thyroid secretion in favoring the elimination of foreign substances from the gastrointestinal tract. Under adrenaline the gall-bladder is relaxed and would not expel a stone, while the gall-duct is constricted so a stone could not pass; but the thyroid secretion by neutralizing the adrenaline allows the gall-bladder to contract and expel the stone, and relaxes the gall-duct so the stone can pass. But meanwhile the excessive thyroid secretion brings on the exaggerated symptoms of shock and collapse so characteristic of gallstone colic, and there may be fever from the thyroid action.

B. *Fever.*—The febrile reaction is essentially a condition of more or less intense and prolonged

hyperthyroidism stimulated by the thalamic center in response to the irritant action of poisons in the blood and tissues. As usual, the thyroid action sends the blood to the skin and splanchnic area, opening up the avenues of elimination, and the usual circulatory and other symptoms attend this action, including the characteristic increase of combustion to keep up the body temperature during this period of enforced inactivity. If the poisons are readily eliminated by the sweat-glands, kidneys, and bowel, the actual hyperthermy is not marked or prolonged; but if the toxins are too virulent to be excreted at once—"too hot to handle"—and paralyze or inflame the excretory organs, then the characteristic symptoms of the febrile reaction are developed in the skin, the kidneys, and the gastrointestinal tract; and the absence of perspiration combines with the vasodilatation and serous infiltration of the skin (slowing circulation and acting like a water-jacket) to reduce heat-dissipation; and this, in conjunction with the increased combustion, produces the febrile temperature. There are five reasons for supposing that the thyroid secretion is instrumental in producing the febrile reaction:

(1) The thyroid gland is often congested in febrile conditions, presumably indicating increased activity.

(2) The gland not infrequently atrophies during or after fevers, especially the acute infectious fevers, presumably from exhaustion due to overactivity. And even when it does not noticeably atrophy, it may become functionally insufficient, and this is considered the chief cause of chronic mild hypothyroidism.

(3) Fever is a reaction to toxemia and the thyroid secretion seems to play an important part in combating toxemia, many cases of goiter and hyperthyroidism being presumably due to excessive demands upon the thyroid gland made by chronic toxemia of intestinal or other origin.

(4) With certain modifications due to the toxins, the characteristic features of fever and of hyperthyroidism are identical—the vasodilatation with full bounding pulse and tachycardia, low blood-pressure, rapid and shallow respiration (the chest expansion may be diminished in fever as in exophthalmic goiter—see Carpenter and Benedict, *Amer. Journal of Physiology*, May 1, 1909), the flushing of the skin, especially of the face, with profuse perspiration and serous infiltration (erythema), the abundant secretion of urine; the wandering pains, weakness, prostration, headache, and delirium; the gastrointestinal catarrh with anorexia, indigestion and constipation, and perhaps nausea, vomiting, and diarrhea; the thirst, loss of flesh, elevation of temperature; the general characteristics of the metabolism, with increased consumption of oxygen and elimination of CO_2 attending the increased combustion of carbohydrates and fats and also of proteins, including the proteins of the tissues which can be spared by an abundant protein diet, the disappearance of glycogen from the liver with the occurrence of sugar in the urine ("toxic" glycosuria), the fatty degeneration or infiltration of the internal organs; the anemia, the tremors and choreiform movements or tetany, the changes in the thymus gland—a most remarkable coincidence, to say the least.

(5) The action of the thyroid secretion is especially adapted to ridding the blood and internal organs of toxins because, in addition to whatever solvent or autolytic action it may have on toxic substances, it opens up the great avenues of elimination—the kidneys, the skin, and the gastrointestinal tract. Under adrenaline the kidneys are active in excreting the normal waste products of metabolism for which they are specially adapted; and while they may be able to excrete other substances as well, they cannot excrete any substance without concentrating it in the renal tubules whose cells are highly specialized and therefore delicate and with comparatively little power of regeneration, and concentrated toxins are likely to injure them beyond repair; and under adrenaline the skin and alimentary tract are thrown out of action and locked up. But the thyroid secretion not only favors renal activity but also brings into action the great eliminating powers of the skin and gastrointestinal tract which are more generalized and can excrete substances which the kidneys cannot; and these excreting epithelia, in the sweat-glands and mucous membrane, present extended surfaces from which the toxins can be excreted rapidly and without becoming concentrated, and even if injured by the toxins they have great powers of resistance and regeneration; furthermore, they constitute in the capillaries and loose areolar tissue of their subepithelial layers a reservoir of immense capacity in which the toxins dissolved in extravasated serum can be collected from the more vital and delicate internal organs and safely deposited awaiting excretion.

This getting the toxins out of the general circulation and away from the delicate and vital internal organs is of great importance in case they are too virulent to be excreted at once by the kidneys, gastrointestinal mucosa, and the sweat-glands, which may be paralyzed or inflamed by their presence. In the kidneys they often cause more or less irritation or inflammation, as shown by the scanty, high-colored urine, albuminuria, or even nephritis; and in the gastrointestinal tract they may intensify the catarrh already present from congestion. But the kidneys and gastrointestinal tract are usually spared from severe injury because the toxins are deposited principally in the skin, as a result of the fact that the skin vessels are dilated first under the influence of the thyroid secretion. This dilatation of the skin vessels is accompanied by relaxation of their walls and slowing of the blood current which permit the serum, carrying the toxins in solution, to escape into the loose subcutaneous areolar tissue, causing the skin to become hot, red, swollen, perhaps tense and edematous; and as a rule this erythematous condition occurs first and is most marked in the face. The toxins thus collected in the skin cause more or less irritation and inflammation, and not only interfere more or less with perspiration, but may cause the skin to become tender or itching, often leave it stained and cause it to peel off, and not infrequently cause localized areas of gangrene, especially where there is continued pressure (bed-sores). (Sometimes, in the absence of perspiration, the toxins may perhaps be partly discharged from the skin in gaseous form, giving the characteristic odors from the skin in typhoid, typhus, etc.) The heat-dissipating function is also more or less diminished as a result of this condition. In the first place, per-

spiration is more or less completely suspended and the skin becomes dry; this diminishes heat loss by evaporation. Then, too, heat loss by convection is interfered with by the sluggish circulation in the skin resulting from the vasodilatation with slowing of the blood stream, and as the extravasated serum accumulates in the skin it may compress the blood-vessels and thus reduce the circulation still further. And, finally, the edematous skin acts, like a water-jacket around the body, to diminish heat loss by conduction and radiation. And the accumulation of serum in the skin concentrates the blood and leads to thirst, and chlorides are retained in the body to preserve the isotonicity of the blood and also of the extravasated serum. It may be that sodium is retained (as a chloride) in greater proportion than calcium and, by displacing calcium from the nerves, causes the tremor and tetany which sometimes occur in prolonged fevers; or it may be that the thyroid secretion is directly responsible for these symptoms, through interfering with the parathyroid secretion. The importance of depositing the toxins in the skin is seen in those cases in which it fails. Thus scarlet fever in some individuals, and with especial frequency in some epidemics, may not be accompanied by much, if any, fever or rash; that is, the toxins are not deposited in the skin. The case is considered to be very mild until a perhaps fatal nephritis develops; the toxins have become concentrated in the kidneys instead of the skin.

When the toxins accumulate gradually in the blood and tissues, they stimulate a gradually increasing thyroid secretion which, by dilating the skin vessels only, gradually produces a serous infiltration of the skin just as in exophthalmic goiter; and as the toxins dissolved in this extravasated serum become concentrated in the skin, they paralyze the sweat-glands and the fever gradually rises as a result of the diminished heat-loss and the increased heat-production produced by the thyroid secretion. This occurs during the stage of invasion of fevers with a gradual onset, and may also cause the temperature to rise again after remissions or intermissions during a continued fever. But when the toxins enter the blood and tissues suddenly and in large amount, they seem to interfere with metabolism by their concentrated effect, and the result is a lowered combustion in the tissues and a fall of body temperature. This stimulates adrenaline secretion and results in sensations of chilliness or a distinct chill with perhaps rigors (convulsions in children). This leads to excessive heat formation and the temperature rises rapidly to a point above normal. Then the thyroid secretion is greatly increased in response to both the toxemia and the hyperthermy, and by dilating the skin vessels while the splanchnic vessels are still constricted by the adrenaline and the blood-pressure is still high, causes the toxin-laden blood to be pumped through the skin vessels at high pressure. And if the toxins can be eliminated readily, there is a profuse perspiration which carries them off along with an abundant flow of urine; but if the toxins are very virulent, they paralyze the excretory epithelia and instead of being excreted in the perspiration they are forced along with extravasated serum into the loose subcutaneous tissue, producing a febrile erythema. This often occurs at the onset and also during the course of fevers when toxins are newly absorbed; and this alternate action of adrenaline and the thyroid secretion is remarkably adapted to rapidly ridding the blood and tissues of toxins, squeezing them out of the tissues like rinsing a sponge and injecting them into the skin. In addition to this passive dilatation of the skin vessels by the thyroid secretion, the vessels in more or less limited areas of the skin may be actively dilated by a reflex mechanism similar to that involved in the production of referred pains. Thus the internal organs which are most susceptible to the toxins, or in which they become most concentrated, reflexly cause active vasodilatation in the corresponding skin segments, causing the toxins from the blood to be deposited in greater amount in these circumscribed areas than in the intervening skin; and in these areas, concentrated about the sweat-glands, the toxins act as more or less severe skin irritants producing macules, papules, vesicles, and perhaps pustules, which may become confluent; sometimes they cause an urticarial rash, or they may injure the capillary walls and cause hemorrhages in the form of petechiae, ecchymoses, or a widespread hemorrhagic condition. Thus the skin rashes characteristic of certain fevers result, their distribution and order of appearance depending on the internal organs most affected by the toxins. Thus in pneumonia the face may be flushed only on the side corresponding to the affected lung, and in bronchial asthma the urticarial rash may be confined to the interscapular region.

The intensity, course, and duration of a fever depend on the amount of toxins deposited in the skin, their virulence, and the rate at which antitoxins are formed to neutralize them. As the toxins are neutralized they can be excreted by the sweat-glands, kidneys, etc., and this may occur by degrees during the course of the fever leading to sweats with remissions or intermissions; or it may occur gradually at the end of the fever, which falls by lysis; or suddenly, when the fever falls by crisis with a critical diaphoresis, diuresis, or diarrhea. Fevers which fall by crisis generally are sudden in their onset (malaria, pneumonia, typhus), probably because the same sudden concentration of toxins in the blood and tissues which produces the sudden onset, at the same time stimulates all the antitoxin-forming tissues to their full efforts simultaneously; and thus the antitoxins are formed suddenly and all at once, and the fever falls suddenly. The hyperthermy is said to favor the production of immunity. Probably the spleen, lymph glands, and bone-marrow are concerned in producing antitoxins; and the lymphoid tissues of the thymus gland probably constitute a special provision for the acute infectious fevers of childhood, the thymus gland not infrequently becoming atrophied after these infections.

Not all toxemias produce fever; sometimes the toxins are readily excreted under the influence of the thyroid secretion, and thus do not interfere with heat dissipation. Nor do all toxemias cause hyperthyroidism; the thyroid secretion may be insufficient or it may not be called upon as in those cases of scarlatina with little or no rash or fever, but with acute nephritis. It may be that the thyroid reaction to toxemia has been evolved as a reaction to particular toxins only, and if these toxins fail to be recognized no fever results. And finally there are

other general principles according to which toxins may be dealt with when they cannot be eliminated immediately.

NORTH STREET AND WARD'S LANE.

CANCER CONTROL.

BY SEELYE W. LITTLE, M.D.,

ROCHESTER, N. Y.

MEDICAL authority lays the greatest stress upon the removal of chronic irritations as a means of controlling cancer and reducing the death rate from cancer. This is the result of two things: (1) Medical authority's acceptance as a fact of the proposition that at first cancer is a purely local disease confined to the pathological new growth called cancer; (2) the undisputed fact that a cancer is more likely to appear at the site of such chronic irritation than elsewhere. Neither of these things warrants the assertion as a fact that cancer may be controlled by preventing or by removing such chronic irritations. Nor do both of these things warrant the assertion.

In the first place cancer has never been proven to be a local disease at any stage. Nor has cancer ever been proven not to be a constitutional disease at every stage. In the second place there is no evidence at all to show that prevention or removal or absence of such chronic irritation in any given locality lessens the numerical incidence of cancer or diminishes the cancer death rate. On the contrary, there is ample evidence to show that no such results follow the prevention, removal, or absence of chronic irritation in any given locality. It is undoubtedly true that removal, prevention, or absence of chronic irritation in a given locality lessens the chances of the appearance of a cancer *in that particular locality*. But that is quite another proposition than this, for example: "If a man past middle life does not smoke heavily, cares for his teeth, and keeps his mouth clean, he *is very much less likely to have cancer* than one who does not follow the simple laws of mouth hygiene." (Official pronouncement of The American Society for the Control of Cancer, March, 1920. Italics mine.)

That pronouncement is unsupported by any proof which the writer has ever been able to discover. It is strongly negatived by a vast amount of evidence. It is an opinion, not a demonstrated fact. A careful consideration of a concrete instance will, perhaps, best serve to make these points clear. Let us take cancer of the lip.

In 1914 in the Registration Area of the United States there were 376 deaths from cancer of the lip; males, 347 out of a total of 21,282 cancer deaths among males; females, 29 out of a total of 31,138 cancer deaths among females. It is universally admitted that males have cancer of the lip oftener than females in the United States; it is universally admitted that smokers have cancer of the lip far oftener than non-smokers; it is therefore well within the truth to say that if no person in the United States smoked there would be fewer cancers of the lip than there are; but from that truth it is a long, unwarranted step to allege that because there would be fewer cancers of the lip there would be a diminution in the total number of cancers. Let us see.

Smokers die from cancers other than cancer of the lip in the proportion of about 52 to 1, if the smokers happen to be white men in the United States; in the proportion of about 282 to 1 if they happen to be colored men. Without fear of contradiction it may be said that colored men smoke as often as white men in this country; it is evident therefore that there is some element other than chronic lip irritation which is more than five times as prevalent or powerful among male whites than among colored males so far as the production of lip cancer is concerned. Removing the lip-irritation from male whites, therefore, still leaves male whites far more liable to lip cancer than are colored males, whether they smoke or not! For as a matter of fact there were but two deaths from lip cancer all told among colored males in 1914 in the Registration Area of the United States, and I venture to say that out of the 345 male whites who died from lip cancer in the same area there were eight or ten non-smokers at least. This strongly suggests some racial, inherent, constitutional, cancer-favoring or cancer-producing factor prominent in the one race and not prominent in the other. If white males ceased smoking it is obvious that they would have fewer lip cancers, though even then more lip cancers than colored male smokers have. But, white males having some cancer-producing factor other than the lip-irritation-from-smoking factor and five times as powerful as that factor alone, what is to prevent that other factor from producing cancers elsewhere in the body than on the lip, if the lip-irritation factor is absent, in sufficient numbers to make up for the lip cancers which would have been present if the lip-irritation were present?

Assuming that by abolition of smoking we could abolish all lip cancers, our white male population would only have to furnish 345 extra cancer deaths to make up for the abolished deaths from lip cancer; not a difficult thing among some 30,000,000 male whites, about 6,000,000 of whom are above the age of 40 years and at least 3,000,000 of whom are the smokers who furnished the 345 deaths from cancer of the lip. The 3,000,000 would still have among them something over 30,000,000 chronic irritations left as sites for cancers; and most of these remaining irritations are in places where they cannot be removed and, indeed, are mostly of such a nature that their very existence is unsuspected and unnoticed. I myself have at least fifteen chronic irritations upon my person of which I am aware, any one of which may some day be the site of a cancer. Also I am something of a smoker. Even though removable, I decline to part with all these irritations; I propose to keep on shaving, for example; and wearing glasses. Besides my known fifteen favorable sites for cancer I have an unknown and far greater number inside of me. If I were sure that I lack that other all-powerful cancer-favoring factor mentioned above, no amount of these chronic irritations would give me much of a chance to die from cancer. As it is, my chances are about as good as any other white man's in this country who has not as yet developed a cancer, whether I stop smoking or not and whether or not I remove the fifteen irritations which are removable.

Again, does any one claim (and verify his claim) that non-smoking males die from cancer less often

than males who smoke? They certainly die less often from cancer of the lip, but how about deaths from all cancers? Certainly in this country non-smokers in general die from cancer much oftener than smokers, though they rarely die from cancer of the lip. I refer to cancer deaths among women. Among white women deaths from cancer of the lip are in the proportion of 1 to 1,063 of all cancer deaths; colored women, 1 to 1,340.

It is evident therefore that, in itself, chronic lip-irritation from smoking is almost a prerequisite for the appearance of a cancer of the lip; that, though this prerequisite is present thousands of times, a cancer comparatively rarely avails itself of this opportunity to appear; that, the lip-irritation being present, a white man is five times as likely as a colored man to have a cancer of the lip; that therefore, as between white men and colored men, there is some factor far more important than lip-irritation necessary for the appearance of a cancer of the lip; that there is no evidence that non-smoking white men die from cancer less often than white men who smoke; that white women who, in general, do not smoke at all and therefore rarely die from cancer of the lip, yet die far oftener from cancer in general than men, whether smokers or not; that lip-irritation being absent (thereby precluding the appearance of cancer of the lip), it by no means follows that the total number of deaths from cancer will be reduced. Finally, it is evident that even though all possible chronic irritations were removed there would remain innumerable other chronic irritations as sites for the appearance of cancers.

Let us now return to the quotation given above: "If a man past middle life does not smoke heavily, cares for his teeth, and keeps his mouth clean, he is very much less likely to have cancer than one who does not follow the simple laws of mouth hygiene." Negroes in the United States, especially in the Southern States, as a rule smoke, take no care of their teeth, and pay no attention to any laws of mouth hygiene; yet they have cancer much less frequently than white men in the United States whether or not the white men practise the laws of mouth hygiene and whether or not they smoke. And white men as a rule do clean their teeth, go to the dentist, and otherwise keep their mouths clean to a far greater degree than do Negro men. Death rate per 100,000 population for cancer of buccal cavity:

White males, 5.8 (more or less oral hygiene).
Negro males, 2.2 (practically no oral hygiene).

Frequency of cancer of the buccal cavity evidently has no relation to frequency of buccal irritation as between white males and colored males in the United States. White males have more buccal cancers and more cancers in general than male Negroes. Whites certainly have no more chronic irritations, either buccal or other, than Negroes. Here again it is obvious that for the control of cancer chronic irritation is not the most promising point of attack, but rather some other much more powerful factor of a racial, organic, constitutional nature.

White females in the United States do not as a rule smoke, and they are at least as careful about oral hygiene as white males; and far ahead of all Negroes in this respect; but observe:

Death Rate Per 100,000 *Population from Cancer of Buccal Cavity.*

White males, 5.8 (much smoking; some oral hygiene).
Negro males, 2.2 (much smoking; no oral hygiene).
White females, 1.2 (oral hygiene; no smoking).
Negro females, 1.0 (some smoking; no oral hygiene).

Total Cancer Death Rate Per 100,000 *Population.*

White males, 66.1	White females, 92.0
Negro males, 35.3	Negro females, 83.7

(These figures are approximate only and are for 1914, U. S. Reg. Area. Relatively, however, the figures are accurate, the approximation being the same in each case.)

An attempt to harmonize these two tables on the basis that chronic irritation is a large factor in the numerical incidence of cancer soon brings one into a hopeless snarl. For example, Negro males should have the most buccal cancers. White males beat them 2 to 1. Negresses should have far more buccal cancers than white females. They have fewer. White males have more than four times as many buccal cancers as do white females and more than five times as many as do colored females. Yet the general cancer death rate both of white females and of colored females is far ahead of the white male rate. It is plain that chronic irritation in a given locality has nothing to do with the numerical incidence of cancer in general; that it has an appreciable though very small effect in increasing cancer incidence in its own locality (considering the enormous numbers of such irritations and the relatively few resulting cancers); that even this very small effect is inconstant, extremely variable, and absurdly inconsistent; and that, as before, there is present some other much more important and essential factor—one which disregards chronic irritation in this or that locality and controls the numerical frequency of cancer irrespective of the presence or absence of chronic irritation in any given locality. The most that can be said about chronic irritation in the buccal cavity in this connection is that among white males in the United States it seems to favor the appearance of cancers in the buccal cavity. But that is only a part of the truth, for it is proper to add that among Negroes such cancer-favoring effect is practically negligible; and that relative frequency or infrequency of buccal cancer has apparently no effect at all upon the numerical incidence of cancer in general nor upon the general cancer death rate.

Consider all chronic irritations as a whole. Who is prepared to prove that white females have more such chronic irritations than either white males, colored males, or colored females? Yet white females have cancer oftener than any of the others. Who ventures to say that Negro men have fewer chronic irritations than any of the others? Yet Negro males have fewer cancers than any of the others. Who cares to state that Negresses have more than twice as many chronic irritations as do male Negroes? Negresses have more than twice as many cancers as male Negroes. Who is willing to assert that single white women have more chronic breast irritations than married white women? They have more breast cancers. Who will demonstrate that Jewesses have fewer uterine irritations than Gentile women? They have fewer uterine cancers.

Who will show that uncivilized peoples have only about one-eighth as many chronic irritations as do civilized peoples? They have only about one-eighth as many cancers. Do wild animals in their natural surroundings have no chronic irritations at all? Presumably they do have cancer occasionally, though I have not yet been able to find an authenticated instance of it. Cancer among wild animals is at any rate a great rarity.

I am not claiming that chronic irritations are not the usual sites for the appearance of cancers. They are. For the sake of the argument let it be assumed that chronic irritation is a prerequisite for the appearance of any cancer and of every cancer. Then let us assume that we have removed from every individual in this country every chronic irritation that can by any possibility be removed, and that in no instance has any physical damage been done to any individual. This is an absurd assumption, but it is made to show the utmost possible limit to which cancer control by this method could conceivably go. How much would the cancer death rate be diminished? No one can say, but any one may venture an opinion or a guess.

In each individual of cancer age there would remain, after all possible chronic irritation removals, enough chronic irritations unremoved (because unremovable) to furnish sites for a dozen cancers; each individual would also have from one to a hundred favorable cancer sites to replace the ones removed—scar tissue. Most of these replacement sites would be less favorable sites than the ones removed; but some of them would be more favorable because some chronic irritations are very rarely the sites for cancers—corns, for example. Furthermore, the vast majority of even the most favorable chronic irritation sites for the appearance of cancers escape the distinction of becoming cancer sites in reality. We should have then a population still more than amply supplied with chronic irritations; we should still have as before the vastly more important sex, race, color, age, and civilization factors intact; above all, we should still have in active operation the unknown essential fundamental cause of cancer. We should be in precisely the same position as to cancer incidence that we are at present. The *cancers* would appear in other localities. That's all. That is my opinion—or guess; and as matters stand it is at least as good an opinion or guess as any other. Nor is it pessimism. On the contrary it is optimism to those who, like myself, are firmly convinced that cancer is always, from start to finish, fundamentally a constitutional disorder; but that is another matter. In any case we should be *sure* of the truth before venturing to teach to others as the truth what we merely believe to be the truth.

It is often said that "cancer a constitutional disease" is pessimism and therefore not to be thought of unless absolutely proven; while "cancer at first a local disease" at least offers some hope of controling cancer by present methods thoroughly carried out. Waiving the advisability of declining to consider a possible truth on the ground that, if actually the truth, it would be an unpleasant truth, let us examine the pessimism involved in "cancer a constitutional disease." All constitutional diseases are not utterly hopeless—syphilis, for example, or arteriosclerosis—*provided they are properly treated in the early stages.* We do better with those two diseases by early treatment of a constitutional character than we are doing with cancer by treatment of a local character. We could certainly "cure" a gumma by removing it and we can certainly "cure" *a* cancer by removing it. We certainly can not cure syphilis by removing a gumma; maybe we can not cure cancer by removing *a* cancer. At any rate we haven't had much luck up to date in curing cancer by removing cancers. We certainly can prevent gummata by proper treatment of syphilis long before gummata are possible; maybe we can prevent cancers by treating cancer long before cancers are possible. It is really asking a good deal of our credulity to accept as a fact the statement that a fatal disease *begins* as an utterly abnormal and pathological *growth* of cells which are integral parts of the human organism; that cancer begins as a microscopically small biological misbehavior of a few body cells which mysteriously break away from lawful control of the organism to which they belong and of which they are a part; that this very small mutiny is never in any case subdued; that the whole organism, thus impotent, nevertheless feeds and supports the mutineers, sometimes for months while the mutineers are few in number, so that the mutiny may not die out; that the organism never succeeds in putting a cordon of new connective tissue cells about the rebels so that they shall be confined to the spot where the trouble began, as the organism often does in other kinds of local disturbances which threaten to bring disaster upon the entire organism if not thus controlled; that the organism as a whole devotes its entire energy, not to putting down the mutiny, but to giving it every possible facility to spread and ultimately to kill the organism. This is really asking a good deal.

Just to see how pessimistic would be the outlook, let us assume that cancer is a constitutional disease which begins long before a cancer is possible, and that *a* cancer is possible only because there has been a preceding serious and progressive constitutional disorder which has advanced to a certain point; that this disorder is incurable at any stage but that it may be *arrested* indefinitely at a stage before a cancer can appear and sometimes, though much less often, even after a cancer has appeared but before it has been in existence very long; that after a cancer has appeared the underlying constitutional disorder soon reaches a stage which is sooner or later necessarily fatal to the organism, though the fatal ending may be delayed somewhat by removing every possible unnecessary burden from the struggling organism. Assume that and one has a general idea of what the writer believes cancer to be. On this basis cancer and old age have a good deal in common. As a matter of fact they have a great deal in common on any view of cancer. Cancer is essentially a disease of old age exactly as is arteriosclerosis, which is not a disease at all in old age but a normal phenomenon, while in mid-life it is a disease—premature old age of the arteries. Moreover the death rates from cancer and from arteriosclerosis (apoplexy) in America run precisely parallel courses from mid-life to extreme old age. Old age may be postponed by proper measures until its physiological time; it can not be "cured."

Each disease, premature old age and cancer, is overwhelmingly a disease of modern civilized life, though each occurs to some extent among all peoples.

Assuming that cancer is a constitutional disease in the same sense that premature old age is a constitutional disease and may be controlled by the same means, it is the reverse of pessimistic to think of cancer as a constitutional disease. Moreover, that assumption fits the known cancer facts in a very satisfactory manner. Finally, no possible harm can result from acting upon that assumption even if such action has no anticancer effect; if generally acted upon in America there would certainly be fewer deaths from apoplexy in mid-life.

I venture a prophecy: When the mid-life death rates from arteriosclerosis, apoplexy, "paralysis," chronic nephritis, and organic heart disease are markedly lowered in America, the cancer death rate will simultaneously be markedly lowered—*and not before.*

The writer was honored by being invited to become a member of the American Society for the Control of Cancer. He accepted the invitation and was duly elected though he called attention to the fact that he was not in accord with some of the official pronouncements of the Society. That he was elected upon such a basis shows the good faith of the Society and its willingness to consider other opinions upon cancer than its own official opinions.

This article is presented in the same spirit of good faith. As a friend and humble ally of the Society, the writer "attacks" one of the official statements of the Society. If the statement cannot be justified, it should not be made; if it can be justified, it should be justified. In the interest of truth the writer throws all modesty aside and challenges anyone to verify that statement. It is a matter of fundamental importance in the matter of cancer control.

169 PLYMOUTH AVENUE, SOUTH.

THE MYOCARDIUM AND HEART MURMURS, WITH ILLUSTRATIVE CASE REPORTS.

BY SAMUEL E. EARP, M.S., M.D.,

INDIANAPOLIS, IND.

CLINICAL PROFESSOR OF MEDICINE, INDIANA UNIVERSITY SCHOOL OF MEDICINE.

THE ability of the heart to perform its function is largely dependent upon the myocardium, and hence any disturbance of the heart may usually be traced to this source, though it may be a functional defect of one of its parts which may be most in evidence.

The muscle, like other muscles, is excitable and contractile and it responds to mechanical, electrical, chemical, and thermal stimuli. The principal differences between cardiac and ordinary voluntary muscle, striated muscle, are: (1) The strength of the response of cardiac muscle does not vary with the strength of the stimulus. The cardiac response is "all or nothing." The smallest stimulus is either incapable of causing a contraction, or if the heart contracts, it is a maximum response. (2) Cardiac muscle possesses a long refractory period. (3) The heart is incapable of entering into a condition of tetanus. (4) Cardiac muscle has a long latent period. (5) Cardiac muscle has an inherent tendency to contract rhythmically quite apart from a nervous mechanism. (Lyle's Manual of Physiology.)

Greene speaks of the difference in structure of the cardiac and skeletal muscle fiber and of unstripped muscle, but assigns it a position intermediate between the two varieties. This, of course, calls our attention to the sounds produced by the contraction of the muscle walls of the ventricle, closure of valves, vibration, and pressure of the heart against the chest wall. This refers to the first sound, and with the second we have the closure of the pulmonic and aortic valves and the vibration.

Now, it seems to me that the fact that the coronary vessels, if the least abnormal, affect the heart very perceptibly, should imply that the valves are in a degree affected. It is accepted that the vasomotor fibers modify the rate and we do not know what changes have sometimes taken place in the blood vessels. We do not know the influence of the vasomotor nerves; but the arteries are supplied with these nerves, and nerves with a sympathetic reaction show evidence of a vascoconstriction. And again we see evidence of a decrease in force of the heart and other abnormalities by the lessened patency of the coronary vessels by disease or otherwise, which results in anemia and malnutrition. This has been demonstrated by animal experimentation in which some portion of a vessel has been ligated. It seems reasonable that these factors should give us certain heart sounds that are not necessarily organic, hence may it not be possible that chemical changes take place within the heart substance or through an influence from elsewhere by chemical action? It is as reasonable as the conclusions we draw from the injury done by toxins; yet this we know, the other may need more light. There is much that is not fully understood. It is a question as to the cause of fibrillary contraction, and what is the function of the nerves related to the bundle of His; such things will be found out by the physiologists. So we call to mind other conditions which change the heart's action; they may or may not be pathological, for instance a dilatation from adhesions or an exudate in the pericardium; it may be a product of inflammation, and the heart substance may not escape or the valve may not respond perfectly. Considering the diaphragm and pleura we realize that an abnormality of the structures may and generally does affect the heart.

It is reasonable to conclude that any pathological condition of adjacent structures, whether it be an inflammation or an undue pressure, may retard the heart's action. The vessels of the heart, independent of the changes which take place in the heart substance, may produce certain heart symptoms that may seem to indicate an organic lesion within the heart itself. It is outside influences, that is, some pathology at a remote part of the body, that often jeopardizes the condition of the heart more than a disease of the myocardium itself. Hence, we often fall into error by assigning to the valves that which belongs to other organs; and so far as the symptoms of a valve lesion are concerned, primarily it may not be the heart. We may again call to mind the pleura, diaphragm, and pericardium as factors. Our deductions may be in error unless we study the condition of the organs remote from the heart. Perhaps this is what Dr. Babcock meant when he said, "When you have a suspicion of heart disease, study the body and all its parts in your examination and the heart last."

The auriculoventricular valves are a part of the

heart substance and it is not strange that an overdistended ventricle should cause a regurgitation, no matter whether it be due to toxicity or to undue excitement, and it is not the valves that require our attention so much as the condition of the myocardium. In fact the valves sometimes stand the stress wonderfully well even when there is degeneration of the myocardium. We must bear in mind that atheroma is a very important factor in the pathology of the heart and blood vessels. Any alteration in the myocardium must necessarily cause us to consider the changes in the coronary vessels; not only in these vessels but in adjacent vessels. Moreover if these vessels are defective in any particular the nutrition of the myocardium is lowered in degree and this may be vital.

It would be of the greatest interest to consider the physiology and pathology of the blood in this relation, but the mere suggestion is all that will be done at this time.

Again I desire to call attention to atheroma because of its importance in rendering a vessel incompetent to perform its full duty. Just a word as to the cause as suggested by Wadsworth founded on his own experience. He says that the great majority of atheromatous conditions rest on some long continued digestive disorder and that hyperacidity with its secondary enteritis is responsible for a very large proportion of such conditions. Simple senile changes, such as loss of elasticity, are often added to other conditions so as to render the picture more complex. It is very evident that the myocardium suffers when the arteries which supply the organ are defective. The lesion may be hyperplastic or necrotic and may be caused by the acute infectious diseases, as scarlet fever. Its presence may not be recognized until after convalescence. Prior to this we may note a soft muscle, though we may not recognize the cause, and not infrequently there may be degeneration during a toxemia. On the other hand, it may be a sequel and arteriosclerosis may follow. The toxins are sometimes very active and may cause parenchymatous charges, such as "cloudy swelling," and it is especially here that the infections, including rheumatic fever, play an important role. With this condition of the heart muscle the valves fail to coapt, and there is a mitral murmur, which may disappear when the general disease yields to the proper treatment. Infection may have caused some loss of tone, perhaps some slight dilatation or a relaxation of the muscular structure of the myocardium. To be organic there must be hypertrophy.

It has recently been said by Cornwall (MEDICAL RECORD, Jan. 8, 1921) that auricular fibrillation suggests a severe degree of nutritional disturbance of the auricular musculature and sometimes there may be degenerative changes, but in a large proportion of cases showing an irregular heart beat there is no demonstrable organic disease of the heart and the irregularity is often due to sinus arrhythmia or premature contractions. Arrhythmia means that the function of the myocardium is at fault both in power and tone, but in children it is not necessarily a sign of organic disease. These are the cases that have been cured by physical training recently so successful.

There may be weakening of the walls of the myocardium, an increase in blood pressure, defective nutrition due to defective coronaries, a somewhat retarded pulmonary circulation—then the valves may not coapt, or there may be a soft, not a snappy closure of the valve; we may have thus a mitral murmur without valvular disease and in some cases a cardiac dilatation may occur through neglect, though it cannot always be prevented.

There may be metastatic abscess and necrotic debris in the substance of the myocardium when there will be a valvular murmur without any disease of the valve. This was shown very interestingly by Dr. Kime when he read a paper with chart illustrations at the College Seminar of the Indiana University School of Medicine. It was taken from his army experience and the result of a large number of autopsies conducted by him.

I am mindful of the bacterial invasion of the valves during the infections, including rheumatism; and there is not infrequently an inflamed endocardium with the seat of disturbance at the aortic and mitral valve, following which, if there be scar tissue, there may be the ulcerative type of heart disease.

In a toxic heart there may be some incompetency, the valves close with a velvet-like sound, perhaps transmitted to the left mid-axillary line, or there may be no valvular disease, yet a murmur; in some cases there is good compensation; in such cases treatment may produce a betterment of the disease and hence a better myocardium, and thus the murmur ceases but, if treatment is neglected, the danger-line is likely again to be present. In the order of their importance as regards prognosis and treatment the general disease comes first, the myocardium second, and the murmur third. While the disease is not organic, neglect may eventually make it so. If the disease is rheumatism we must not conclude that a murmur indicates an organic disease without hope of cure, though I confess this was the earlier teaching. I am told that during the war the majority of men pronounced all murmurs organic, the exceptions being the more recent graduates. Butler, writing in the *Journal of the A. M. A.* for December 11, 1920, said this in substance, and asserted that 90 per cent of these murmurs are not organic.

If the murmur is loud, or if there is good compensation, digitalis is not indicated. If the murmur is soft and the heart muscle weak, or there is recognized a malnutrition of the myocardium, we may use small doses of digitalis or its synergists.

In rheumatic fever it is fairly safe to conclude that if a patient is properly treated for ten days and at the end of this time there is no murmur, we have little reason to expect one later.

We do know that at the onset a patient with rheumatism may have a mitral murmur and that it is possible for it to cease under treatment and not appear again; if treatment is stopped too early it may reappear and when treatment is resumed it may again be relieved; but this chance would have been better if treatment had been continued. This is a victory for therapy. To illustrate I will cite two cases observed with me by Doctors L. F. Reifeis and H. M. Kauffman and two sections of the senior class of the Indiana University School of Medicine at my clinic at the Indianapolis City Hospital.

CASE I.—The patient, a colored girl, aged 18, was admitted to the hospital February 6, 1921, with the complaint of an intensely swollen and acutely inflamed left ankle joint giving much pain.

Family History.—Father is living at age of 49 in good health. Mother died at age of 43 from an acute illness. Four brothers and two sisters living and in good health. No brothers or sisters dead. No history of cancer, tuberculosis, heart disease, or nervous diseases in family.

Past Personal History.—Had smallpox at age of 10 and pneumonia at age of 14 with uneventful recoveries. She does not remember having the usual childhood diseases. Began having attacks of tonsillitis at the age of 10 and these continued each winter until she had a tonsillectomy 3 years ago. No sore throat since the operation and no other sickness. No history of any focal infections, including sinus, teeth, gallbladder, appendix, or tubes. Bowels have always been regular. No history of cough or pains in the chest. Pelvic organs negative.

Present Sickness.—Present condition began gradually a month before entering the hospital. The left shoulder gradually became painful and swollen. Three days later the left knee became swollen and tender upon pressure and painful during movement. About one week later the left ankle became swollen and very painful. The shoulder and knee condition lasted about a week and then improved under treatment of an outside physician. The ankle increased in swelling, was tender and painful and this caused her to come to the hospital. Two days later she had a chill. No history of "rheumatic sweats."

Physical Examination.—On admittance to the hospital the left ankle was intensely swollen, red, tender, and very painful. Temperature 100.6°, pulse 100, and respiration 22. Eyes, ears, nose, teeth, and throat negative. No sinus tenderness. Lungs apparently normal unless slight evidence of congestion in location where there was an accentuated pulmonic sound. There was a soft systolic murmur at the mitral area. Heart seemed to lack strength and force, needed support of medication, otherwise so far as could be determined, was normal. Abdomen negative.

Treatment.—Tincture of digitalis ℥x, t.i.d. for a period of five weeks. Ammonium salicylate grs. xx, with the same amount of bicarbonate of sodium, every 3 hours. Methyl salicylate and chloroform liniment were applied to the ankle incased in dry cotton dressing under bandage. An increased quantity of fluids and a soft diet were ordered. Bowels kept open by enemata, calomel, and Dorsey's magnesia solution. Under this treatment the heart became stronger, and the murmur disappeared, but the join swelling and tenderness decreased very gradually.

CASE II.—A. M., female, age 14, came to hospital February 3, 1921. Complained of swelling and pain in knees and ankle joints, pain in right side, and fever.

Family History.—No importance. Indefinite.

Past Personal History. — Pneumonia, tonsillitis, measles, scarlet fever, bronchitis, and typhoid fever.

Present Sickness.—Pain and swelling in both knees and ankles, a pain in right side near midaxillary line. Profuse epistaxis, probably vicarious menstruation.

Physical Examination.—Pain in the intercostal muscles on the right side. Condition of extremities as described. Sorethroat, headache, abdominal pain, probably visceral rheumatism. Profuse epistaxis. Diaphoresis. Tongue coated. Teeth good. Temperature 102.4°, respiration 26, pulse 124. Laboratory findings unimportant. There was a pronounced mitral murmur which was transmitted to the midaxillary line on the left.

Treatment.—Bowels kept open by Dorsey's magnesia solution and calomel. She was given at the outset ammonium salicylate and sodium bicarbonate, each 40 grains, ammonium bromide, 20 grains, tincture of opium 15 minims, and starch water 3 ounces, by the rectum. For regular treatment she was given ammonium salicylate and ammonium bromide, of each 15 grains per orem every 4 hours. The joints were rubbed with oil of wintergreen and vaseline. For gas pains she received 15 minims of Hoffman's anodyne each 3 hours when needed. Argyrol 10 per cent. was applied in the nose twice a day. For pain in the side and abdomen benzyl benzoate 10 minims every 3 hours, later increased to 30 minims. On account of emesis February 24, the sodium salicylate was given every 4 hours and the ammonium was stopped. There was no evidence of any disease of the heart and the mitral murmur disappeared.

On March 11 the sodium salicylate was stopped because of vomiting. March 13 the mitral murmur reappeared and all the symptoms were worse. Sodium salicylate, 15 grains was given each 4 hours and 5 grains acetyl-salicylic acid each 4 hours. On March 16, there were less swelling and pain, no murmur and none since. March 19, no swelling but some soreness. Temperature 100°, pulse and respiration normal.

By actual demonstration it is evident that toxic conditions from any source, certain conditions of the nervous system, imperfect mechanism of the blood supply, pathological or otherwise, acidosis, the acute infectious diseases, including rheumatism, or an infection at a remote part of the body, may produce a condition of the myocardium which is often characterized by murmurs when there is no organic lesion of the valve, and which very frequently will respond to treatment. It is perhaps too much to suggest the possibility of the effect of uric acid. However, one might bear in mind, whether it is reasonable or not, that uric acid is deposited in localities which have the same composition as the valves of the heart and in the form of urate of sodium and the thought occurs whether or not this may produce a defective valve and that relief may be had as in the treatment conditions due to the effect of uric acid that occur elsewhere.

634 OCCIDENTAL BUILDING.

THE ROLE OF THE PROSTATE IN FOCAL INFECTIONS.

BY P. S. PELOUZE, M.D.,

PHILADELPHIA, PA.

FROM THE DEPARTMENT OF UROLOGY, UNIVERSITY OF PENNSYLVANIA.

THE importance of focal infections as the cause of remote disease processes has occupied so much attention, and their eradication has produced such remarkable results, that it is not surprising that the pendulum should swing too far in one direction. All are agreed that thousands of perfectly good teeth have been uselessly sacrificed, and it is obvious that a saner view is being held to-day. The widespread knowledge of the results following the extraction of abscessed teeth in many cases has so centered attention upon dental infections as to have thrown into the shadow the possibility of other locations of a nidus of infection. The recognition of the prostate as a causal focus is in no sense new, and much has been written upon the matter by a few internists and fewer urologists. However, the knowledge is by no means general, and the important points will bear repetition many times. The frequency of such toxic changes being started by a prostatic focus or kept up by one after tooth extractions or tonsillectomies is probably far greater than is at present realized, and is not surprising when one considers that probably 35 per cent. of all men have a chronic prostatitis.

The recognition of such infections does not of necessity belong alone to the specialist, and the technique of their study could be quickly acquired

by anyone having a fair knowledge of microscopy. While the more complete study of the prostate and its secretion consumes considerable time, the most important question, the presence of pus, can be answered in a very few minutes.

Etiology of Prostatitis.—There is a decided impression in the minds of many physicians that prostatitis is essentially a post-gonorrheal condition and does not exist if there has been no antecedent gonorrhea. Nothing could be more erroneous than this, and it should be borne in mind that this organ offers little, if any, more resistance to other infections than do other structures containing such an extent of mucous surface. It is true that the greater number are post-gonorrheal in the sense that the gonococcus, having been once present, has died out and the inflammatory condition has been perpetuated by secondary bacterial invaders upon a previously prepared mucosa. It must also be remembered that, while true gonorrheal prostatitis in the vast majority of cases seems to be a self-limited disease, there are those patients in whom the gonococcus remains, in the absence of proper treatment, for months or years. Though the gonococcus may have died out, the prostate almost invariably continues to harbor an infection of some type, which infection rarely, if ever, spontaneously disappears.

A small number of cases of prostatitis with no gonorrheal history give no antecedent history that seems to enter into the etiology of the prostatic infection. By far the greater number have either had one of the infectious diseases, such as pneumonia, typhoid, or influenza. A great many have had one or more attacks of tonsillitis or some definite dental infection to which the prostatic infection seems secondary.

Diagnosis.—Considering the simplicity of the study of prostatic infections, the clinician is certainly not justified in advising the extraction of doubtful teeth in men until such a study has been made. The same dictum might also be applied to the removal of tonsils in older persons or those of questionable operability from any cause.

The idea that one can by prostatic palpation alone pronounce a prostate free from disease is wrong and has been the cause of overlooking many badly infected prostates. It is certainly never possible by such a procedure to give the prostate a "clear bill of health." The microscope must always be resorted to for the answer.

Under proper precaution the prostatic secretion is very easily obtained for microscopic study without injury to the patient. Certain things must be kept in mind, however, not the least of which is that roughness is about the poorest treatment in the world for diseased tissues, and in these structures is a common cause of abscess formation. The acutely inflamed prostate should never be massaged. The usual causes of the inability to obtain prostatic secretion for study are faulty massage and ignorance of the structure and function of the parts.

Our effort is aimed at pressing secretion from the prostatic acini into the posterior urethra and thence into the anterior urethra. One only has to bear in mind that the posterior urethra is a tube closed at its proximal end by a very weak sphincter (the vesical sphincter) and at its distal end by a strong sphincter (the "cut-off" muscle), and that improper pressure upon the urethra causes its contents to escape in the direction of least resistance, viz., into the bladder. Therefore, it is obviously best to make several strokes along the lateral prostatic lobes parallel to the course of the urethra and, finally, passing the finger well up over the prostate in the midline, to bring it down with a moderate amount of pressure until it reaches the distal end of the prostatic urethra. This, as will be seen, tends to close off the vesical sphincter and forces the fluid through the distal sphincter into the anterior urethra, and by slight pressure upon the bulbar portion it is forced from the meatus urinarius. Carried out in this way, the danger of forcing pus into the seminal vesicles and thence into the epididymi is avoided, as the midline stroking is in the direction of the flow of the ejaculatory ducts and closes them to the urethral contents. By previous sterilization of the glans the expressed secretion can here be collected for culture.

The usual procedure is to place some of the fresh fluid upon a microscopic slide for study. This study includes the search of the fresh specimen for leukocytes and the stained spread for bacteria.

The fresh secretion of the normal prostate shows from two to six leukocytes to the 1/6-inch field, that of the abnormal exhibits almost any number above this with a corresponding diminution of normal elements.

Bacteriology.—The demonstration of the gonococcus in the secretion of the chronically inflamed prostate is of very rare occurrence unless there has been a recent exacerbation of the disease. It, however, happens at times that when one is unable to find the gonococcus in the secretion the patient will return within forty-eight hours with a positively gonorrheal anterior discharge, showing that the urethra found what the microscope failed to reveal. In view of this possibility it is best always to warn the patient that he may have a discharge within the next two days before carrying out a diagnostic prostatic massage. Such recrudescences generally subside very promptly, but are prone to recur from time to time during one's course of treatment. They are a very fortunate find, as they reveal a dormant gonorrheal focus; the most common cause of the perpetuation of gonorrhea.

The bacteria most often found are the staphyloccus, pneumococcus, diphtheroid (the Hoffman type), colon bacillus, and the streptococcus. The streptococcus seems to be rarely present as a post-gonorrheal secondary invader, but to be more common after tonsillar and dental infections. Though a smaller percentage show the streptococcus, a larger proportion of those that do seem to have distant evidences of toxic absorption.

By far the greater number of prostatic secretions show a preponderance of staphylococci. My studies lead me to believe that pure colon bacillus infections are of rare occurrence.

A Common Clinical Observation of Diagnostic Importance.—In many patients suffering from

toxic absorption from a focus of infection in the prostate there occurs a great increase in the symptoms within twelve hours following a prostatic massage. Particularly is this true of the arthritides in which are at times produced extreme pain and a rise in temperature, analogous to a vaccine reaction. This, however, rarely lasts more than twelve to twenty-four hours, after which there is a marked improvement for several days over the condition prior to the massage. After subsequent treatments these patients experience less and less discomfort and even this disappears entirely as they improve.

The treatment of these patients is properly performed massage at intervals of three to four days until the prostatic secretion is almost or entirely pus-free. The addition of an autogenous vaccine is a valuable adjunct to the treatment and at times brings about remarkable results.

It is not uncommon to find that these prostatic cases, from the standpoints of local symptoms and the amount of pus in the secretion, reach a stationary stage beyond which they do not improve under treatment. Cysto-urethroscopy in many of such cases, particularly if there be any burning in the urethra during micturition, will reveal the lymphocystic bodies that I have described as due to tuberculosis elsewhere in the body. (*Journal of Urology*, Vol. 1, No. 4.) If these are found, a careful study should be made for a mildly active tuberculous focus. Whether this is found or not, the patient should be placed upon a more or less rigid antituberculous régime during which no prostatic massage should be carried out. If the general physical condition improves these urethral lesions will spontaneously disappear in from three months to a year, after which it is perfectly safe to massage the prostate.

In cases where these lymphocystic lesions are not found a period of rest from massage of several months will often lead to a markedly improved local condition, and it is then often possible to clear up the residual inflammation by a short course of massage.

As this is not intended for a discourse upon the effects of toxic absorption, but merely to call attention to the frequency with which the prostate contains the causal focus, I shall give briefly the salient points of a few histories.

So far I have not been able to find what the otologists recognize as a toxic deafness due to a prostatic infection, but see no reason why it could not produce such a condition if an abscessed tooth can, as is stated. Toxic iritis from prostatic infection is apparently not rare, and several such cases have come under my attention in my dispensary service at the University Hospital. Nervous and arthritic symptoms are, of course, the most common.

Case I.—A. R., age 41 years. This patient had never had any venereal diseases though he had been treated by me for a prostatic congestion in 1917. In the first part of 1920 he was incapacitated for eleven weeks by a multiple arthritis which subsided after the extraction of seven teeth. In September, 1920, he consulted me, stating that since his arthritis he had had a "neuritis" over his lower costal region characterized by a severe pain coming on about four in the morning and causing him to arise. For a longer period he had had a constant pain in his upper lumbar region.

Prostatic study showed that structure to be large, boggy, and tender and its secretion to contain about 20 per cent. of pus. Prostatic massage was instituted and for a few weeks each seance was followed by generalized joint pains and stiffness lasting several days at first and gradually becoming less until they disappeared altogether. After two weeks of such treatment the costal pains disappeared entirely, and the backache was entirely gone after the sixth week. The patient stated that he felt better than he had for twelve years.

Case II.—G. D., age 28 years. He had had an attack of gonorrhea in 1917 which had been pronounced cured. He first consulted me in November, 1919, for a morning urethral discharge and an arthritis of both knees and both ankles. An *x*-ray of his teeth revealed no abscesses. His prostatic secretion was 75 per cent. pus, and massage twice a week was started. Within a half hour of his massage his joint pains would become greater for the following twenty-four hours, but for the two or three days thereafter he would feel greatly improved. By the end of five weeks of such treatment his pains had entirely disappeared. Shortly after this he went to another physician who entertained him with urethral packings of gauze, sounds, the endoscope, and almost everything that was small enough to get into the urethra. Five months after he left me his pains returned, but he allowed the physician a full year to fulfill his promise of a cure in six weeks. He then discovered a slight despondency and visited me for some sympathy and cheer.

Upon his return he had some swelling and much pain and stiffness in his knees and ankles. This was greatly increased for twenty-four hours after his first prostatic massage, but all pain and stiffness disappeared after his third treatment.

Case III.—R. E., age 45 years. This patient had had gonorrhea at eighteen years and I had treated him for a short time in 1917 for a chronic follicular prostatitis. Early in 1920 he developed an annoying pain in the left arm and shoulder for which his physician had given oral and local treatments for almost a year. He then consulted Dr. Weisenberg, who made a diagnosis of toxice neuritis and referred him back to me for a prostatic study. The arm at this time was acutely painful and he was unable to raise it above his head. The prostate was large and tender and its secretion was practically pure pus. Following his first few treatments he experienced an acute exacerbation of pain lasting about twenty-four hours. At the end of three weeks all pain had entirely disappeared and has not returned, though he still has a large percentage of pus cells in his prostatic secretion.

Case IV.—B. A. N., age 52 years. This man had had recurring attacks of pain and swelling of his knees and ankles during the preceding four years. He denied venereal disease and his teeth and tonsils were negative, as was also his gonococcus fixation test. His prostate was enlarged and its secretion contained much pus. On the night of the day of his study he had two chills and his temperature went from normal to 104°, returning to normal on the following day. His pain and swelling subsided, but an *x*-ray of the knee showed a chronic hypertrophic articular change which probably accounted for his lingering joint stiffness.

Case V.—C. F. C., age 50 years. **This gentleman** developed a multiple arthritis in July, 1919. His pain and disability were such that he was totally incapacitated when I first saw him in December of the same year. The *x*-ray had revealed three abscessed teeth which had been removed without benefit. He was bedridden with greatly swollen, painful knees and ankles and his calf and leg muscles were markedly wasted. His prostate was broad, soft, and flat and its secretion was almost pure pus. Following his first few prostatic massages there was such a great increase in his pains that opiates were necessary. These reactions quickly decreased and after three weeks he was removed to his home free of his constant pain and experiencing only occasional attacks which entirely stopped within six weeks. The joint swelling rather quickly disappeared, though it took some months to regain his

strength and agility. He now weighs thirty pounds more than when he left the hospital, and states he is perfectly well.

CASE VI.—J. H., age 27 years. He had had gonorrhea complicated by a gonorrheal anthritis in November, 1916, which lasted about five months. He then had no difficulty until July, 1919, when his right knee and both ankles became painful and swollen. A short time after this he developed a frequent sharp pain over the lower anterior part of the chest when he breathed deeply. This latter was worse at night. When I first saw him, Feb. 7, 1921, he had lost thirty-five pounds and stated that he had not had a full night's sleep for a year and a half. The right knee and both ankles were swollen, painful, and tender, and both plantar arches were broken down. An *x*-ray of his teeth was negative for dental abscesses. The prostate was small, not tender, and its secretion showed about 75 per cent. of pus. There was a marked increase of his symptoms following the first few treatments, but these soon disappeared. His statement on Feb. 21, 1921, was that his pain was entirely gone and that he was able to sleep all night.

1831 CHESTNUT STREET.

WRITER'S CRAMP: ITS CAUSE AND CURE.

BY W. H. BATES, M.D.,

NEW YORK.

WRITER'S cramp is one of a considerable group of so-called occupational neuroses occurring with more or less frequency among persons whose living depends upon their ability to use their hands rapidly and continuously for many hours a day, such as writers, telegraphers, pianists, violinists, seamstresses, etc. It may affect only one or two muscles, or it may involve the entire hand, or the entire arm and shoulder. The chief symptom is inability to use the hand, or difficulty in using it, for writing or other occupational purposes. Writer's cramp, being the most common of these maladies, is usually treated as representative of the group.

There has been much discussion about the nature of this disease, but it cannot be said that much light has thereby been thrown upon it. About the symptoms the most astonishingly contradictory statements are made, and upon these contradictory observations contradictory theories as to the pathology of the condition are based.

Text-books often state without qualification that the difficulty in using the muscles is confined to the occupational act. Yet it is well known that there are many exceptions to this rule, and most writers state that in the advanced stages of the disease other actions may be affected, or that the occupational cramp may be complicated with other conditions which lead to difficulty in the performance of all finely coördinated actions. A few have reported that the trouble is never confined to the occupational act.

This last was the experience of Poore.[1] "The writer's cramp of the text-books, in which failure of writing power is the sole symptom, I have never seen," he writes, and adds, very significantly: "The conclusion that the patient can do everything but write is often drawn rather hastily from the fact, for example, that he can cut his dinner or play the piano without difficulty. A little consideration will show how widely these acts differ from writing. A dinner-knife is held by flexing the ring and little fingers into the palm, and the first dorsal interosseous if used at all is only called upon for a momentary contraction when the food is being cut. Again, the positions of the hand in writing and piano-playing are quite different. The strain in piano-playing falls upon the extensors of the wrists and fingers and the flexors of the elbows, and it is evident that the momentary contraction necessary for striking the key could be effected by a muscle which might not be able to steady a pen. A patient will often assert that he has no trouble except with writing, because any other trouble he may have is insignificant in the annoyance which it causes him. . . . . There is usually no difficulty in discovering some muscular movement other than writing which is impaired."

In a carefully tabulated report of seventy-five cases involving loss of writing power Poore notes loss of function for other acts in sixty, there being no record in the other fifteen. In one case, the patient, after having at first denied having any trouble except in writing, admitted that in holding a teaspoon his forefinger slipped up the handle, and that he experienced great difficulty in pinning together the two halves of a bank-note. Another had difficulty in moving the regulator of his watch with a penknife. A third could not hold a coin between his thumb and forefinger without a sense of great effort.

Similar observations were made by Ross[2] and Paul.[3] The former says that "in those who suffer from writer's cramp the movements requisite for sewing, pianoforte playing, embroidery, buttoning up the clothes, and all actions requiring delicate manipulation are also impaired." The latter reported to the American Neurological Association in 1911 ten cases of occupational cramp in every one of which the difficulty extended to acts other than those demanded by the occupation.

The idea that the trouble is confined to the occupational act is the foundation of what is known as the central pathology. Duchenne of Boulogne,[4] who was the first to present a comprehensive description of the condition and to attempt an explanation, believed that the difficulty was confined to the occupational act, and noting also that the disease was likely to occur in the left hand after the patient had learned to write with it for the purpose of sparing the right, he argued that the disturbance must result from a morbid state of the brain centers which control the coördination of the muscles used in writing.

This view still prevails, and has been embodied in the name given to these conditions, namely, *occupational neuroses*. "There can be no doubt," says Dana,[5] "that the lesion in typical cases is central and involves the higher reflex centers and indirect motor and sensory paths." Oppenheim[6] postulates "a disturbance of the innervation of the muscles, which occurs only in complicated movements which are acquired by practice, the muscles responding to the will in every other action." Starr[7] regards the condition as a manifestation of a localized neurasthenia. "Any finely coördinated act," he says, "requires the orderly and adjusted contraction of a series of muscles in proper sequence, and this is secured by impulses sent out from the educated set of interrelated nerve centers. If the act is repeated too often, fatigue results. If, in spite of the fatigue, the act is continued, stru-

tural changes in the mechanism underlying it may be caused. These changes may be in the cortical centers of direction; in the subcortical tracts of transmission, *i.e.* the motor tracts, the spinal neurons, or the nerves; or in the muscles. One or all give out under the excessive use." "In writer's cramp," says Stewart,[7] "the patient can use his hand normally for piano-playing or for grasping and using a heavy tool. This is because the weakness is not due to muscular, but to cerebral fatigue."

The smaller number of writers who believe that the trouble is not confined to the occupational act agree in holding to the peripheral pathology. Paul[3] argues for a probable peripheral pathology produced by trauma of peripheral nerve structures, and maintains further that occupation neurosis and occupation neuritis, so-called, are essentially the same in origin, but exhibitions of different degrees of trauma suffered at different loci. Poore[4] says: "I have never seen a case without evidence of a peripheral change, and in the great majority of cases there was no reliable evidence of any pathological change except at the periphera." Beard[9] advanced what he called a compromise view. "This disease," he says, "is primarily a peripheral and local disease of the nerves and muscles; secondarily and rarely it becomes central and general, or it may result from various central lesions; and it may affect any point between the extreme periphery and the center. The theory that writer's cramp is a result of lesion or disturbance of special coördinating centers in the brain is not sustained by a single properly understood fact; on every point it fails to account for and harmonize the phenomena."

In spite of these divergent views about the symptoms and pathology of the disease, all writers agree that the exciting cause is the excessive use of the hand in the occupational activity; but, because this factor is manifestly inadequate to account for it, much importance has been attached to secondary causes. Duchenne laid stress on the importance of mental factors, and this view is now widely held, as it affords a convenient method of accounting for much that would otherwise be unaccountable. Meige[10] puts mental factors in the foreground, holding that in many cases the motor trouble appears very distinctly as a consequence of the mental trouble. He believes that the condition is essentially allied to the tics. Jelliffe[11] says: "Psychoanalysis is of great service for the strictly psychogenic cases, and a great many are such."

There is also a substantial agreement as to the value of rest in the treatment of the condition. "Abstinence from writing, in the writer's cramp form, is the first requisite," says Jelliffe[11]. According to Oppenheim[6] the quickest remedy is "absolute avoidance of the act which brings on the spasm." Starr[7] considers the prognosis good for recovery, "provided a sufficient period of rest can be enforced. This rest must, however, be absolute rest of the function affected," he says. "If it is writer's cramp, the pen or pencil should not be touched or the fingers placed in the writing position for two years." Even writing with the left hand he considers inadvisable, owing to the liability of the disease to develop in that hand after it has appeared in the right. "The wisest counsel one can give," says Meige[10], "is the complete cessation of writing with the hand affected by the cramp." And so one might go on indefinitely.

My own experience with occupational cramps has convinced me that none of the writers whose works are available to me has understood the cause of these troubles. My practice as an ophthalmologist has brought me into contact with a number of persons who were suffering from occupational cramps, and in trying to help one of them, after the neurologist to whom I had sent him had failed, I discovered a remedy so simple that I hesitated to publish it, fearing that my colleagues, as on numerous other occasions, would not believe me. Yet, knowing how general these conditions are, and how disastrously they affect those who suffer from them, I now feel it my duty to do so.

CASE I.—About thirty years ago a court stenographer consulted me about his eyes. He was wearing glasses for myopia, and these, while somewhat helpful, were far from being satisfactory. He became able to see perfectly without his glasses, and was very grateful. A few years later he returned, very much excited and unhappy because he was suffering from writer's cramp and feared that he might be obliged to give up his work.

The trouble was not confined to the writing act, but affected the use of his hand for every purpose. He handled his knife and fork awkwardly, and even shaking hands was a painful ceremony. He had consulted a number of physicians and taken all kinds of treatment, such as electricity, massage, baths, and internal medication, but had obtained no material benefit, and he had now been told that the only thing for him to do was to stop work. He asked me to recommend a nerve specialist, and I sent him to a man who at that time was regarded as the highest authority on diseases of the nervous system in the city. This doctor confirmed the diagnosis of his colleague and prescribed the same remedy, namely, absolute rest until the condition was cured.

The patient returned to me very much discouraged and also much puzzled. He did not understand why he should be told to rest when he worked only ninety days a year and a very few hours at that, while during his long vacations the hand was worse than when he was working. Furthermore, it was always worse in the morning than after he had been at work for a while, and he sometimes had more trouble in the left hand than in the right, though he never tried to write with the former. He had told these things, he said, to the eminent neurologist, but the latter did not seem to attach any importance to them. To me the facts seemed highly significant, and I concluded that the man either did not have writer's cramp or that writer's cramp was not what the books said it was.

"Let us get more facts," I said. "We know what you do with your hands in the daytime. Perhaps it would be a good plan to find out what you do with them in the night."

So he had his wife watch him at night, with the result that he came back a little later and told me that he was cured. It appeared that he had been sleeping with his hands under his head. When this was discovered he tied his hands down at night, but so strong was the inclination to put them under his head that at first he tore them free in his sleep. His wife continued to keep watch over him, however, and saw that pressure on his hands and arms was prevented. Immediately relief followed, and in a week the cure was complete.

Thus it became clear why the cramp had been so much worse in the morning than after the hand had been in use for a time, why the left hand had been affected as well as the right, and why the condition had been worse during vacation than when the patient was working, for in the summer he had spent many daylight hours in the hammock with his hands under his head.

The patient was not only very happy over his cure, but very indignant with the eminent neurologist who had told him that the only remedy lay in giving up his work. He wanted to sue him for damages and show him up in the courts, and it was only by telling him that the object of his animosity had treated thousands of poor people in hospitals and clinics without pay that I was able to persuade him to let the matter drop. The cure was permanent as long as the cause was avoided, and whenever symptoms of a relapse were noticed, prompt relief was obtained by measures which prevented any pressure upon the hands during sleep.

CASE II.—Another case of occupational cramp that came to my attention was that of a telegrapher. She suffered from fatigue and severe pain in her right hand and arm, accompanied at times by inability to do her work, and at such times she had difficulty, not only in manipulating the keys of her instrument, but in using her pen. After rest at night the trouble did not seem to be relieved, but after a few hours' work she was always better. She found that she was sleeping with her right hand under her cheek, and when this habit was corrected the cramp immediately disappeared.

CASE III.—A third case was that of a violinist who was having trouble not only with his eyes but also with his hands. His symptoms were extremely variable. At times he would be all right. At other times he could not play at all. The fatigue varied within wide limits. The pain was also variable both in intensity and location. Sometimes it would be felt only in the fingers, sometimes it would be in one arm and sometimes in the other. Although the fingers of the left hand, which manipulated the strings, were subject to more strain than the bowing or right hand, the pain was sometimes more severe in the right hand than in the left. I suggested to him that his trouble was probably due to his posture in sleep, but he treated the idea as ridiculous, being convinced that he always slept with his arms lying straight by his side and never bent them or put them under his head. I suggested to his wife that she watch him at night, as the wife of the patient previously mentioned had done, and she found him sleeping, first with both hands under his head, and later with his face resting on his hand. He refused to believe this when told, but was convinced when wakened in one of these postures. The same precautions were taken as in CASE I and the cramp quickly disappeared.

I have never known a case of occupational cramp that did not yield to this simple treatment, and in addition to those I have cured myself, many others have been cured by cured patients. The court stenographer told me that he had cured fifty cases, and that many of these patients had cured others."

REFERENCES.

1. Poore, George Vivian: Trans. London. Med. Chir. Soc., 1878, vol. lxi.
2. Ross, James: Handbook of the Diseases of the Nervous System, 1885. p. 309.
3. Paul, W. E.: *Jour. Ner. and Men. Dis.*, Aug. 1911.
4. Duchenne, G. B. A.: L'électrisation localisée, second edition, 1861, p. 298.
5. Dana, Chas. L.: Text-book of Nervous Diseases, ninth edition, 1920, p. 584.
6. Oppenheim, H.: Text-book of Nervous Diseases, authorized translation by Bruce, 1911, p. 1268, et. seq.
7. Starr, M. Allen: Organic and Functional Nervous Diseases, fourth edition, 1913, p. 859, et. seq.
8. Stewart, Sir James Purves: The Diagnosis of Nervous Diseases, fifth edition, 1920, p. 249.
9. Beard, George M.: MEDICAL RECORD, March 15, 1879.
10. Meige, Henry: Bouchardt et Brissaud's Traité de médicine, second edition, 1905, vol. x, p. 345.
11. Jelliffe, Smith Ely: Modern Medicine, edited by Osler and McCrae, second edition, 1915, vol. v, p. 748.

40 EAST FORTY-FIRST STREET.

A SUGGESTION FOR THE TREATMENT OF PELLAGRA.

BY J. W. McCREADY, M.D.,
NEW YORK.

THE successful treatment of gastrointestinal diseases by the use of the chlorine compound, chlorazene, leads me to believe that this drug may be of service in the treatment of pellagra, since it is a disease of "maize" or other poisoning. As chlorazene is not in general use as an internal remedy, I will give a brief history of this chlorine compound.

Chlorazene or para sodium toluene-sulphonchloramide[1] was first made by Chattaway.[2] It was introduced by Dakin[3] as a surgical disinfectant. It is a white crystalline powder with a chlorine-like odor. It was used with great success during the European war in badly infected wounds, irrigation of the bladder and other internal cavities, but I think it is of even more value as an internal remedy. It is decomposed by the secretions of the stomach. This makes its necessary to protect it from the action of the gastric juice while it passes through the stomach. The duodenal juice, rich in bile and pancreatin, decomposes chlorazene slowly, and this liberation of a small quantity of free chlorine causes a prolonged oxidizing action.[4] We know that since the days of Bouchard we have been compelled to utilize feebly soluble disinfectants as intestinal antiseptics, in order that their action may be prolonged during the time necessary for this dissolution; but it is not easy to engage chlorazene in insoluble combination capable of fulfilling this purpose. During my first experiments three years ago, I tried many combinations, both in solution and powder; some appeared to be compatible, but more were incompatible; until at last I decided upon willow charcoal whose power of absorbing various substances is well known. A powder of chlorazene and willow charcoal is inodorous and remains so even after exposure to the air and light for a long time.

In the presence of gastric and duodenal juice, decomposition, with liberation of small amounts of chlorine, does not occur until after two hours. This decomposition continues for twenty-four hours.[5] It was by accident rather than by experiment three years ago that I first used this drug internally, but with such good results that I have ever since used it and I have employed it with charcoal in hundreds of cases as an internal remedy without any ill effects. When given in capsule it may produce a slight burning sensation, but ordinarily patients suffering from gastric or intestinal disorders experience no trouble after the administration of several consecutive doses. Thus, then we may, without fear, prescribe chlorazene in capsules, even for the patient having a sensitive digestive tract. But I would not advise its use in powder form, as it is rather a hot dose to swallow, even with a glass of water, but it can be taken that way if the patient cannot swallow a capsule. My first patient to take the medicine in powder form told me that he was obliged to take as much water as a chaser to get the powder down, as he did with a drink of the poor whisky they are selling to-day; another patient told me she took the powder without any inconvenience in a spoonful of jam, but I would advise the chlorazene and charcoal in capsules or cachets.

I have prescribed it with success in gastric and intestinal diseases, whether acute or chronic. In summer diarrhea and dysentery it promptly disinfects, deordorizes, and diminishes the number of stools. The drug is indicated in ptomaine poisoning and autoinfection; and I have found it to give relief during any such diseases.

The dose is from 1 5 to 3 grains. One third grain with charcoal 10 grains in capsule is a large enough dose in the average case, and should be given not more frequently than every three hours. In gastrointestinal indigestion one capsule after each meal is enough. I am firmly convinced that chlorazene will destroy germs in the intestinal tract, whether there by diarrhea or constipation. When influenza is complicated with intestinal indigestion the drug is indicated and acts well.

Fresh air treatment is another factor which must play an important part in any disease, but I have found that patients will sometimes die of oxygen starvation even in the open, if not given a richer mixture of oxygen than they can get from the air. The air we breathe is at best but one-fifth oxygen and if a patient is very weak from any disease his supply is diminished in proportion to his weakness. There is a respiration beyond the lungs, in fact, the entire body is a respiratory apparatus, and all of the tissues and organs of the body are constantly reaching for oxygen, and if the lungs cannot supply the required amount the tissues of the body begin to grow weak from oxygen insufficiency and at last die from oxygen starvation.

For the past twenty years I have always used oxygen in any disease where there is weakness and depression. As a cardiac tonic there is nothing better (Sir Douglas Powell[5]). The direct effect of its inhalation on the heart is to send more richly oxygenated blood to the left cavities and muscular walls. Oxygen should be used *early* in any disease and not as a measure of last resort. In my opinion oxygen is the most valuable therapeutic agent in medicine. No chemical element enters so extensively into vital processes as oxygen. Its inhalation acts by supplying a deficient necessity of life.

I have had no personal experience in the treatment of pellagra, but from what I have studied of the disease, it appears to be one of the gastrointestinal tract with diarrhea as one of the most important and distressing symptoms.

"Pellagra is the result of chronic poisoning from consumption of spoiled maize, the corn itself containing within itself some toxic principle. So far as I have been able to observe from a considerable experience no drug may be said to exert any decided influence over maize poisoning" (Harris[6]). There is a difference of opinion, however, as to the origin of the disease.

But I know of a certainty that oxygen if given liberally will be of marked value in pellagra or in any other disease where the vital forces are interfered with. As to chlorazene, I can only hope.

My successful treatment of gastrointestinal diseases with this chlorine compound leads me to believe it will be useful also in pellagra.

It is my sincere hope that some of my Southern brethren of the profession will take an active interest in the use of chlorazene and oxygen in pellagra for the relief of suffering humanity.

REFERENCES.

1. U. S. Dispensatory, 20th Edition.
2. Transactions of the Chemical Society, 1905.
3. British Medical Journal, August 25, 1915.
4. Carnot et Bondouey: *Paris Médical*, December, 1918.
5. Powell, Sir Douglas: *British Medical Journal*, November 9, 1895.
6. Harris, W. F.: Hare's Modern Treatment, Vol. 2.

214 West Ninety-second Street.

ACUTE FOLLICULAR TONSILLITIS.

By WALTER W. GRIFFIN, M.D.,

New York.

Assistant Surgeon to the Manhattan Nose and Throat Hospital

The prevalence of acute follicular tonsillitis and its more serious joint and heart complications render its proper treatment very important. But in order to treat this condition it is necessary to understand the exact pathology that takes place during its progress. For this reason the course of the disease should be divided into three stages, (1) Preeruptive, (2) Eruptive, and (3) Convalescent or Contractile.

1. *Pre-eruptive Stage.*—In this stage the germs of infection have gained access to the tonsillar crypts and in their growth have produced toxins and pus causing the tonsil to become inflamed and swollen, but as yet showing no signs of tonsillar spots. However, as the disease progresses, if the tonsils are carefully observed, it will be seen that at the location of the crypts the tonsil is rough and studded very much like the surface of a golf ball. During this stage there has been no drainage from the tonsil and therefore there is the greatest amount of internal absorption of toxins and this is manifested by the severe constitutional symptoms, high fever, malaise, headache, muscular pains, and profound mental depression.

This stage then passes into

2. *Eruptive Stage.*—This is the turning point of the disease. The tonsillar follicles rupture and expel their contents into the mouth, giving the tonsil the typical white-spotted follicular appearance. In this stage if light pressure is made on the body of the tonsil the crypts will exude pus. At this point the toxins are now being discharge from the tonsils and therefore the constitutional symptoms begin to abate; the temperature drops, the malaise and muscular pains lessen, and the patient is decidedly more cheerful.

3. *Contractile Stage.*—After the tonsillar crypts have discharged their purulent contents the contractile stage begins; the tonsillar swelling subsides and the tonsil contracts down to its normal size.

The treatment of acute follicular tonsillitis then should depend on its particular stage when seen.

1. Understanding that the internal absorption is greatest in the pre-eruptive stage and that the tonsillar crypts have not ruptured, our policy should be to (*a*) increase the elimination of toxins and (*b*) promote the early rupture of the follicles.

To accomplish the first the early administration of a large dose of castor oil produces free catharsis and capsules containing quinine bisulphate, salol, and acetphenetidin, given one every four hours will

produce free diaphoresis. Frequent gargling with warm solutions of a mildly alkaline antiseptic will hasten the rupture of the crypts.

2. In the eruptive stage the main endeavor should be to promote drainage from the follicles and to antisepticize them. For this purpose an antiseptic gargle without astringent properties should be used, and the application of strong colloidal silver solutions to the tonsils and within the crypts, if possible, is advisable. The diaphoresis can be stopped. I want to emphasize that in this stage so long as pressure on the tonsil will squeeze out pus from the crypts no astringent gargle should be used, as it serves to shrink up the crypt openings and dam back the pus within the tonsil and force it to seek its way out through a different channel, which often is by breaking through the tonsil capsule and then around either the front or back of the tonsil between tonsil and tonsil pillar, bringing on the familiar peritonsillar abscess or quinsy. I believe many quinsies have been due to too early administration of astringent gargles.

After the spots have left the tonsils, showing that the crypts have thoroughly discharged, we are then ready for the astringent gargle and the best probably is two drams of the tincture of the chloride of iron to the ounce of glycerin, a dram of which to a half glass of water used every two hours will rapidly bring the tonsil to normal size.

The general nursing care, of course, includes alcohol rubs for high temperature.

In conclusion I would add that where the temperature remains up after the advent of the spots for any length of time the physician should be on the lookout for the development of quinsy.

57 WEST SIXTY-NINTH STREET.

Medicolegal Notes.

Relation of Master and Servant Does Not Exist Between Physicians and Surgeons and X-ray Operators Employed by Them.—In an action against physicians and surgeons owning and operating a hospital for *x*-ray burns received during an *x*-ray examination by their operator, the Arkansas Supreme Court holds that the relation of master and servant cannot exist between physicians and surgeons who are not *x*-ray specialists themselves and the x-ray specialist or roentgenologist whom they employ to assist them in the diagnosis and treatment of diseases. The fact that the *x*-ray specialist for whose negligence recovery was sought was working at the hospital in the *x*-ray department equipped by the defendants for such work did not affect the character of employment between the defendants and the operator in this respect. The case seems to have been one of first impression, no case having been found where the exact question has been decided.

The court, after citing the authorities on the history of the *x*-ray, quoted from Witthaus and Becker, vol. 3, p. 799, as follows: "Personal responsibility and liability to a patient for damages caused by the use or misuse of the *x*-ray rest upon the same principles of law as any other branch of medicine or surgery. The same rules, so far as malpractice is concerned, must be applied as laid down in our court of last resort to guide the medical and surgical practitioner. We conclude, therefore," the court said, "that because the science of roentgenology is so interrelated with the sciences of medicine and surgery in the diagnosis and treatment of human diseases, it should be classed in the same category with these sciences. And the *x*-ray specialist or roentgenologist must be placed in the same class with the physician and surgeon because of his peculiar knowledge and technique that he must possess, and because in the practice of his profession such knowledge and technique is dedicated almost exclusively to the aid of the physician and surgeon in the diagnosis and treatment of diseases of the human body. . . . The *x*-ray specialist, or roentgenologist, like the physician and surgeon, unless he expressly contracts to produce certain results, has the right to, and must at all times, act according to his independent judgment and discretion in the exercise of his skill and learning in the treatment of human diseases. The very nature of his profession and the character of his contract of employment involves this right." It was also held that, since the defendants maintained an *x*-ray department at their hospital, it was their duty to exercise ordinary care to see that this department was equipped with such apparatus as was generally approved by roentgenologists as best adapted for the proper diagnosis and treatment of diseases; also to exercise such care to provide competent specialists to do the work in that department. "Ordinary care for the successful management of such institution means a very high degree of care because it has to do with the lives and health of human beings. The *x*-ray machine of the highest type and manipulated by a competent expert is of inestimable value to mankind, but otherwise it is an exceedingly dangerous agency." It was held that the evidence warranted the conclusion that there was no unsafe condition of the screen used by the operator, or that any defect in the screen was not the cause of the injury, but rather negligence of the operator, for which the defendants were not responsible, the operator not being their servant. Judgment for the plaintiff was therefore reversed.—Runyan vs. Goodrum (Ark.), 228 S. W. 397.

Chiropractor Held Competent to Testify as to Extent of Injury to Spine.—In a proceeding under the Illinois Workmen's Compensation Act for an injury to the spine, it was held that a chiropractor, licensed to practice under the Illinois Drugless Healing Act, and who had treated the claimant, was competent to testify as to the extent of the injury. The court said, in part: "Any one who is shown to have special knowledge and skill in diagnosing and treating human ailments is qualified to testify as an expert, if his learning and training show that he is qualified to give an opinion upon the particular question in issue. The injury in question was to the spine. Dr. Fullmer testified that physicians of her school are specially educated and trained to diagnose and treat posterior and lateral derangements and ailments of the spine. That was the character of the ailment suffered by defendant in error. . . . It is not the province of the courts to pass upon the merits of the various systems now in use and practice in the treatment and cure of diseases; but when a physician schooled, educated and trained in any one of these particular systems qualifies as a witness by showing that he has special knowledge or skill in diagnosing and treating the particular ailment or disease which is the subject of investigation by the court, it is the duty of the court to admit his testimony as an expert. The weight of such testimony is to be determined by the character, capacity, skill and opportunty of the witness to know and understand the matters about which he testifies and his state of mind or fairness to the particular litigant."—Voight v. Industrial Commission (Ill.), 130 N. W. 470.

Privileged Communications Under Iowa Statute.—The Iowa Supreme Court holds, in a personal injury case, that complaints made by the plaintiff to a physician who, after the accident, made a surface examination of her in the presence of his office girl, the defendant, and the traffic officer, were privileged under the Iowa Code, Section 4608, although the physician was one employed by the company, where it appeared that he called on the plaintiff afterward in her home and advised her as to a course of treatment. The prohibition of the statute reaches matters learned by observation and examination as well as by verbal communication. The privilege was held not waived by the presence of the defendant and the traffic officer at the surface examination, nor by the plaintiff's admission on cross-examination of having told the physician that she suffered pain.—Walmer-Roberts v. Hennessy (Iowa), 181 N. W. 798.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, September 3, 1921.

RECONSTRUCTION OF THE INDUSTRIALLY DISABLED.

A NEW institution has opened its doors at One Hundredth Street and Central Park West, New York, in the building formerly known as the Park Hospital, which furnishes an instructive demonstration of the application of experience and knowledge acquired in the treatment of war disabilities to the great army of the industrially disabled. This is the Reconstruction Hospital, incorporated February 19, 1921, through a consolidation of the Clinic for Functional Reeducation, the Park Hospital, and the Demilt Dispensary, and affiliated with the Institute for Crippled and Disabled Men. The latter was established as a war service for disabled soldiers, sailors, and marines, and from its beginning treated a number of industrial accident cases by the new methods of operation and after-care so remarkably successful in the reconstruction of disabled soldiers.

The primary object of the Reconstruction Hospital is to put the industrial employee injured through accident back "on the firing line" in the shortest possible time and to prevent the seriously injured man from ever becoming discouraged and lapsing into the attitude of the hopeless cripple who so often becomes wholly dependent or a beggar. Surely a worthy aim, and there is no question as to the vast amount of work of this kind waiting to be done. There are in New York State alone 350,000 industrial casualties annually, and the number in the United States each year far outnumbers those disabled in the war. The Reconstruction Hospital will receive patients who have been discharged from general hospitals for after-care or subsequent restorative operation, or it will admit emergency cases immediately after injury. While the patient is still under treatment he is encouraged to continue earning in the occupational therapy department. The patient who is able to work in the daytime may continue his training in the evening classes which are conducted for the partially disabled. When finally discharged, the Institute for Crippled and Disabled Men, through its employment bureau, helps the man to remunerative employment, and if unfit for his original trade he is taught a new one. It is not the aim of the Reconstruction Hospital to have an institution so large that it can care for all accident cases, but to establish a system of treatment and after-care that shall serve as a model for similar institutions throughout the country; to publish researches in new surgical methods; to make a special study of occupational diseases, such as poisoning by lead, anilines, noxious fumes, and to receive and treat all poison cases; and, finally, to train nurses for service in industrial plants. Up to the present time no hospital in the country has engaged in all these activities. A perusal of the list of directors and of the medical staff, headed by Dr. W. Gilman Thompson, whose pioneer work along these lines is well known, bespeaks the success of the undertaking, which initiates a new chapter in industrial medicine. We trust the time is not far distant when facilities such as are offered by this institution may be available to the injured in every industrial center.

The officers of the Reconstruction Hospital announce that they will welcome the opportunity to discuss the services they are prepared to offer with officials of insurance companies, industrial corporations, and others who bear responsibility for the safety and welfare of workers. The financial advantages that would accrue to employers from effective reconstruction work of this kind are so self-evident that they need no exposition or comment.

THE UREMIC SYNDROME.

IN normal circumstances, a diet rich in nitrogenous substances increases the concentration of the urea in the blood, but there is a parallel increase of the ureic excretion in the urine. When the excretion reaches the level of formation of urea in the organism the percentage of urea in the blood ceases to increase and the organism is in nitrogen equilibrium. If the absorption of nitrogen decreases, the urea is at first excreted in a larger amount than is formed until a drop in the percentage of urea in the blood occurs; then the excretion balances up with the formation in order to reestablish nitrogen equilibrium. Kornblum, Achard, and Paisseau have shown that in certain cases of Bright's disease, after absorption of an excess of albuminoids or urea, there follows at first a deficit in the elimination of urea, but the equilibrium finally returns. Consequently, urea does not continually accumulate in the organism. There is a urea content in the blood, an index of ureic retention (Widal) which may vary from one subject to another. For example, an individual having one grain of urea for an absorption of one hundred grams of albuminoids, will present a lower index than a person with Bright's disease who has the same amount of urea for an absorption of only thirty or forty grams of albuminoids per day. Sometimes the urea content of the blood appears normal when there is ureic retention, but speaking in a general way a retention of

fifty centigrams to one gram of urea per liter of blood is bad from the viewpoint of prognosis, but not necessarily fatal, while a retention of one to two grams usually foretells death within a year, and one of more than two grams results in death within a short time. Accumulation of urea can hardly go above five grams and be compatible with life. The same amount of urea is found in the cerebrospinal fluid, and in that of edema, hydrothorax, ascites, etc.

The uremic syndrome is characterized by gastrointestinal disturbances—vomiting, diarrhea, and sometimes buccal and intestinal ulcerations. In the last phase of the process cachexia occurs as a result of the destruction of muscular tissue.

Several procedures have been advised for estimating introgenous retention; Achard and Paisseau's alimentary azoturia test, Ambard and Chabanier's maximum urinary concentration, Widal's index of ureic retention, dosage of urea in the blood or cerebrospinal fluid, and lastly, Ambard's ureosecretory content. But in order that this last test shall be valid the three elements composing it —urea, concentration, and output—must be simultaneously and freely in play. In certain circumstances this condition is not fulfilled, for example, when after a severe diuresis the urea concentration progressively increasing reaches the limit that it cannot go beyond—namely, the maximum concentration. As soon as this is reached, should oliguria persist, and in a sufficient degree, all the urea manufactured cannot be freely eliminated. For instance, suppose a subject is in nitrogenous equilibrium for the usual elimination of one liter of urine; if the elimination becomes less than one liter a certain quantity of urea will be retained in the organism and will tend constantly to increase. Death may take place at this time, but everything may become normal again if a diuresis of over a liter per day can be set up. Therefore, a diuresis cure, as it is called by the French, is the logical therapeutic measure to be adopted as it is the best stimulant of the renal functions and prevents ureic retention.

ACTINOMYCOSIS OF THE MAMMARY REGION.

Actinomycosis of the breast—a parasitic affection —is an infiltration of the gland and celluloadipose atmosphere by the actinomyces. This localization of the process has given rise to considerable study since Kummer and Cumston, in 1892, first described an authentic case. Usually primary in animals, it is rarely so in man, being in most instances a secondary infection. The parasite requires some door by which to enter, either by the galactophorous ducts—which is rare—or by direct wound of the mamma—which is frequent—in which case the actinomycosis is primary. As to secondary infection, it is the result of indirect penetration of the parasite which, having entered by some other channel than the breast, nevertheless reaches the gland, either by tissue continuity or contiguity, which is the most frequent pathogenesis, or by the phenomenon of distant transportation, that is to say, metastasis, which does not take place very frequently.

As to the pathology, the primordial element of the parasitic neoplasia is the actinomycosic nodule. The parasitic lesions do not involve the noble elements of the gland; they infiltrate only the connective tissue of the mammæ, their presence producing phenomena of sclerosis which, by compression, provoke secondary degeneration of the glandular lobules and their excretory ducts. The procedure of staining with iodide-hematoxylin reveals the parasitic grain in the infiltrated tissue and this technique is rapid, easy, and reliable. The evolution of the process takes place in three phases. The first, the onset or neoplastic; the second, one of inflammatory reaction, and the third, one of suppuration. During the first and second phases the diagnosis, although not impossible, is at least extremely difficult, while in the phase of suppuration it is still a matter of considerable delicacy. Nevertheless, it can be clinically established, because microscopical examination of the pus—which should invariably be made—will at once remove all doubt.

Actinomycosis of the mammary gland is a serious affection, requiring immediate treatment. At the onset, when the true nature of the process may be suspected, all forms of iodide treatment may be resorted to. Later on, when medical measures are judged insufficient or when the process has advanced too far, the only rational therapeutic measure is the total extirpation of the diseased breast. And even then, in order to be fully successful, all the infiltrated structures must be also freely excised, going far beyond, both in depth and surface, all suspicious tissue. It is for this reason that it is absolutely necessary to operate at the very earliest possible time, as soon as the diagnosis, in the suppurative phase, has been made, or, better still, at the very onset, as soon as there is the slightest suspicion that the process is actinomycosis, when iodide treatment carefully carried out does not appear to be accomplishing any marked effect on the evolution of the process. It is not necessary to deal surgically with enlarged axillary lymphnodes when these exist. Enlargement of the glands is rare in this lesion of the breast and is not the result of infection by the parasite.

ONCHOCERCOSES.

From time to time abstracts have appeared in the columns of the Medical Record on various superficial manifestations due to filarial embryos or adult filariæ. These vary considerably with the place of incidence, the races attacked, etc., and such differences may in part be due to differences in the parasite. One species of filaria may cause a condition not unlike scabies which is known as craw-craw. Another is instrumental in causing cysts in the integument, while in a third affection erysipelas is closely mimicked. There is a form of

filaria known as *Onchocerca cæcutiens* because it causes blindness, the mechanism of which is not quite apparent. In *La Presse Médicale* for April 6, 1921, xxix, 28, Joyeux, professor of parasitology in the University of Paris, contributes a brief article on a form of onchocercosis encountered in Guatemala which is illustrated with a photograph of two victims. His account harmonizes some of the conflicting statements of authors who have perhaps not been expert parasitologists.

The chief manifestation of this affection is the presence of cysts about the head which contain adult filariæ. With the cysts one sees other lesions including a pseudoerysipelas and affections of the cornea and iris which lead at times to blindness. After a period of three months following exposure, the cysts appear about the head, from one to as many as nineteen, chiefly on the posterior aspect so that the eye usually escapes. Perforation of the skull has been known to result. In the acute type we see an affection much like erysipelas with a temperature as high as 104°. The ears, eyelids, and upper lip become greatly swollen and the resulting picture is characteristic. There may be intense itching or severe neuralgiform pains. In the chronic form the appearance is that of chronic eczema. The ocular lesion is a keratitis, either punctate in the superficial type, which is the rule, or more rarely an interstitial keratitis. This may lead to an iritis and blindness may result after several years, apparently from mechanical causes through the formation of a false membrane. The parasite is the *Onchocerca cæcutiens* of Brumpt and the mode of transmission, presumably through the activities of some insect, is unknown, although the latter is believed to be a simulide. The geographical incidence is very limited which suggests a special insect host.

While the description of the disease as above given is found in the works of Brumpt and other systematic writers, confusion arises from fragmentary accounts of the malady sent home by visiting physicians who describe only what they see or are told. It is evident that most of the superficial lesions of filariasis or rather of onchocercosis coexist in the same subject, the differences pertaining only to the stage and degree of the infection, or to the stage of development of the parasite.

Secondary Diphtheria and Diphtheroid.

An interesting case of nearly apyretic membranous angina, occurring in a young woman, is reported by Achard in the *Bulletin Médical* for May 18-21, 1921, xxxv, 21. The membrane did not have the typical diphtheritic characteristics and the angina proved to be due primarily to the pneumococcus. On the fifth day of the process the appearances were more suspicious, and some true diphtheria bacilli were found in a smear. After an injection of serum the smears contained only pneumococci. The condition appeared to represent a superinfection of a pneumococcus angina with the true diphtheria bacillus. In uncomplicated pneumococcus angina the temperature is usually high and this is also true of mixed infection. The present case is therefore paradoxical, for at no time did the temperature go above 102 Fahr. Both pneumococcus angina and pneumodiphtheritic association are rare and hence too little is known of them. On the other hand, streptodiphtheria association is comparatively common and known to be very serious. Staphylodiphtheritic association is less severe and is said to occur in the course of measles and buccal infections. Fasospirillo-dipththeritic association is sometimes seen—Marfan has observed 20 cases. Of a different nature are the diphtherias which complicate the acute infectious diseases. In scarlatina secondary diphtheria has to be distinguished from the pseudomembranous angina due to the disease itself, which is readily done by examination of smears and cultures. Precocious and severe diphtheria may complicate measles. In both conditions the rule is to inject antitoxin without waiting for the bacteriologist's report. Complications of diphtheria with the other acute infectious diseases are rarely seen, and this is true of bronchitis and pneumonia.

Persistent Thymus.

The significance of persistent thymus is discussed by Yamanoi in the *Schweizerische medizinische Wochenschrift* for June 16, 1921, li, 24. The study is made on the autopsy material of Professor Hedinger's pathological department of Basle University. Of 303 subjects dead of influenza during the pandemic of age period 25 to 50, nearly a fourth presented evidence of persistent thymus, the condition being somewhat more common in the male. While the curves show some irregularities there doubtless would be in a sufficiently large material a steady decrease in frequency with the rise of age. In the author's material there chanced to be more cases at 31 and 27 than at 25, while at the other extreme the incidence at 40 was about the same as at 50. The lowest incidence chanced to be at 43. But the general trend of the figures is unmistakable. No attention is paid to the lymphatic system as a whole. The lower figures in the female are associated with repeated gestation which has a special tendency to hasten involution of the thymus. The state of the thyroid was noted and the gland was found to be enlarged in the majority, about 74 per cent. exhibiting hypertrophy. This frequency could not have been due to the influenza, but was apparently dependent to a greater or less extent on the frequency of endemic goiter in the vicinity. There can be little doubt, however, of a necessary association between persistent thymus and slightly enlarged thyroid.

News of the Week.

May Burn Town to Fight Cholera.—A report from Riga on August 24 announces that a total of 78,011 cases of cholera have been registered in Russia from the beginning of the year to August 10. Conditions in Astrakhan on the Volga are so desperate that local authorities have proposed that the whole population be transferred to Siberia and the town of Astrakhan be then set on fire.

Infantile Paralysis Spreads in New York State.

—New York State Health authorities stated on August 22 that ten cases of infantile paralysis had been reported from Westchester County, thirty-three from Utica, fourteen from Herkimer County, and others in various parts of the State, making a total of 100 cases. Dr. Hermann M. Biggs, State Health Commissioner, expresses the opinion that there is no need for alarm. At the same time he urges parents to keep their children away from large gatherings and advises that children be not permitted to become over-fatigued. During the first eighteen days of August 53 cases of infantile paralysis with eight deaths were reported to the New York City Health Department. Most of the cases have been mild in type. It is thought that they have been brought from out of town.

Yellow Fever at Belize.—A cablegram from Guatemala, under date of August 24, states that yellow fever has been reported at the port of Belize, British Honduras.

No Medicinal Beer.—Secretary of the Treasury Mellon has reversed his attitude with regard to medicinal beer regulations, following the failure of the anti-beer bill to pass Congress. The regulations which would permit the manufacture and sale of real beer on physicians' prescriptions will be held up indefinitely. The reasons for this action have not officially been made public. Legal advisers of the Treasury still maintain that it would be legal to issue the regulations, and have so advised Secretary Mellon.

Physicians Uphold Right to Prescribe.—The Medical Society of Delaware, at its one-hundred and thirty-second annual meeting held in Rehoboth, August 14-16, adopted resolutions vigorously condemning the law restricting the use of alcohol for medicinal purposes. It was the consensus of opinion that practising physicians should be privileged to prescribe any drug they might consider necessary in the treatment of patients. Resolutions were also passed voicing the opposition of the Society to the movement now under way advocating compulsory health insurance.

Child Welfare in Belgium.—A bulletin issued by the Children's Bureau of the United States Bureau of Labor notes that through the second International Conference on the Protection of Childhood, held at Brussels from July 18 to July 21, the attention of the world has been called to the program Belgium is working out for the conservation of childhood. In spite of Belgium's efforts to protect her children during the war, the average child was, at the time of the Armistice, one full year backward in normal development; the weight of the average Brussels school boy was three pounds below normal, and of the average school girl, seven pounds. The first step in the medical reconstruction of industry was the establishment of an independent Labor Medical Service, which includes in its functions the protection of expectant and nursing working women and the care of the health of working children. The service immediately formulated a constructive program which enlisted the cooperation of all agencies concerned in the promotion of public health, including the health of working mothers and their children. In the United States, 18 States provide for the physical examination of every child entering industry, but no State has provided for examinations of working children at regular intervals. Belgium has adopted the advanced program of a medical examination for every juvenile not later than a month after he has entered an industrial occupation, to be repeated once a year until the child reaches 18, and oftener in case of disease. A national children's board has been established, which is maintained by public and private funds, and which supervises and supports child welfare organizations meeting certain conditions. The child welfare program includes the periodical free examination of children under three years of age brought by their mothers for examination; the establishment of free medical dispensaries for expectant mothers; the diffusion of knowledge relating to infant health and maternal nursing; and the supervision of boarded-out children under seven years of age. The cost of child welfare work will be borne one-half by the state, one-fourth by the province, and one-fourth by the municipality. Provincial and municipal boards are appointed by the national board, and advisory committees are provided for.

Ohio Town Chosen for Child Health Experiment.—The town of Mansfield and Richland County, in Ohio, have been chosen by the National Health Council as the scene for the demonstration of what American communities can do in the way of developing the health of their children. Mansfield and Richland County have been chosen because it was felt that conditions there most nearly complied with the qualifications set down by the council for the purpose of securing a typical American community. The demonstration will cover a period of five years and will deal with children of all ages. The objective will be a practical demonstration of what a typical American community can do to increase the health and strength of the next generation. The council hopes to develop a program for child health that shall be so comprehensive and well balanced that it will be of use to other communities all over the country. County and State officers, business men, physicians, and the citizens generally have pledged the heartiest cooperation in carrying out the demonstration. It will be conducted under the direction of Dr. Walter H. Brown, former Health Officer of Bridgeport, Conn., who will relinquish on September 1 his work for the Commission for the Prevention of Tuberculosis in France, and return home to assume his new duties. The national Child Health Council which is directing this work is composed of the following organizations:—American Child Hygiene Association, American Red Cross, Child Health Organization of America, National Child Labor Committee, National Organization for Public Health Nurseries and the National Tuberculosis Association.

Red Cross Publishes Pamphlet on Hygiene.—The League of Red Cross Societies has recently published a pamphlet entitled "Elements of Hygiene," which it is offering for sale in quantities throughout the World. The pamphlet has been copied from the booklet of the Commission for the Prevention of Tuberculosis in France, which was originally published in French. It has now been published by the League in Czech, English, French, German, Italian, Portuguese, Rou-

manian, Serbian, and Spanish. The Red Cross has distributed about three hundred sample copies in this country. The pamphlet contains thirty-two pages and many colored illustrations of the various health maxims it sets forth. For the description of the work of the League may be substituted a description of the organization that may purchase or issue the pamphlet. Further information with reference to obtaining the pamphlets in quantity may be obtained from the Department of Health Service, American Red Cross, Washington, D. C.

Suicides Increase in Germany.—Of the persons who committed suicide in Germany before the war one-third were women. During the war exactly as many women as men took their own lives, that total for both being 8,000. In 1919 the number of men who committed suicide increased to 7,000, while the number of women was again 4,000. There were considerably fewer suicides in the Catholic southern regions than in other parts of the country.

Dr. Russell Stewart Wingfield of Richmond, Va., medical head of the Red Cross unit in Salonica, Greece, who was seriously burned on the night of August 15 in a fire in the Red Cross Child Health Clinic in Kalmaria Park, died of his injuries on August 20.

Dr. George O'Hanlon, medical superintendent of Bellevue Hospital, New York, and Dr. John W. Perilli, member of the Board of Trustees, have been made Chevaliers of the Crown of Italy by T. F. Bernhardi, the Italian Consul General, the decorations having authorized in recognition of their work in the reorganization of the Italian Hospital at Eighty-third Street and East River, New York City.

Vacancies for Roentgenologists.—The United States Civil Service Commission announces open competitive examinations for the positions of roentgenologist at a salary of $200 to $250 a month; associated roentgenologist, at $130 to $180 a month; assistant roentgenologist at $90 to $130 a month, and junior roentgenologist, at $70 to $90 a month. Vacancies in positions requiring similar qualifications may be filled from these examinations. In addition to the salary appointees will be allowed quarters and subsistence when there are available. Applicants for the position of roentegenologist must have been graduated from a recognized medical college with the degree M. D., and have had at least three years experience as a roentgenologist, including *x*-ray physics, technology, photography interpretation and localization. Applicants for the other positions must have completed the eight grades of common school or an equivalent education and have received a certificate of proficiency from or establish equivalent schooling in a recognized hospital, medical college or technical institution in *x*-ray, physics, and technology. For further information applicants should apply at once for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

The London Medical Exhibition will be held at the Central Hall, Westminster, London, October 3-7, 1921. The *British and Colonial Druggist* is the organizer, and announces that any physician, surgeon, or dentist from this country, on presentation of his professional card, will be cordially welcomed.

Obituary Notes.—Dr. SAMUEL P. LONGSTREET, of Scranton, Pa., a graduate of New York University Medical School in 1885, died of heart disease on August 16, at the age of fifty-nine years.

Dr. ALICE BURRITT of Washington, D. C., died in a local hospital, July 6, at the age of seventy-nine years. She was a graduate of the New York Medical College and Hospital for Women in 1879.

Dr. WILLIAM J. GALLIVAN of Boston, Director of the Division of Tuberculosis of the Massachusetts Department of Health, died suddenly on July 13 at the age of fifty-six years. He was graduated from Harvard Medical School in 1892 and was formerly City Health Commissioner of Boston.

Dr. JOHN CALVIN WOOD of Portland, Ore., a graduate of the Medical College of Indiana in 1879, died on June 28 at the age of seventy-nine years.

Dr. GEORGE H. ASTLER of Elmwood Place, Ohio, a graduate of the Cincinnati College of Medicine and Surgery in 1890, died of heart disease, on July 7, at the age of fifty-four years.

Dr. HENRY HERMAN of New York City died of heart disease at his summer home at Long Branch, on July 12, at the age of sixty years. He was graduated from Bellevue Hospital Medical College in 1883, and was the first president of the Bellevue Alumni Association.

Dr. FREDERICK N. BEARDSLEY, formerly of Manchester, N. H., died at the home of a relative in Rye, N. Y., on July 8, at the age of forty-six years. He was a graduate of Boston University and during the war was surgeon on one of the White Star steamships.

Dr. ROBERT GUTHRIE, a recent graduate of the Medical Department of the University of Colorado, died at his home in Denver at the age of twenty-seven years.

Dr. HARRY L. ARNOLD of Omaha, Neb., died suddenly on July 8 at the age of fifty-one years. He was a graduate of the Chicago College of Medicine and was on the staff of Creighton University and St. Joseph's Hospital.

Dr. FRANCIS J. DAVIGNON of Ausable Forks, N. Y., a graduate of the Louisville College of Medicine in 1874, died suddenly on July 9 at the age of seventy years.

Dr. HELEN WILLISTON BROWN of New York City, a graduate of Johns Hopkins Medical College and Hospital in 1907, died on July 29 at the age of thirty-eight years.

Dr. ROBERT MATHEWS ULLRICH of Brooklyn, a graduate of Long Island College Hospital in 1904 and a member of the staff at the Ridgewood Hospital, died in that institution on July 27 at the age of forty-six years.

Dr. MAURICE DOREWITZ of Black Rock, N. Y., died of cerebrospinal meningitis in a Buffalo Hospital on July 9 at the age of twenty-six years. He was graduated from the University of Illinois in 1919.

Dr. EINDRED VIKO, a graduate of the Minnesota Hospital and College of Medicine, Minneapolis, in 1887, died at his home in Salt Lake City, Utah, July 12, at the age of fifty-seven years.

Dr. ROBERT MACLEAN TAFT of New York, died suddenly of heart disease on August 8, at the age of forty-seven years. He was graduated from New York University Medical College in 1894. He was a surgeon of the White Star Steamship Line and

during the war served in the British and American navies.

Dr. ARTHUR P. COLL, a graduate of the College of Physicians and Surgeons, New York, in 1889, and a member of the New York Academy of Medicine, died at his home in New York City on August 10, at the age of fifty-seven years.

Dr. JOHN S. GREEN, Sr. of Hagerstown, Md., a graduate of the University of Maryland College of Maryland, 1882, died on August 2, at the age of sixty-four years.

Dr. CHARLES EASTWICK SMITH of St. Paul, Minn., died after a lingering illness on July 23, at the age of thirty-nine years. He was graduated from the University of Pennsylvania School of Medicine in 1908, and in 1919 was appointed secretary of the Minnesota State Board of Health.

Dr. PATRICK J. HIRST, Superintendent of the Herkimer County Tuberculosis Sanatorium at Salisbury Center, N. Y., died suddenly on August 8, at the age of thirty-seven years. He was graduated from the Albany Medical College in 1910.

Dr. J. A. COZBY of Axle, Texas, a graduate of the Kentucky School of Medicine, Louisville in 1884, died suddenly of apoplexy on July 30, at the age of sixty years.

Dr. JOHN P. SHELBY of Yuma, Ariz., a graduate of Jenner Medical College, Chicago, in 1904, died suddenly in Venice, Calif., on July 24, at the age of sixty-three years.

Dr. GEORGE H. BURGIN of Germantown, Pa., a graduate of the University of Pennsylvania School of Medicine in 1884, and for eleven years physician to the Germantown Almshouse, died July 31, at the age of sixty-seven years.

Correspondence.

"AN UNUSUAL CASE OF MALIGNANCY."

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your issue of July 16 there was reported a case of cancer which was thought to be unusual, and is worthy of comment.

The malignancy affected the left breast of a woman 59 years old, 14 years after the removal of the right breast for a tumor, in 1905. This first tumor had begun in what was called a wen, in 1898, being about the size of a hen's egg, superficial and freely movable; it gave no subjective symptoms until 1905, when it suddenly became somewhat larger and painful, and the breast was removed by a "simple operation." She had had triplets at 31 years of age, in 1891, and in 1897 a daughter was born, who is still living and in good health. Early in this latter pregnancy a double mammary inflammation was developed, with suppuration which lasted for several weeks. The recovery from the operation in 1905, at the age of 45, was rapid and complete. The operating surgeon assured the daughters that the lesion was benign, but the nurse long afterward, that is, very recently, declared that at the time of the operation the doctor had stated that it was unquestionably cancerous: there was probably no pathological examination.

The patient "had been in apparently splendid health" during the 14 years after the first operation, until April 27, 1919, when it was noticed that the left breast was "rather hard and painful, in and about the nipple"; this was regarded as acute mastitis and so treated. As there was no change in two weeks another surgeon performed a radical operation on May 12. The report upon the specimen from the Army Medical School was: "There is no tissue anywhere in all the specimen which can be recognized either macro- or microscopically as breast tissue," and the diagnosis given was "metastatic carcinoma in lymph glands, fat, and muscle tissue." The patient was discharged from the hospital on May 31, the incision being slow to heal in the upper arm. *X*-ray examination showed "no evidence of abnormality of heart, great vessels, lungs, nor of the mediastinum." She then had four adequate radium treatments, at 10 days, 18 days, and 28 days intervals, in the Howard Kelly Hospital, but the left chest had gradually become quite hard, swollen, and painful. She then received morphine in gradually increasing doses, "suffering the agonies of death many times over," until she died June 15, 1920, thirteen months after the operation.

The reporter questions (1) As to the heredity of the disease, her mother having died at 65, from cerebral carcinoma, and a maternal aunt at 68 from cancer of the liver. (Her father died at 70 from tuberculosis laryngitis, and two brothers from pulmonary tuberculosis.) (2) As to the relation of the abscessed breasts to the cancer. (3) Whether the original tumor of the right breast was malignant, considering the good result of the operation, and the 14 years of excellent health before the left breast was attacked. (4) He regards the case of interest, "along with many others on record, as showing how futile, if not worse than worthless, both surgery and radium are sometimes in dealing with early malignancy."

While the case is interesting and worthy of record, it is not an unusual one to those of us who have long seen much cancer. It well illustrates the position the profession has been in, through ignorance or a wrong conception of the true nature of carcinoma, but its features are readily understood in the light of our present knowledge and experience. Referring to the four points made by the writer of the article, we may say:

1. As to heredity. All the best authorities agree that cancer is not hereditary, and in this instance the mother's death at 65 from claimed cerebral carcinoma may have been a mistaken diagnosis, as also that of a maternal aunt from cancer of the liver. Moreover her father and two brothers died of tuberculosis: cancer and tuberculosis are in a measure antagonistic.

2. The previously abscessed breasts had undoubtedly relations both with the first innocent tumor of the right breast, and certainly with the cancer in the left breast, as it is pretty well acknowledged that mastitis commonly precedes cancer.

3. The tumor of the right breast was possibly only chronic mastitis, in which a cystic adenoma developed, wholly benign: it "was and remained a long time about the size of a hen's egg, superficial and readily movable. It gave no subjective symptoms for seven years, until 1905, when it suddenly became somewhat larger and painful"; possibly from some local injury or pressure, and its removal surgically was naturally not followed by recurrence in 14

years. The "apparently splendid health" which she enjoyed during these 14 years is what we continually see in cancer, when it is so hard to convince a patient that the malignant disease has already started. This is not the place to discuss the basic cause of the cancerous local lesion, which has been abundantly elaborated elsewhere, but all agree that cancer may, and most often does, develop in those in seeming perfect health, and we all know that the cancerous cachexia and loss of weight come later.

4. The reporter's comment that the case shows "how futile, if not worse than worthless, both surgery and radium are sometimes in dealing with early malignancy," certainly meets a cordial response in the minds of those who have much to do with cancer. For, attacking only the local manifestations of the disease, carcinosis, they cannot be expected to effect a permanent cure. All of us have seen plenty of cases where they have been employed at the earliest moment possible, even instantly after the discovery of a tumor, and yet the disease has recurred promptly, and the patient died in relatively few months; this patient died 13 months after the operation in spite of four very efficient courses of radium, in skilled hands. Perfect dietary, hygienic, and medicinal treatment yields very different results.

The explanation of the occurrence of cancer in the left breast is very simple: it certainly was not a recurrence, as the lesion in the right breast, 14 years previously, was not cancer (although many of us have seen recurrences fully 14 years after the excision of true carcinoma). The trouble in the left breast was simply a newly developed, very acute carcinoma, or the local manifestation of the carcinosis habit or condition, which had arisen from causes and conditions which have been abundantly elaborated elsewhere. The "apparently splendid health" was only an erroneous expression of the faulty hypernutrition, connected with the deranged metabolism which we so frequently see before the formation of a malignant neoplasm, and the carcinomatous mass is only a mutiny or rebellion of a certain group of body cells against the conditions of disturbed nutriment, etc., in which they find themselves. The reason for the particular local manifestation of the disease in the breast was the damage to the tissues connected with the previous mastitis, as chronic irritation is recognized as the local exciting cause which determines the site of the lesion, although we may not always be able to recognize its nature.

L. DUNCAN BULKLEY, M.D.

10 EAST SIXTY-FIRST STREET.
NEW YORK.

TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the MEDICAL RECORD for July 23, 1921, I note the kindly criticism by Dr. Royal Whitman of my article on Fractures published in your issue of July 9th. May I be permitted space for a reply? Doctor Whitman says: "the abduction treatment, which the writer evidently has in mind, is applied under anesthesia and therefore during muscular relaxation. The 'fulcrum' is not the adductor muscles, but the capsule of the joint."

Under general inhalation anesthesia, there is no relaxation of the muscles unless free from irritation or stimulation. Unless the muscles are blocked off by local anesthesia they are very active. The capsule of the joint is made up of white fibrous tissue and has no power of contraction, and could not in a relaxed condition have any power whatever. It is so constructed as to permit of abduction, adduction, flexion and extension, and rotation, without power to modify any abnormal action about the hip joint. Therefore it is not a factor in fractures about the neck of the femur, unless it adds to the disability by being ruptured. The adductors act very powerfully as well as the gluteals in producing shortening, and if they are put on the stretch, as in abduction of the extremity, invariably produce deformity and overriding in cases of fracture of the neck of the femur.

With the shape of the lower extremity diminishing from above downward, and the loose muscular envelopment of the bones, it is an indisputable fact that no plaster of Paris dressing is going to retain the limb in extension after traction has been released by the hands of the assistant, or the Hawley table, or any other device.

We do not have "end-to-end" apposition in fracture of the neck of the femur. This is so apparent as to require no further discussion. We do have a rotary displacement to consider, as made plain in my article, which condition Doctor Whitman seems to have completely overlooked.

Anesthesia has caused the death of many thousands of patients in fracture of the neck of the these cases by use of weight and pulley in the handling of these cases. The proper dressing of these cases by use of weight and pulley in the *straight position*, with sand bags, *and a small sand bag behind the trochanter* is neither dangerous nor painful and is effective. It can be applied by any *intelligent* doctor anywhere on earth with excellent results.

ETHAN H. SMITH, M.D.

701 PHELAN BUILDING,
SAN FRANCISCO.

THE VALUE OF A CORRESPONDENCE COURSE IN MEDICAL EDUCATION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—While the correspondence course method of medical education may have its defects, there is no doubt but that the series on narcotic addiction conducted in your columns has been productive of valuable educational features and results not yet attained in the usual formal methods of committee and official report and announcement.

It has brought out some very interesting and useful information of which the profession as a whole has been ignorant. One is that all of our late "muddle" and squabble over narcotic laws was "barking up the wrong tree." From the contributions of Judge Collins and Dr. Rooney we find that the State law was administered through rules and regulations which produced effects exactly opposite to those intended by the makers of the law. In other words for the last year or two we have been governed through administrative authority and power by the Cotillo and Fearon-Smith bill type

of administration under a statute devised and planned after long experience and investigation and study to operate to the opposite effect. So that in final taking account of stock, the failure of administrative experiment and whatever of the present situation is attributable to such failure must be charged up to the ideas behind the Fearon-Smith and Cotillo bills. As Judge Collins stated, the situation was due to "enforcement of promulgated rules and regulations which were in some instances tantamount to repeal of the law and contrary to its intents and purposes." No wonder the profession got confused, with one law on the statute books and its rejected opponent actually in effect. If the correspondence course has done nothing else it has at least cleared up this important matter of which the profession was generally ignorant, namely, that with one law on the statute books they were actually being governed by another that had been rejected by the Legislature.

There are several very important things which have been brought out, but space is lacking for their discussion. One of them, however, is too important to be overlooked and that is the extent to which personal controversy has entered into and obstructed and obscured the medical and scientific issues and needs of the situation. Calling people names and loosely attributing ulterior motives may be for some an entertaining form of literary diversion, but it is never going to solve a complex situation or problem. If the revelation of the existence of these things in your correspondence course brings about their cessation, the profession will have something to thank that course for, and can get down to the needed work on the real issues of the situation.

In this connection I would call attention to a clarifying editorial article in the Bulletin of the Chicago Medical Society for August 20, which has just come to hand, showing how one medical organization is trying to get to the bottom of some of the real difficulties of the situation. I do not know who the writer of the article is, but he certainly has a firm grip of the situation and deserves the thanks of his colleagues as well as of the innocent sufferers from drug addiction disease for his clear presentation of the subject.

In the latest contribution to your correspondence series Dr. Mabbott introduces the therapeutic aspect of the situation, in his reference to compelling the victim of drug addiction to avail himself of "modern treatment for cure." A contribution on the subject of "modern treatment" would be a valuable subject for further discussion. Dr. Mabbott's reference to the matter arouses curiosity and hope that he may add something to our present knowledge of the subject by explaining just what therapeutic procedure he refers to as "modern treatment for cure," including of course what his conception and definition of the "cure," of this condition may be. There are hundreds of thousands of suffering people vitally interested in this subject as well as many physicians. We would all be interested to know just what "modern treatment for cure" he has reference to, and where it can be obtained.

ERNEST S. BISHOP, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, August 11, 1921.

London Preventive Work in Venereal Diseases.—A report on the London County Council's work in connection with the diagnosis and treatment of venereal diseases has been issued recently. The joint scheme for London and the counties in the vicinity of London commonly known as the Home Counties, has been in operation now for four years and it was agreed some little time ago after consultation with Sir George Newman, the Chief Medical Adviser of the Ministry of Health, that a representative of the Ministry, Brevet-Colonel L. W. Harrison, D.S.O., M.B., and Dr. F. N. K. Menzies, on behalf of the Council, should carry out a joint inspection of the hospital clinics and hostels at which the work is being carried on, and the report now published is the result of that joint inquiry. The report stated that there are probably 100 or more refuges and rescue homes in London, managed and financed by the Church of England, the Church of Rome, the Church Army, the Salvation Army, the Wesleyans, the Young Women's Christian Association, the Jewish Community and others. Discussing various general questions in connection with the causes and spread of prostitution, the report says as follows: "With the close of the war there came a gradual cessation of munition making and other war work, with the result that many girls unable to earn the high wages they had become accustomed to, went on the streets either to supplement their smaller earnings in other work, or because they said they had no other opportunity to earn money. According to the testimony of many reliable rescue workers, a very large percentage of these girls are quite young, 16-20, and suffering from venereal disease. It is important to draw attention to the universally expressed desire amongst rescue workers for the provision of what may be conveniently termed 'reception houses.' The women police, police-court missionaries, Young Women's Christian Association, and other rescue workers bear emphatic testimony to the fact that such houses are the overwhelming need of the moment in connection with rescue work. To understand the importance of the 'reception house' to the rescue work it is necessary first of all to grasp firmly the fact that to be able to seize and take full advantage of the 'psychological moment' is an essential factor for successful rescue and preventive work."

The report goes on to say that it is impossible for anyone to study venereal disease day after day without the question constantly recurring in the mind, "Why do women prostitute themselves?" When one sees quite young girls of 13, 14, 15, and 16 years old appearing as patients suffering from syphilis or gonorrhea or both, and boys and young men suffering similarly, it is natural to inquire into the circumstances which led to their infection, and to wonder why so much attention is being given to treatment and so little, comparatively speaking, to causation. Undeniably prostitution is the outstanding factor in the causation of venereal disease, and the Great War must have drawn the attention of all thinking persons to its wide prevalence, as also to its very serious effects in a hundred ways upon

the health of the British Navy, Army, and Air Forces, as well as on the community generally. All who have any knowledge of the history of venereal diseases know that the number of cases has always increased rapidly during and after a war, and this has been the experience in London and in Great Britain generally during recent years, as it has been the experience of all other countries involved in the war just over. Beyond question increase of prostitution in one or other of its many forms, professional, clandestine, etc., has been the cause of this increase in venereal disease. Among the conditions in normal peace times which lead to prostitution, the report mentions: bad housing, bad companions, temperament, drink, homelessness, unhappy homes, seduction and desertion, compulsion and exploitation, feeblemindedness. In regard to temperament, it is observed: rescue workers state frequently that "the girls who come to us at the present day are largely of an emotional temperament, and they are often artistic, musical, good-natured, and very lovable." "The strong, hard-working woman who used to come to us is a thing of the past and has been replaced by the better educated, but also weak-minded, pleasure-loving girl, unable to battle with the difficulties of life." On the other hand, other workers of many years' experience say that "the modern prostitute is more temperate, more cautious, more thrifty, and less hysterical than the prostitute of thirty years ago."

As for the influence of drink on the prevalence of prostitution the report states that it is generally thought by those of long experience in rescue work to play little part in inducing the young to choose prostitution as a career, though it is used by those who desire to seduce a girl to overcome her first resistance, and there can be no doubt that in many cases seduction is the determining factor which leads to a life of prostitution. The question is dealt with at some length from its economic aspect. According to the report, it has been said frequently that prostitution is not an economic question. There are others who hold that this view is entirely erroneous. There is a mass of evidence going to show that unemployment, low wages, and bad occupational conditions are definitely associated with prostitution. In the case of unemployment it has been shown that, in what are known as the seasonal trades, there are many workers who take to the streets to tide over the slack times. Examples of such trades are millinery, dressmaking, tailoring, and the lower ranks of the theatrical and musical hall profession. In all these trades good clothes and a smart appearance are necessary for the effective seeking of a new engagement. Low wages, not necessarily so low as to preclude the provision of food, clothing, and shelter, but without curtailing the necessaries of life, have certainly been shown to be a factor tending in the direction of prostitution. Wages on a subsistence level give very little protection to certain temperaments from the temptation to buy with the proceeds of prostitution the pleasures so much sought after. Occupational conditions, in the opinion of the compilers of the report, form an important influence in leading women into prostitution. This is especially the case where girls are liable to suffer when dependent upon the pleasure of a person of the opposite sex for the opportunity to gain a livelihood, or again, to obtain promotion in their work to positions with higher remuneration. These factors have been shown frequently to be an influence in the case of shop girls, factory girls, theatrical and music hall artists. The fact that domestic servants provide such a large proportion of known prostitutes is certainly not due to low wages or unemployment. On detailed inquiry it will probably be found that it is a comparatively rare event for intelligent, well-educated domestic servants living with families under reasonably good circumstances to become prostitutes, and the truth is that in the vast majority of cases the domestic servant who becomes a prostitute is feebleminded, and for this reason also is occupied in service in poorer families, boarding houses, hotels, restaurants, and other places where the risks of seduction, etc., already referred to, are common.

The main feature of this report is the emphasis laid on the importance of preventive and rescue work. Also parts of the report are valuable from the standpoint of the social and economic aspects of the problem.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 18, 1921, clxxxv, 7.

1. Pneumonia in Infants and Children. A Clinical Study of 208 Hospital Cases. Arthur Bates Lyon.
2. Eczema in the Breast Fed Baby, and Protein Sensitization. Edward Scott O'Keefe.
3. Significant Reactions of the Arterial Tension. Manifestations of the Angio-Kinetic Energy Clinically Observed and Interpreted. Claës Julius Enebuske.

1. Pneumonia in Infants and Children. A Clinical Study of 208 Hospital Cases.—Arthur Bates Lyon analyses this series of cases, occurring in patients 12 years of age or younger, admitted to the Special Service for the care of acute respiratory infections at the Boston City Hospital from February 3, 1919, to February 1, 1921. Of the 208 cases, 109 were of the lobar and 99 of the lobular type. The total death rate in the lobar pneumonias was 4.6 per cent., but in uncomplicated cases, it was only 1.9 per cent. The total death rate in bronchopneumonias was 35.1 per cent.; 74.3 per cent. of these deaths were in patients two years of age or younger. The clinical behavior of both groups parallels in general that recorded by other observers.

2 Eczema in the Breast Fed Baby, and Protein Sensitization—Edward Scott O'Keefe finds that a large percentage of breast fed infants suffering from eczema show a positive cutaneous reaction to food proteins. Of 41 cases tested by the writer, 25, or 61 per cent., showed a positive reaction to some one or more of the proteins used. Foreign proteins occurring in breast milk are the most probable means of sensitization in this group of cases. Egg and cows' milk proteins give the most frequent responses to cutaneous tests in the eczema of older children. Apparent cure in about 40 per cent. of these cases, and definite improvement in about 20 per cent. more of the cases, has followed the omission or limitation in the maternal diet of one or more food proteins to which the infant is sensitive.

New York Medical Journal.

August 17, 1921, cxiv, 4.

1. The Predisposing Factor in Diphtheria. Bela Schick.
2. Medical Supervision of the Destitute Child. Maynard Ladd
3. The Nervous Child. Charles W. Burr.
4. Psychoses and Potential Psychoses of Childhood. Edward A. Strecker.
5. The Problems of Personality in Disease. Marion E. Kenworthy.
6. Personality in the Making. Waldemar H. Groszmann.
7. Pulmonary Tuberculosis in Young Children. Alvin E. Siegel.
8. Hyperchlorhydria in Childhood. L. Berman.

9. The Prevention of Measles. Isaac Brewer.
10. Children's Fears. Frances Russ-Barker.
11. A Suggested Form of Treatment of Mental Deficiency in Children. J. A. Muller.
12. Chronic Effects of War Gassing. Z. I. Sabshin.

1. The Predisposing Factor in Diphtheria.—Bela Schick argues that it is justifiable to make use of experimental findings in the interpretation of clinical phenomena, and on this basis it may be concluded that the function of antitoxin formation in diphtheria varies in different individuals both with regard to speed and quantity. We may assume that the morbid processes reach their climax and commence to decline as soon as antitoxin appears in the circulation, for from this moment newly formed toxin will be neutralized. It is, therefore, clear that the symptoms of an infection of a given virulence will be milder the greater the speed and abundance of antitoxin formation Thus, the most severe manifestations will be encountered in those individuals who are unable to produce it altogether or only after a long delay. In practice children are found to exhibit all grades of reaction between the two extremes. The mildest cases may be expected who did in fact have traces of antitoxin before the onset of the illness, though the amount in circulation was too small to be detected clinically and insufficient to prevent infection. Such children would be especially adapted to react to the stimulus of circulating antitoxins by producing the necessary quantity of antibodies in the shortest space of time. Thus the conclusion is reached that, in addition to the local protection derived from the intact and impregnable mucous membrane, there are two factors producing immunity against diphtheria: the one is humoral in nature and its presence is determined by demonstrating and measuring specific antibodies in the serum; the other is the cellular factor, which is based on the varying faculty of the cells to generate antitoxins. Humoral immunity signifies absolute protection as long as antibodies are circulating. Cellular immunity, while unable to prevent infection, determines the intensity and duration of the attack. The later and the less efficiently the defensive mechanism of cells reacts to the morbid stimulus, the later the effects of the organisms and their toxins can be counteracted, and, naturally, the more opportunity is given for the diphtheria bacillus to develop its dangerous activity. In this way we are able to determine the malignant forms of diphtheria, which are due to the complete inability of the body to defend itself against the toxins of diphtheria.

8. Hyperchlorhydria in Children.—Dr. L. Berman calls attention to a symptom complex occurring in children usually between the termination of the first dentition and the beginning of the second, which is referable to a disturbance of gastric function, secretion, and mobility. Because of good therapeutic results obtained by the elimination of dietetic irritants and poor feeding methods and the giving of alkaline antacids these cases have been ascribed to hyperchlorhydria. So far as the writer knows there has been no study in the literature of a series of gastric examinations in supposed hyperchlorhydria of children, hence he reports cases in which gastric examinations were made, gastric juice being obtained one hour after a test meal consisting of a few biscuits and a glass of water. The analyses were made by a modification of the Töpfer procedure. They showed hyperacidity. The constitutional symptoms of these children were interesting. They were nearly all dark or sallow complexioned. They tended to be hyperactive, and yet tired easily, especially in the afternoon. They were all of the nervous type. This type of child seems to be predisposed to a development of hyperchlorhydria under irritant food provocation. This predisposition perhaps depends upon a certain relation to the adrenal-sympathetic-thyroid mechanism of the organism, which controls the nerves conducting inhibiting or stimulating impulses to the gastric cells. Although this remains to be determined, these cases point to the existence of a constituional type, perhaps dependent upon a constitutional hypoadrenalism, in which gastric irritation and bad hygiene produce hyperchlorhydria, hyperperistalsis, or disturbances of peristalsis of the stomach, and accompanying symptoms. All of these patients have done well under a general hygiene régime, with removal of the gastric irritants from the diet. Antacids and adrenal nucleoprotein seem also to assist in the restoration of conditions to the point at which symptoms disappear.

Journal of the American Medical Association.

August 20, 1921, lxxvii, 8.

1. Syphilis a Rural Problem. Walter James Highman.
2. Framingham Community Health and Tuberculosis Demonstration: Certain Medical Results. Donald B. Armstrong and P. Challis Bartlett.
3. Treatment of Acute Poliomyelitis with Immune Horse Serum: Summary of Results. Edward C. Rosenow.
4. Certain Aspects of Postdiphtheritic Diaphragmatic Paralysis: Report of Eight Fatal Cases in Four Thousand Two Hundred and Fifty-nine Cases of Diphtheria. Harold R. Mixsell and Emanuel Giddings.
5. The Control of Communicable Diseases. Allan J. McLaughlin.
6. In the Time of Henry Jacob Bigelow. William J. Mayo.
7. A Sign Occurring in Cases of Tabes Complicated by Charcot Joints. Leo Eloesser.
8. Uterine Cancer: With Observations and Results of Treatment with Radium in More Than Three Hundred Cases. Rex D. Duncan.
9. The Treatment of Cancer of the Uterus. Henry Schmidt.
10. Irradiation in Cancer of the Female Genito-Urinary Organs: Results in Three Hundred and Thirteen Cases. John G. Clark and Floyd E. Keene.

2. Framingham Community Health and Tuberculosis Demonstration: Certain Medical Results.—Donald B. Armstrong and P. Challis Bartlett present certain observations on this demonstration which has now been in progress for more than four years. Interesting aspects of the work have been studied under the following heads: (1) the amount of tuberculosis in Framingham; (2) diagnostic methods used in discovery; (3) study of arrested cases that have become active during the demonstration; (4) deaths from tuberculosis and a study of their histories; (5) present status of cases discovered during the demonstration. The amount of tuberculosis discovered in the early part of the demonstration, through all channels, indicated that one per cent. of the people had active pulmonary tuberculosis. The average number of cases of tuberculosis reported to the Board of Health in Framingham in the decade before the demonstration started was 13 per year. During the last four years the average number of cases reported to the board of health has been 43 per year. At the present time the number of cases of tuberculosis is considerably less than at any time since the demonstration started. A careful study has been made of the arrested cases of tuberculosis that have become active during this demonstration. Such cases numbered ten. Out of this number three had apparently no reason for reactivation; in two cases there were acute infections which seemed to be responsible for their upset, poor economic conditions seemed to be responsible for the reactivation in two cases, and three were due to lack of understanding or unwillingness on the part of the patients to care for themselves properly. During the four-year period out of a group of 376 individuals, including active, arrested, early and advanced types of the disease, 21 per cent. died. During the first year of the demonstration, through all sources of discovery, there were nine or ten active cases of tuberculosis to one annual tuberculosis death. At the present time the number has dropped, there being about five active cases to each annual tuberculosis death. The chief factors which seem to be responsible for the late discovery of tuberculosis cases which give the community every year advanced and dying patients that have not been known or treated for tuberculosis in the early stage of the disease are: the recluse type, which seems to be the main type never receiving any medical attention; failure of patients to seek medical advice early; failure of both physician and patient to use all the services at their command for early diagnosis of tuberculous disease; lack of complete annual medical examination, and lack of annual factory and school examinations.

3. Treatment of Acute Poliomyelitis with Immune Horse Serum.—Edward C. Rosenow gives a summary of the results of the treatment of acute poliomyelitis with immune horse serum prepared by repeated injection of the pleomorphic streptococcus from poliomyelitis in a series of cases during the epidemic at Davenport, Iowa, in 1917; during an epidemic in Dubuque, Iowa, in 1918, and in sporadic cases treated by himself and by physicians in various parts of the United States.

There were 58 cases in the Davenport epidemic, 58 in the Dubuque epidemic and 15 sporadic cases treated by the author. In addition to these 128 cases were treated by physicians to whom the serum was sent. The good effects noted at the bedside following the injection of the serum were in general proportional to the earliness of the injection. They were often striking, occurred after repeated injections, and were independent of the withdrawal of the spinal fluid. When improvement occurred it was with such regularity and in such marked degree in the early cases as to exclude accidental occurrence and to indicate that the absence of deaths, the low incidence of paralysis, and almost total absence of residual paralysis in patients treated before the onset of paralysis or with slight paralysis are due to the early administration of the serum. The results in the collective investigation corroborate in detail those which the writer obtained in both epidemics, and in the sporadic cases in which the primary data were obtained at first hand. Rosenow asserts that the conclusion that his immune horse serum has curative power in poliomyelitis, especially when given in the early stage, is warranted. Its general use in the treatment of this dread disease is indicated. The need for early diagnosis in suspicious cases by spinal puncture is again emphasized.

7. A Sign Occurring in Cases of Tabes Complicated by Charcot Joints.—Leo Eloesser observes that some tabetics have an analgesia of the bone but not of the skin. This may be tested by thrusting a pin through the skin and onto the bone. Such patients may have pain following an acute development of a Charcot joint. Their pain is felt in the distended skin and soft parts, not in the bone. This kind of pain does not subvert the theory that Charcot joints are due to trauma plus a lack of the warning sense of pain This dual sensibility of skin and periosteum would indicate that cutaneous and periosteal pain fibers run through the cord in different paths, and that one may be affected while the other is intact.

The Lancet.

July 30, 1921, cci, 5109.

1. Croonian Lectures on the Objective Study of Neurosis. F. L. Golla.
2. An Instrument Which Is Set in Motion by Vision or by Proximity of the Human Body. Charles Russ.
3. The Etiology of Bacillary Dysentery in Asylums. W. S. Dawson and W. Moodie.
4. Serological Types of Pneumococci in Lobar Pneumonia. A Study of 100 Cases. Fred Griffith.
5. The Diagnosis and Treatment of Sterility in the Male. Kenneth M. Walker
6. Industrial Hygiene: Its Rise, Progress and Opportunities Thomas Oliver.

2. An Instrument Which Is Set in Motion by Vision or by Proximity of the Human Body.—Charles Russ has devised electrical and magnetic instruments for the purpose of demonstrating the force or ray which emerges from the human eye. The device consists of a delicate solenoid suspended in an aluminum box so that it is not influenced by air or heat currents. It is held steady by a magnet. Human vision can disturb the electrostatic state of this enclosed system. Having demonstrated this fact, he constructed some light condensers and found that they also were affected not only by the human gaze, but by the body generally. With the application of heat these motions were much reduced, but not abolished. It is known that there is an electrical change in the retina accompanying vision, and also electrical changes in the muscles of the eye when in action, and these will have associated electrical fields. Whether the fields from these sources are adequate to account for the effects cannot be answered at present.

3. The Etiology of Bacillary Dysentery in Asylums.—W. S. Dawson and W. Moodie state that in spite of all efforts to control it dysentery in the past has been the cause of a large amount of the sickness in asylums, as well as a considerable percentage of the mortality. Thus, during the year 1919, in 80 county and borough asylums 1722 cases of dysentery were notified and of these 20 per cent died. The present state of our knowledge regarding asylum dysentery is summed up in the words of Tidy, who says in his "Synopsis of Medicine," "No specific organism is present, but bacteriological and serological investigations have indicated bacilli of the Flexner group." A small series of cases in the Claybury Mental Hospital were studied during the early part of this year which yielded such definite results that they are worthy of note. Contrary to the accepted view that dysentery is a disease of hot weather and is generally spread by flies, the high incidence of cases in Claybury occurs during the winter months. Seven cases occurred during the first four days of the outbreak, and from the feces of all of these a bacillus of the Flexner type was cultivated. The patients affected were isolated in single rooms and a strict watch was kept for any suspicious cases of diarrhea, several of which occurred during the subsequent two months, and were investigated. During that time an identical bacillus was found in five more cases. The system of isolation of positive cases was persisted in, and, at the time of writing, no case of clinical or bacteriological dysentery had occurred for over a month. The writers conclude that it is of paramount importance that the feces of all cases of clinical dysentery and diarrhea be examined in the laboratory. Having in mind that primary attacks and relapses may be so slight as to pass unnoticed, and the possibility of every case remaining a chronic carrier, very strict observation and a system of isolation are necessary in order to prevent the spread of the disease. Agglutinins are present in the blood of affected patients only after the fourth week of the disease, and therefore agglutination tests are of very little diagnostic value.

Serological Types of Pneumococci in Lobar Pneumonia.—Fred Griffiths contributes his observations on the serological characters of strains from 100 cases of lobar pneumonia which he has classified according to the American method. Experiments in immunization carried out on guinea pigs suggest the necessity of using considerable amounts of culture and the probability that more active and more permanent agglutinating serums can be prepared by the use of living culture than with culture killed by heat. In this series of 100 consecutive cases of lobar pneumonia, 24 were shown to belong to type 1, 35 to type 2, 10 to type 3, and 31 to type 4. In the American series types 1 and 2 taken together account for about 62.6 per cent. of the cases; in this series the corresponding percentage is 59. The incidence of cases of lobar pneumonia attributable to type 4 pneumococci appears to be higher in England than in America. Regarding the specificity of types Griffiths finds that the serological groups of pneumococci which have been designated types 1 and 2 by the American observers are equally well defined. Type 3 differs from the first two not only serologically, but generally also in distinctive morphological and cultural characteristics. The simple agglutination test is sufficient for identification of each of these three types, and it is unnecessary to apply the method of absorption of agglutinins. The unclassified strains in this series, designated type 4, did not react with any of the three type serums, 1, 2, and 3, in dilutions of 1:20. This group of strains contains many types. Six types, including the American atypical types 2 A and 2 B, have so far been defined in the present investigation, but the classification has not been completed. It is possible that if serums from unselected strains are used cross-agglutination between the three chief types and their respective serums may occur. Agglutinating serums prepared from horses appear to be less selective than rabbit serums.

British Medical Journal.

July 30, 1921, No. 3161.

1. Evolutionary Wounds. Arthur Keith.
2. Stillbirth: Its Causes, Pathology and Prevention. Francis J. Browne.
3. The Psychologist in Public Life. H. B. Brackenbury

2. Stillbirth: Its Causes, Pathology, and Prevention.—Francis J. Browne bases this contribution upon the post-mortem examination of 200 consecutive cases of stillbirth and neonatal death occurring in the Edinburgh Royal Maternity Hospital from August 1, 1919, to November 30, 1920. Of these 120 were stillbirths and 80 neonatal deaths. Of the 120 stillbirths asphyxia was the cause of death in 49, or 40 per cent., of which 11 occurred before labor and 38 during labor. The

figures show that asphyxia is eight times as likely to occur in breech as in vertex delivery. Most of the cases of asphyxia might have been prevented by adequate antenatal supervision which would have led to the discovery of such conditions as contracted pelvis, excessive size of the child, breech presentations, and albuminuria, and to the institution of preventive treatment. In the series are included 22 macerated fetuses, in 14 of which the cause of fetal death was syphilis, in 3 albuminuria, in 1 diabetes, and in 4 the cause was doubtful. Of the 200 cases there were 59 cases of cerebral hemorrhage, or 29.5 per cent. and of these 20 were delivered by breech and 39 by vertex. There were 22 nonforceps cases with cerebral hemorrhage, and all occurred in premature infants. The liability to cerebral hemorrhage seemed greatest between seven and seven and a half months, while at eight and a half months the liability seemed to be no greater than at term. In 35 of the 59 cases of cerebral hemorrhage there were tears complete or incomplete of the tentorium cerebelli. It appears that breech delivery is sixteen times as likely to give rise to tentorial tears as vertex. Further, in every case of breech delivery at term there seemed to be some degree of tentorial tearing. The points to be kept in mind in the prevention of cerebral hemorrhage would seem to be: (a) Avoidance of breech deliveries, by cephalic version of breech presentations at a period when this is always possible, not later than the seventh or eighth month. (b) Avoidance of difficult forceps deliveries; this is only possible by antenatal supervision of every case. (c) Avoidance of the induction of premature labor, certainly before eight months, better still before eight and a half months. (d) Manual dilatation of the partarient canal for the passage of the premature infant and preservation of the membranes unruptured as long as possible. The latter has also an important bearing on the infection of the newborn. There were altogether 35 cases of syphilis, including 14 macerated fetuses. From a study of these cases it is evident that the post mortem diagnosis of syphilis is not always a simple matter, but that it frequently entails a careful weighing of all the available evidence, the obstetrical and clinical history of the mother, the Wassermann test, the placenta, a complete naked-eye and microscopical examination of the fetal organs. Pneumonia is a frequent cause of death in infants during the first week after birth, and accounted for 21 deaths out of 89, or 26 per cent., in this series. There is a type of pneumonia that seems to be peculiar to the new born infant, an acute hemorrhagic pneumonia, in which the etiological factor in most instances is organismal, though there is some evidence to support the theory that in some instances it may be in the nature of an anaphylaxis. There were 18 cases of hemorrhage into the suprarenal body, and all were born dead except two. The great fact that emerges from this entire investigation is that a very large percentage of the stillbirths could have been avoided by adequate antenatal supervision.

3. **The Psychologist in Public Life.**—H. B. Brackenbury is of the opinion that experience in the great war has created a greater revolution in psychology than in any other science. He says the stage of evolution at which mankind has now arrived is one in which the individual is seeking a closer and more stable adjustment to the human society of which he is a part, and in which such societies are seeking a closer and more stable adjustment to one another. The adjustments required are mainly adjustments of mind. Biological progress has become predominantly psychological in character. We need to recognize that the psychologist has become a person of paramount importance in our social and public life. Properly to train the child so that his adjustment shall be easy and as far as possible automatic; appropriately to restrain the adolescent so that his antisocial actions shall be controlled and his liability to antisocial behavior lessened; wisely to direct adult activities so that specific abilities may be of the greatest use to the community, are functions which without the psychologist cannot be performed. Without his aid no statesman can safely attempt to reconcile the interests of different classes and to reorganize international relationships. A closer knowledge of the collective mind of the medical profession (not its opinions on a particular subject so much as its general characteristics) would smooth the path of many a minister of health. Psychology as an abstract science and as an applied art is becoming more and more a matter of intimate concern to every one of us. America has been wiser than the rest of the world in that the first things she did on entering the war was to mobilize her psychologists. In preparation for the industrial competition of the near future she is pursuing the same methods. We have learned to apply the truths of natural science; it is time that psychological truths should be applied with the same courage and conviction.

Southern Medical Journal.

July, 1921 xiv, 7

1. Radiography as an Aid in the Diagnosis of Pulmonary Disease. James S. McLester.
2. Fluid in the Pleural Cavity. W. W. Rucks
3. Diabetes Mellitus in the Negro Race. I. I. Lemann.
4. The Diagnosis and Treatment of Tuberculous Coxitis. A. W. Calloway.
5. Malnutrition in Children After the First Year of Life. L. T. Royster.

3. **Diabetes Mallitus in the Negro Race.**—I. I. Lemann recalls that ten years ago he was able to show from the statistics of the Charity Hospital, New Orleans, that the relative incidence of diabetes was greater in the white than in the negro race, the rate being 0.72 per thousand in the former against 0.47 in the latter. Such a difference, however, hardly warrants the conclusion formerly held by some that diabetes is rare in the negro race. A recent analysis of the Charity Hospital reports during the period 1909-1919 has confirmed the impression made ten years ago in a remarkably accurate way and has added, at least, the very valuable evidence that the increase in diabetes has fallen upon both races with practically equal force. Comparing the two periods the total incidence of diabetes has increased from 0.63 per thousand in the period 1898-1909 to 1.2 per thousand during the period 1910-1919, or an increase of 90 per cent. The incidence among the whites rose from 0.72 per thousand to 1.4 per thousand, or 94 per cent.; that among the negroes rose from 0.47 per thousand to 0.86 per thousand. It therefore seems safe to say that whatever influences have contributed to the increase of diabetes have affected the white and negro races alike. Analyzed from the standpoint of Warthin's contention that syphilis plays an important rôle in the production of diabetes, one would expect, in view of the syphilization of the negro, to find diabetes more common in the negro than in the white race, but diabetes is less common among the negroes than among the whites. It therefore seems fair to conclude that syphilis is playing no important part in producing diabetes. This, however, is far from saying that syphilitic pancreatitis does not at times produce diabetes. Attention has frequently been drawn to the effect of nervous influences in the production of diabetes. The negro race is to a great degree free from these influences. The mental and nervous make-up of the negro is in marked contrast to that of the Jews, among whom diabetes is disproportionately frequent.

Schweizerische medizinische Wochenshrift.

June 16, 1921, 7, 24

Further Contributions on the Nature of Herpes Febrilis.—Doerr and Schnabel recapitulate our knowledge of the propagation of simple herpes from cornea to cornea in the rabbit. Many pathologists have taken up the subject. It has been found that a general infection may result, which in the neurotropism of the exciting cause presents a strong resemblance to epidemic encephalitis. The earliest attempts to convey the disease from brain to cornea were unsuccessful, although it may be propagated from brain to brain. Later numerous reports were received of positive inoculations of the cornea with infected brain matter, and the evidences of an autonomous laboratory disease were complete. The authors have continued their work with human herpes material, inoculated upon both mankind and rabbits and later guinea-pigs, the eyes of which are readily infected. Different strains showed marked difference in virulence. The eye of the rabbit becomes immune to further inoculation. The contrary is often

seen in the human clinic, for one attack of spontaneous herpes often seems to sensitize the part affected, especially in herpes progenitalis, which may recur again and again for many years. In the experimental rabbit the immunity is not permanent, so that this difference is not absolute. Curiously, immunity toward further inoculation in the rabbit's cornea extends to inoculation with epidemic encephalitis, and, further, it was also impossible to convey the latter to these immunes directly into the brain by subdural injection. The authors regard the trail of the proof of identity of the two diseases as a very warm one and hope to announce success at an early day.

Schweizerische medizinische Wochenschrift.

June 30, 1921, li, 26.

Traumatic Herpes of the Cornea.—Stocker, who asks if traumatic herpes cornea is a possibility, answers in the affirmative, as a result of both experimental and clinical research. The febrile type of this lesion is, of course, well known; and in order to discriminate between the two types of lesion, fever would presumably be absent in the traumatic form, but this point requires study. Traumatic herpes of the cornea is known in literature and the author cites a number of cases, but the autonomy of the lesion has not been formally shown. Gamper in 1917 reported a case of "traumatic febrile herpes" of the cornea, but he was criticized by Stockmeier, who stated that the case had not been proven. The author has seen 94 cases of herpes of the cornea in 10 years, of which 11 (11.7 per cent.) had followed trauma and had been unattended by fever. From several other clinics the percentages obtained were from 4 to 18, so that 11 is a fair average. Not only should fever be absent, but there should be no other evidence of a constitutional reaction. The author gives in detail his 11 cases and analyzes them. The incubation period was short—2 to 4 days. In the majority of cases the violence was blunt, but in 3 there was penetration by a foreign body. Herpes traumaticus must be distinguished from the inoculated herpes of the laboratory which may be followed by general infection and which is presumably due to the action of an unknown specific exciter.

Gazette des Hôpitaux.

May 31, 1921, xciv, 43.

Adrenalin in Asiatic Cholera.—Naamé of Tunis contributes a short article on this subject. He has made use of this treatment since 1911, and the idea of it came to him through the resemblance between the cholera syndrome and hypoadrenia. Sergent, Sajous, and other authorities have mentioned the same resemblance, and the treatment has been widely employed by others besides the author. It may be shown in the laboratory that the cholera toxin causes congestion and swelling and at times hemorrhage of the adrenals. In human cholera there are the same autopsy finds. Carriers of cholera vibrios who remain immune doubtless have protection from sound adrenals. The failure of preventive cholera vaccine to show any curative effect may be due to the fact that the adrenals have become compromised. In regard to the rationale of the adrenaline defense Marie assumes that the hormone neutralizes the soluble cholera toxin. The cholera patient shows a remarkable tolerance to adrenaline. In his recently published monograph on cholera, Violle gives Naamé full credit for the introduction of this very successful plan of treatment which is now in use in the Indies and in Italy. It is, in fact, the classic method when combined with massive intravenous injections of saline solution.

Le Progrès Médical.

May 28, 1921, xlix, 22.

Importance of Buccodental Infection in Pathology.—Watton and Aimes contribute a paper on a subject only too common in the United States, but relatively infrequent in European literature. It is by no means a new subject in France, for even as far back as 1859 authors wrote on the socalled "buccal cachexia" by which sepsis of gingival origin was meant. When, in 1872, Piorry coined the word "septicemia" he even had in mind infection which originated from pyorrhea. In 1900 Sebileau changed the conception of sepsis to one of buccal toxemia. Since that period Americans and English have built up their doctrine of buccal focal infection with special reference to the teeth. But even in the dental type the French had a pioneer in Ferré, whose article appeared in 1896. As the idea of a buccal sepsis spread it took into account many conditions not ordinarily enumerated in focal infections. Thus the term may be applied when buccal pneumococci become virulent and set up pneumonia and bronchitis or when swallowed saliva or buccal pus sets up gastroenteric infection. Galippe as far back as 1890 attributed certain cases of diabetes to buccal infection, and of much greater interest, because eventually confirmed, was his statement that nephritis could originate in the same manner. French stomatologists evidently believe that the doctrine of apical focal infection has been pushed to extremes in America, while an American, Goldmann, has made some uncomplimentary remarks about the backwardness of French stomatologists in recognizing the importance of this sequence. The author in question seems to contradict himself in part, in that he accuses the Frenchmen of insufficient care of the national teeth, while at the same time critiicizing them, it would seem, for not recognizing a state of affairs which exists chiefly in the land of the most advanced dental technics.

Le Progrès Médical.

July 2, 1921, xlix, 27.

Inactivation of Complement by Ultraviolet Rays.—Kagawa concludes his long article as follows: The complement in 10 per cent. physiological solution becomes partly inactive under the action of ultraviolet rays. This inactive fraction becomes active again by the addition of the intermediate link, but not by the terminal link. This is owing to the fact that inactivation has been due to destruction of the intermediate link, which is less light-resistent than the terminal link. If one compare the two links when dissociated one finds that the terminal link is the more stable. The nature of the phenomenon rests on the fact that the moderate amount of heat produced by the actinic rays favors the combination of the intermediate link and the red corpuscles. The resistance of the two components varies with the *milieu*—whether combined or separate. Moreover, in saline solution the intermediate link rapidly becomes inactive without any action on the part of the actinic rays. In tests involving the intermediate link the latter should not be placed for long in suspension in artificial serum. The complement partly inactivated by heat always contains a quantity of intermediate link sufficient to give complete hemolysis when assisted by the presence of the terminal link.

Il Policlinico.

June 27, 1921, xxviii, 26.

Etiology of Sodoku.—Stretti publishes a preliminary communication on this subject, with the assistance of Mantovani of the Hygienic Institute. An elderly woman was bitten by a rat in October, 1920. She went through a rather severe experience with sodoku, which was treated successfully with intravenous neosalvarsan. In the meantime, guinea pigs inoculated with the patient's whole blood gave a positive result. In the deceased animals, autopsy showed lesions which were comparable with those of human sodoku. Heart's blood from these animals subjected to the ultramicroscope revealed the existence of organisms which appeared to be spirochetes in two varieties. Passage through several animals was successful, and with repeated passage a hemorrhagic component was noted. The organisms were also found in the internal organs and especially in the liver. The two forms, long and short, of spirochetes remained in symbiosis with continuous passage, the short taking the lead in frequency. The only other positive finds concerning the spirochetic etiology of this disease are those of two Japanese authors in connection with the sodoku of that country.

Book Reviews.

THE THIRTEENTH GREATEST OF CENTURIES. By James J. Walsh, K.C.St.G., M.D., Ph.D., LL.D., Litt.D. (Georgetown), Sc.D. (Notre Dame), Medical Director School of Sociology, Fordham University; Professor of Physiological Psychology at Cathedral College, New York; Lecturer in Psychology, Marywood College, Scranton, and St. Mary's College, Plainfield; Trustee of the Catholic Summer School of America; Member of the New York Academy of Medicine, of the German and French and Italian Societies of the History of Medicine, etc. New York: Catholic Summer School Press, 1920.

THIS book, on its first appearance in 1907, caused something of a shock to many who were still governed by the teachings of their school days regarding the "dark ages," the very middle of which was the thirteenth which Dr. Walsh boldly proclaimed the greatest of centuries. And if he did not prove his case to the entire satisfaction of all his readers which, being a man of sense, he probably did not expect to do, he certainly did show them that the thirteenth century was great in art, education, literature, architecture, law, and medicine, and that many of the conceptions popularly held regarding that period are misconceptions. The alleged Bull of Boniface VIII against dissection, for example, which is referred to in most works on the history of medicine, is shown by Dr. Walsh to have been directed against the practice of boiling the bodies of those who died away from home so as to make it possible to bring them back to be buried among their kinsfolk. The uninitiated layman may not see anything contrary to faith or morals in this practice, and so may regard its prohibition as uncalled for, but it certainly had nothing to do with dissection.

The present edition is enriched with a large number of illustrations of buildings, statues, paintings, and other works of art dating back to the thirteenth century. Those who have never read this interestingly told history will do well to do so; it is an education in itself.

ABHANDLUNGEN AUS DER NEUROLOGIE, PSYCHIATRIE, PSYCHOLOGIE UND IHREN GRENZGEBIETEN. Heft 10. DIE ABDERHALDENSCHE REAKTION mit besonderer Berücksichtigung ihrer Ergebnisse in der Psychiatrie. Von Privatdozent Dr. GOTTFRIED EWALD. Berlin: S. Karger, 1920.

IT was a great disappointment when, after a brief period of enthusiastic acclaim, the Abderhalden reaction failed to meet the expectations of medical men and gradually fell into disuse. The theoretical basis for the test was so logical and attractive that great things were expected of it but the results were so irregular that it proved of little value. Ewald has reviewed the subject quite thoroughly and has tried it out on a large series of mental cases. He finds it most constantly positive in dementia precox and positive in about one-half the cases of hysterics, psychopaths, and manic-depressives. In other forms of mental diseases the reaction is either generally negative or else so irregular as to be devoid of any diagnostic significance. On the whole, it may be said that the practical value of the Abderhalden reaction is slight, certainly not sufficient to repay the time and labor which it demands. This brochure has served a good purpose in emphasizing the limtiations of the reaction.

PRÉCIS DE THÉRAPEUTIQUE MÉDICALE OTO-RHINO-LARYNGOLOGIQUE Par G. DE PARREL, Ancien Chef de Clinique à l'Institution Nationale des Sourds-Mirets de Paris, etc. Preface du Dr. PIERRE SEBILEAU. Paris: A. Malvine et fils, 1921.

THIS volume contains 671 closely printed pages, in which all nonsurgical therapeutic resources are considered in association with dressings and local applications. A general section answering to materia medica and pharmocology is followed by chapters on the general and special treatment of diseases of the ear and mastoid process, the internal ear and deaf-mutism, the nasal cavities and sinuses, the naso-pharynx, oro-pharynx, pharynx, larynx, and trachea. These sections occupy the first half of the book. Next in order come vaccinotherapy of the combined regions; physiological therapy (orthophony and anacusis; labrology or lip reading); physical therapeutics (electrotherapy, radiotherapy, climatotherapy, and hydrology.) The outstanding feature of the work is the technique of treating stammering and other speech anomalies, auditory reeducation, lip-reading, etc., this instruction constituting a book within a book.

PRACTICAL CHEMICAL ANALYSIS OF THE BLOOD. A Book Designed as a Brief Survey of this Subject for Physicians and Laboratory Workers. By VICTOR CARYL MYERS, M.A., Ph.D., Professor of Pathological Chemistry in the New York Post-Graduate Medical School and Hospital. Illustrated. Price, $3.00. St. Louis: C. V. Mosby Company, 1921.

READERS of the *Journal of Laboratory and Clinical Medicine* who have derived pleasure and instruction from the contributions of Dr. Myers on the chemistry of the blood will be glad to know that they have now been republished, together with additional matter in permanent book form. There are chapters on non-protein and urea nitrogen, uric acid, creatinine, blood sugar, carbon dioxide combining power, cholesterol, and chlorides, and an appendix containing descriptions of various tests, methods of estimating the amount of total solids and total nitrogen in the blood, and simple methods of quantitative urinary analysis. The work is authoritative and will be found a valuable guide for laboratory workers as well as for the many practising physicians who have followed Osler's advice of many years ago to equip themselves for making all necessary blood and urinary tests in their own offices.

LEHRBUCH DER NERVENKRANKHEITEN für Studierende und praktische Aerzte, in 30 Vorlungen. Von ROBERT BING, Professor an der Universität Basel zweite, vermehrte und vollständig neubearbeitete Auflage. Preis 100 marks. Berlin und Wien: Urban & Schwarzenberg, 1921.

THE original edition of this work appeared in 1913 and is available to the reviewer only in the American edition published in 1915. The number of pages in the second German edition is 665, which is nearly 200 more than in the American edition, but the pages of the latter are notably larger. The number and titles of the chapters show no new departures over the original edition. The author has given special revision and elaboration to the sections on the peripheral nerves, neurosyphilis, acute infectious diseases, dysglandular syndromes, psychoneuroses, and cerebral and cerebellar legions. He has been conservative in his attitude toward military neurology, for Switzerland as a neutral country had no first hand experience with the subject.

OEDEMA AND NEPHRITIS. An Experimental and Clinical Study of the Physiology and Pathology of Water Absorption in the Living organism. By MARTIN H. FISCHER, M.D., Eichberg Professor of Physiology in the University of Cincinnati. Third and Enlarged Edition. New York: John Wiley and Sons, Inc., 1921.

THIS third and enlarged edition of Dr. Martin Fischer's well known work contains several important additions, though the main body of the book is practically unaltered. The author's concept of the hydrophyllic colloid is the basis of the work previously done and it is further developed here in relation to acid-intoxication. This latter term needs further explanation, for it is a fundamental question and in the light of biological chemistry hydrogen-ion concentration and titration acidity should be defined and distinguished from the author's use of the term "acid-intoxication." The whole concept of edema in relation to "acid-intoxication" as affecting all the tissues of the body is a fundamental question of pathology as regards the circulation of blood and lymph in every part of the organism, not merely in the matter of parenchymatous nephritis and the processes of repair in the kidney. The clinical test of the author's views is the real one and the successful treatment of edema by the author's methods is the warrant for more extended use of these methods, while the explanation and more accurate definition of his terms may be left to more extended research and observation in the course of time. Other substances in addition to acids (including some alkalis) may and do increase the hydration capacity of colloids. But the practical application with success of the author's methods demands and deserves still more extended use.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 28, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Cancer Growth in the Light of Embryonic Growth.—DR. CHARLES R. STOCKARD spoke of tumor growth and tumor-like growth from the standpoint of normal growth. He said that normal growth was a problem about which very little of an exact nature was known and it naturally followed that very little was known about the biology of tumor growth. It might be said that tumor growth was a modification of the normal growth processes, and this was true in spite of what its causes might be. In discussing his subject he considered briefly two entirely different types of tumor growth, namely, the ordinary teratoma, or embryonic inclusions, and, secondly, the various tumors of the adult and old age. Teratoma from the standpoint of embryology was an accessory growth which started as a modified budding process. All young embryos had many potential growing points which constantly became fewer as the adult condition was attained. In plants where there was a simple generalized growth the processes were more easily observed. After growing for a time a plant stopped with its apical bud coming to a rest. It rested for a while until there was an accumulation of growth stuffs when it again began to grow. This might happen many times in the course of the development of the rapidly growing plant. The new growth usually occurred as a single shoot from the apical bud, but now and then this did not take place and instead of a single terminal shoot there was a double formation due to a growth from the apical and also one from the upper axillary buds. When the central bud grew the others were suppressed. Reactions of this kind illustrated the results of disturbance in balance of growth. When the terminal bud was cut away and the two upper axillary buds sent off shoots it frequently happened that one of the axillary buds was larger and better than the other. The better shoot grew at the expense of the smaller and tended to suppress it. This was a common condition of balance between growing parts and the potential growing parts. The same principle was true among animals. By slowing down the growth rate two buds might be produced instead of one. This Dr. Stockard demonstrated by illustrations showing embryo fish in which growth had been inhibited and as a result there were two budding heads instead of one. Certain of the illustrations showed both of the components alike; there was no deformity; they were simply double individuals. But each of these components of the double organism exerted its effect upon the other component and this was important in connection with growth balance. These points were also important in their bearing on the origin of teratoma. When two parts were equal in size they were normal in structure, but when there was a difference in size the smaller one was always deformed. Some of the heads became amorphous and finally there might be only a nodular formation. This might not grow but might become simply an inclusion and would be found as an embryonic mass inside of the larger component. If this inclusion later began to grow a teratoma resulted, and under certain conditions such as those mentioned the teratoma would come in the head or neck. Other conditions of Siamese twin formation with one small component part resulted in abdominal and pelvic inclusions. Teratoma had been thought to be due to a growing germ cell, as from the germinal cells of the testicle. But it had been shown that there was no growth from the male germ cell. If it were true that teratoma had their origin only from the reproductive gland of the host they would all be found in the abdomen, but this was not true; they were found in all parts of the body. It had been shown that these inclusions in the double type of organism always took place in that part of the body in which they originally occurred. Passing on to a consideration of tumor growths and the general cessation of all normal growth in older individuals from the standpoint of actual normal growth reactions, Dr. Stockard based his remarks upon experiments on the interaction among the organs of the developing individual. In the interpretation of the cause of tumors the fact that the condition was more frequent in the adult and old individual than in the young was to be recognized as of deep significance. The fact that there was in interaction and a growth inhibiting effect exerted among proliferating tissues in the individual was a second point of great importance. In the young rapidly growing and developing person almost all organs and tissues were increasing in amount through multiplication of their cellular constituents. Organs however were definite and limited in their growth and growth in general tended to cease as the body approached its adult proportions. Finally in the old individual cell proliferation became almost entirely confined to the germinative layer of the skin, the lining epithelium of the alimentary tract, the testes in the male, and the production of red blood corpuscles. Even these processes became feeble with increase in age, and new cells were not abundantly supplied. This was the normal course of events. The size and proportion of parts were largely determined by heredity but might be seriously interfered with by irregularities in environment. A slowing of the developmental rate at particular times might largely suppress the growth of certain organs rendering them abnormally small in size and insufficient in their function. Again it might rarely happen that one organ took on an excessive growth and attained a size entirely out of normal proportion. There was thus a frequent lack of proper balance and adjustment among the several organs of the developing body. All parts of the body might be thought of as having more or less to do with the ultimate growth of the whole. On becoming adult a state of apparent balance was maintained. Growth was largely confined to the repair of natural loss and the maintenance of this state of adult balance. Under such conditions there still remained considerable regenerative powers following injuries of various kinds. The regenerative growth following injuries to the adult animal might become morbid in degree and without regulation thus give rise to tumor-like conditions. Such a growth might rarely occur even in the immature body, but in this case one would expect to find the growth proportions among the tissues in general to be abnormal and distorted. Thus, juvenile tumor conditions were probably associated with other anomalous structures. Tumors in the adult would be expected to occur more frequently in certain families, since growth balance and proportions were hereditary characters, and on the state of these the tumor growth largely depended. In the old individual with but little normal growth still in existence, there could be on the basis of this interpretation, but slight inhibition to any regenerative process that might be set up. Such animals on account of their old condition usually regenerated slowly but following continued trauma, active regenerative growths were frequently begun and not being under inhibiting control of any other active growth processes, this regeneration attained an excessive, distorted and malignant condition. All very old animals no doubt experienced a considerable amount of trauma and if they lived long enough almost all of them might possess some tumor growths. A rat at three years of age was as old as a man at sixty, while a guinea pig did not become old until it reached the age of five years. Rats and mice were often kept for laboratory use until they were two years old while guinea pigs were seldom kept until they reached a correspondingly advanced age. Consequently tumors were said to be uncommon among these animals. However, among the old individuals of their stock a considerable percentage of tumor bearing ones had occurred. So, it might be inferred that if as many really old guinea pigs were observed as of old mice and rats cancer might be found to be almost as common among guinea pigs as among rats and mice. Finally, it might be supposed that every mammal would develop some form of cancerous growth should it chance to live until extreme old age, since one of the conditions of old age was a loss of the general growth-

regulating processes so necessary in young and growing individuals.

Some Factors to be Considered in the Surgical Therapy of Cancer of the Rectum.—Dr. JEROME M. LYNCH stated that this was a very old subject, but that when we considered the fact that tumors in the rectum remained stationary longer than in any other part of the body; that the rectum was the most accessible of all the viscera; that most tumors of the rectum lay within seven to ten centimeters of the anus and with the proctoscope could be diagnosed at any period; that when discovered early they could be removed; when the fact was taken into consideration that of 600 cases of tumor of the rectum coming under the speaker's observation, the average period of their existence before the diagnosis was made was eight months; there seemed to be something wrong. Nearly all cases of cancer of the rectum were pretty well defined. Usually the onset was marked by constipation and a desire to move the bowels with an explosive effort. At first this desire was manifested on rising in the morning; later it became more frequent, occurring not only in the morning but several times during the night. Disturbances of the stomach or other parts of the alimentary canal were frequently associated with cancer of the rectum and that was why many people having cancer of the rectum were treated for stomach symptoms and came late to the surgeon. It seemed to him that it was a simple matter to make the diagnosis. There was nothing that resembled cancer of the rectum except an old inflammatory condition, and occasionally one found a malignant tumor engrafted on such an inflammatory condition. In addition to examination of the rectum with the finger and the proctoscope, biopsy had the sanction of many surgeons. Dr. Lynch thought this a very bad practice. It was hardly ever necessary to excise a specimen in order to make a diagnosis. The only conditions that might be mistaken for carcinoma of the rectum were diverticula, hyperplastic tuberculous lesions, and syphilitic stricture. Syphilis of the rectum was very rare; he did not believe he had seen five cases in twenty years. Hyperplastic tuberculous lesions were more often found in the sigmoid than in the rectum. Tuberculosis of the lower bowel was rare, though if the patient had tuberculosis of the lungs it might be suspected. When the diagnosis was once made Dr. Lynch said he thought the radiologists would agree that they were in a better position to treat the patient after the tumor had been removed than before. It was difficult to tell when a tumor was inoperable until one saw it at an exploratory operation. In suspected carcinoma of the rectum it was important that an exploratory laparotomy be performed, as the finding of metastases in other parts of the abdomen might show that operation on the rectum would be futile. If the sigmoid was long enough so that it could be brought down an artificial anus in the natural location was better than a stoma on the abdominal wall. There were many patients with stoma for conditions other than carcinoma, who were very comfortable and suffered little inconvenience. Colostomy was always done when the growth was within 2 cm. of the anus in order to prepare for extensive removal *en bloc* if this was necessitated by extensive lymphatic involvement. As soon as a diagnosis of cancer was made colostomy should be insisted upon. Colostomy should not be postponed until obstruction took place. The advantages of early colostomy were that it reduced inflammation, often converted an inoperable into an operable case, obviated intestinal obstruction, and its accompanying symptoms of pain, constant secretion and defecation; stopped hemorrhage, and permitted rest and sleep. As to operations, Dr. Lynch said he had no one operation to suggest. One must choose the method best suited to the conditions present in the individual patient at the time of operation. Any particular operation which one might undertake might require modification, so one must not start out with any set idea of what he was going to do, but must simply meet conditions as they arose. The Kraske operation was *passé*. This operation was devised to save the lower bowel. Every time one did that operation he left a stricture, which was due rather to the interference with the terminal blood supply than to absence of peritoneum. It was a surgical axiom that the amount of scar tissue was in reverse ratio to the blood supply. The perineal operation was the operation of choice in very fat or in extremely debilitated people, because these people did not stand abdominal operations of any kind well. In all cases he preferred to remove the coccyx, because it gave better drainage and obviated the necessity of closing the dead space between the anus and the coccyx. Cancer of the rectum remained stationary for a long time. In the speaker's series of cases an average of eight months elapsed from the time symptoms manifested themselves until the diagnosis was made and 26 per cent. of these patients were well after five years; this was doing well. Cancer metastasized rapidly by way of the lymphatics, as was well known, and in the rectum the supply of lymphatics was small; hence the rectum was a place where something could be done by surgery, the *x*-ray, and radium. The public must be educated to the fact that examination of the rectum was as necessary as examination of the tonsils or other parts of the body, and that a general physical examination was always necessary no matter what the patient was suffering from. Then people should be educated to the advantages of an early colostomy in the presence of cancer.

The Relation of Radium and Roentgen Ray Therapy in Cancer.—Dr. ISAAC LEVIN presented this contribution which was illustrated by lantern slides. He stated that the mechanism of the action of radium and the roentgen rays was the same in all parts of the body, and a comprehensive description of it could not be given without illustrating it by the results obtained in malignant tumors in different parts of the body. The morphological changes which occurred in carcinoma or sarcoma tissue under the influence of the rays were observed in the tissues themselves, and were manifested by the vacuolation of the protoplasm, pyknosis of nuclei, karyolysis, and ultimately complete necrosis of the cell. The cellular changes were accompanied by a round celled infiltration, which was subsequently changed into dense sclerotic connective tissue, poor in blood vessels. This new connective tissue formation ultimately dominated the picture to such an extent that some observers maintained it was the only direct effect of radiation, while the destruction of the tumor cell was secondary and due to lack of nutrition. The clinical, pathological, and biological studies of the writer, in association with B. Joseph and M. Levine, indicated that the first effect of the rays was directed directly on the tumor cells. This effect consisted in the inhibition of the proliferating power in the sterilization, as it were, of the cancer cells. The degeneration and destruction of the cancer cells and the formation of sclerotic connective tissue took place subsequently through the action of the rays; moreover this cell degeneration and cell death might not be due directly to the action of the rays, but might take place in the natural course of the life cycle of the cancer cell. This cycle consisted of a youth, a period of development maturity or a period of function, and senility or a period of degeneration, which gradually led to death. In parenchymatous organs the first period was usually completed during embryonic life or at a very early age; the second period continued through the whole life of the organism, and the third period was attained at the old age of the organism or near its death. The life of an individual cancer cell, on the other hand, was very short, and the whole process took place continually, irrespective of any intrinsic aid. But in a malignant tumor the majority of the cancer cells were quickly rejuvenated before they reached senility through the fact that each cancer cell was divided into two daughter cells. *When the rays arrested the proliferation, then the cancer cells, without any further outside aid, matured and degenerated.* Such a cell might not degenerate and though potentially a cancer cell, might be resistant to the rays. The round cell infiltration, which surrounded the group of radiated cancer cells and which was subsequently changed into dense sclerotic connective tissue, was of secondary occurrence, though for practical purposes it was of greater importance than the destruction of the cancer cells themselves. The importance of the connective tissue consisted in the facts that, after the most

perfect results of radiation, there might remain a certain number of viable though stunted cancer cells; the dense connective tissue wall surrounded these cells and kept them in check. The formation of this connective tissue around the cancer cells was not due to the direct influence of the radiations; raying of other conditions like thyroid gland, cheloid, etc., was not followed either by cell infiltration or by connective tissue formation. The experimental investigations of the writer indicated that this connective tissue formation might represent an attempt on the part of the organ to protect itself against the further growth of the cancer by walling it off from the normal tissues by a connective tissue barrier. The mechanism of the action of the rays on malignant tumors could be demonstrated most clearly in the study of the influence which radium exerted on carcinoma and sarcoma of the skeleton. The metastasis usually began its development within the marrow, and when the nodule of carcinoma was small, the surrounding bone marrow appeared quite normal. As the tumor nodule increased in size, it approached and invaded the compact osseous tissue or the compact osseous partitions of the cancellated bone. Then there began to appear characteristic changes in the bone tissue. These changes were of two types, namely, osteoplastic, in which extensive new bone formation took place around the metastatic tumor; and osteoporotic, in which the changes consisted in destruction of the compact bone. The studies of the writer had shown that both conditions might be present alongside one another. Most frequently the metastatic nodule increased in size, suppressed the power of the organism to create new bone, and progressively destroyed the old bone. The spontaneous healing power of the organism was thus quite imperfect and came into play very rarely indeed. In a previous communication the writer had shown that radium therapy might enhance the healing power of the organism, destroy at least a major part of the malignant tumor, and surround it with newly formed bone. A case illustrating such a result was that of a woman, 54 years of age, who consulted Dr. Willy Meyer for carcinoma of the left breast. In the course of the examination there developed a pathological fracture in the middle of the shaft of the right humerus. A roentgenogram showed complete destruction of the bone of the shaft of the humerus in an area over an inch long. Two weeks after the first radium application the roentgenogram showed a callus formation and the two ends of the bone in good position. The patient could support her arm without splints. Such a result indicated that radium therapy presented the nearest approach to a specific therapeutic measure in cancer. In practice, however, the action of radium had its limitations, and the results obtained thus far varied with the size and location of the tumor. Even the most powerful *x*-ray machines and tubes, developed in this country and abroad, still must leave the distance between the *x*-ray tube and the tumor too great for efficient action. The new method of radium therapy developed recently by Duane obviated to a great extent the difficulties created both by the size and location of the tumor. It consisted in the use of buried radium emanation tubes. Each minute glass tube contained not more than about three millicuries. A sufficient number of the tubes was buried in the tumor to cover its whole mass and it was left there permanently. But even with the best methods available only a small percentage of cancer patients had thus far been benefited by radium and roentgen therapy, and the same held true, in reality, for surgery as well. The percentage of operable cases as related to the whole number of cancer patients was small. Just as small was the percentage of cases adapted to ray therapy at the time when the cases were referred for treatment. The remedy was self-evident and consisted in correct correlations between surgery and radiotherapy. A new orientation must be created in the surgery of cancer. Surgery need not be as radical as heretofore since radiotherapy employed before and after operation could take care of the small remnants of the tumor left behind in the operating field. As a result a greater percentage of cancer patients would be operated upon and treated, and a greater ultimate percentage of successful cases would be recorded.

Dr. JOSEPH A. BLAKE, after expressing his appreciation of the papers, said he had done little work on carcinoma of the rectum in recent years and had published little on this subject. At one time he had operated upon some fourteen or fifteen cases of cancer of the rectum by the same procedure and the results were quite encouraging. The operations were done some eight or nine years ago and quite a few of the patients were still living; some of them he had seen within the last year. They were all operated upon by a rather thorough operation. There was no mortality in the series, and although the operations were extensive, the fact that there was no mortality, might be attributed, Dr. Blake believed, to the nature of the operation, which was a combined operation which permitted one to determine the exact extent of the local growth and the involvement of the portal and lymphatic systems. This was the reason, as Dr. Lynch had brought out, why the abdominal operation should be done, because it was entirely wrong to submit the patient to such a dangerous operation as excision of the rectum if there were extensions or metastases in the vital organs. The operation he had used was as follows: A median incision was made and the growth clamped with two clamps at the lowest point consistent with safety. The gut was divided between the clamps with the cautery, the proximal clamp having been passed through a muscle splitting incision which was to be the future colostomy; the end of the gut was drawn out onto the abdomen and the clamp left on. This was all the attention paid to the colostomy. The lower segment was freed from above and removed by the operator or an assistant, working from below, with the patient in the lithotomy position. The entire bowel was removed leaving a clean wound, the anus having been sewed up and cauterized to prevent infection. There being a perfectly clean wound the results so far as the immediate mortality was concerned were good. The later results were also good on account of the fact that no attempt was made to conserve any part of the rectum for future anastomosis. If the carcinoma as located in the sigmoid then operation was performed by anastomosis, but in the series of cases in which the carcinoma was in the rectum the operation was complete removal of the rectum. Dr. Blake said it was his belief, when the sphincter had to be removed, that an inguinal colostomy was more efficient that an artificial anus. Then we come to a class of patients in whom there is recurrence after operation. The patient who had a recurrence and eventually came to colostomy, he believed, would have had a longer and better life if colostomy had been originally instituted and the parts in which the recurrence had taken place were not subjected to the irritation of fecal flow and not subjected to the infection that occurred with cancer in this region. The patient did not suffer pain, was more comfortable, and his life was prolonged. Then in some cases in which there was a recurrence of the growth, if the patient was referred to the radiologist he had a better opportunity of helping the patient and prolonging life if he was not embarrassed by the fecal current passing over the radialized tissues. Dr. Levin had spoken of connective tissue formation following the use of radium. He believed this was an expression of tissue repair and showed how much the cancer cells were broken down and destroyed. If infection occurred in addition to this destruction of the growth a much more violent reaction occurred and there was much more pain and discomfort. In regard to the general radium treatment of cancer, it seemed to him to be fairly rational when growths were accessible to radium and inoperable from the standpoint of removal by surgery that a certain procedure should be inaugurated. This should be to isolate the tumor by operation as far as possible, and thus prevent extension. For instance, one often saw a new growth in the mouth treated by radium without attention to lymphatic extensions down the neck. It seemed to him reasonable to block this path of transmission or extension by a thorough radical extirpation of the lymphatic channels and nodes of the neck, thus leaving the growth without means of extension to be treated by radium. As to the treatment of cancer of the rectum by radium, Dr. Blake said he had been interested in watching the progress of

several cases. One patient, probably one of the first treated by radium for carcinoma of the rectum, when he came under his care about eleven years ago had no discernible growth. His history was that he had had a growth diagnosed by a reputable surgeon, that it was examined histologically and reported cancer, and that the patient had been treated with radium. When Dr. Blake saw him he had had hemorrhages from the intestine, but there was no growth as far as the sigmoidoscope reached. Another patient had a circumferential carcinoma of the rectum invading the perirectal tissues and obviously inoperable. He also had myocarditis, and an uncompensated valvular lesion. He was treated with radium and in two months had only a small nodule, no pain, no obstruction, no hemorrhages. His life had at least been prolonged if he had not been cured.

Dr. A. A. BERG stated that there had been more changes in the surgical treatment of carcinoma of the rectum in the last decade than in any other form of cancer. He could recall when they began to use the Kraske operation, which they had now given over almost altogether. Our modern methods as compared with the Kraske operation were about as different as day was from night. Surgery in carcinoma of the rectum had a great deal to promise the patient, not only in prolongation of life but in radical cure. He thought 26 per cent. of cures was not at all an exaggeration, for cancer of the rectum was not a malignant form of cancer. He took it from what Dr. Lynch and Dr. Blake had said that there operations had been done in one stage. Colostomy, excision, and final closure were lengthy, complicated, and did not produce as large a percentage of radical cures as had been expected and as were being obtained by the one stage method. A preliminary colostomy was only indicated where there were severe obstructive symptoms. The abdominal and perineal operations were greatly to be desired types of operation for the radical cure of carcinoma of the rectum. In reference to the incision and mobilization of the capsule of the rectum, it should be emphasized that the capsule should not be entered, and the rectum should be removed with the cellular tissue intact. This could scarcely be done by the perineal operation, but it could be done safely, rapidly, and successfully by the higher operation. In the lower carcinomas complete excision and amputation of the rectum should be done. As we continued to make progress and to change our technique to meet new conditions, there would be fewer recurrences and we would take exception to the former attitude of considering the abdominal route as a *noli me tangere*. The mortality of the abdominal operation was low; it could be done as a one stage operation, and resulted in a permanent cure, with good functional results in the majority of cases.

Stated Meeting, Held May 23, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Symposium on Modern Methods for the Prevention of Diphtheria.

Preparation of Mixtures of Diphtheria Toxin-Antitoxin.—Dr. EDWIN J. BANZHAF read this paper, in which he said that in preparing the toxin-antitoxin mixture for active immunization against diphtheria, it was essential to have diphtheria toxin of very high potency. The toxin they employed had a minimum lethal dose of 0.002 c.c. to 0.0007 c.c. The advantage of using such highly potent toxins was that they might be diluted with salt solution to the toxic strength actually required, lessening in this way the concentration of other substances which gave rise to local and constitutional reactions. The most important factor in these reactions was the bacillary substance which could not be eliminated by any method at present available. At best one could only minimize the reactions in those who were hypersensitive to these substances, by using only highly potent toxins which would allow of dilution. The toxin, when freshly prepared, was unstable and deteriorated rapidly at first. After six months the toxin approached a relative stability and could then be used for the preparation of the toxin-antitoxin mixture. Several lots of such toxin were mixed to give a total of about 60 litres. The L plus dose was then determined. The L plus dose was that amount of toxin which, when added to one unit of antitoxin, would give a mixture which when injected into a 250 gram guinea pig would cause death on the fourth day. The toxins used contain from 4 to 6 L plus doses per c.c. As the convenient immunizing dose was set at 1 c.c. for each injection, it was desirable to have all the preparations of toxin-antitoxin mixtures standardized to contain the same immunizing value; they theretore set the standard at 5 L plus per c.c. Each mixture of toxin was consequently diluted with sterile salt solution, containing the required amount of preservative, to the above mentioned standard. An aged standardized antitoxin was than added to the toxin, one unit of antitoxin for each L plus. The mixture was therefore theoretically toxic. The use of this proportion insured against a possible over-neutralization. If the mixture was too toxic more antitoxin could always be added. The calculated amount of antitoxin to be used was greatly diluted and added slowly, under aseptic precautions, to the toxin which was constantly agitated to insure a complete mixture. This was then allowed to stand for three hours when it was tested out on guinea pigs. For the preliminary test two groups of guinea pigs were employed. To each of one group was given 1 c.c.; to each of the second, 5 c.c. The injections were made subcutaneously. If the mixture was properly adjusted the guinea pigs receiving 5 c.c. would die acutely, whereas those receiving 1 c.c. would show no immediate effect but would develop paralysis after two weeks. If the mixture was too toxic more antitoxin was added until the above condition was reached. The mixture was then filtered through a Berkfeld filter and stored in a refrigerator for stabilizing. The mixture was later retested and any necessary adjustments made. Such a mixture retained practically its full immunizing power for at least one year.

The Duration of Active Immunity after Injections of Diphtheria Toxin-Antitoxin.—Dr. MAY C. SCHROEDER made this contribution, in which she said that the practical value of the toxin-antitoxin immunizing injections depended upon the harmlessness of the injections, the proportion of the susceptibles who responded and became immune, and finally the duration of the immunity. They had decided that the most favorable means of determining the duration of immunity was to seek institutions where children were held for a number of years. Dr. Zingher and the writer had picked out a number of institutions and had followed the children from year to year. Five and one-half years had elapsed since the children in the first institution were treated. They had also tested over 4000 inmates of the State Institution for the Insane, in order to obtain results on a group of people likely to remain located indefinitely. Tables showing the results of repeated tests in the same children following immunization showed that when once antitoxin developed it was quite or almost as persistent as in those who developed it naturally. It had been shown in their work that active immunity could not be produced in young infants by toxin-antitoxin injections owing to the inhibitive effect of the passive immunity derived from the mother. This passive immunity was lost later. Consequently toxin-antitoxin could be depended upon to act effectually only after the age of six months. During the past two years fully 50,000 children attending the public schools of Brooklyn had been Schick tested and immunized under the writer's personal supervision. During the past month they had been retesting the children who had been immunized. The results showed that in 90 per cent. of the children immunity had persisted until the present time. This meant that at least 90 per cent. of the sickness and deaths from diphtheria could be prevented.

The Schick Test and Active Immunization with Toxin-Antitoxin in Private Practice.—Dr. DEVER S. BYARD presented this communication, in which he stated that there were approximately 500,000 children in this city of an age group susceptible to diphtheria, who were some or all time private patients. To make

them safe subjects in the community and to secure for them an immunity to diphtheria identical with that conferred through public agencies, was the outstanding opportunity and responsibility of the private physician. Protective inoculation against diphtheria must have, soon would have, its accepted household place with the present required vaccination against smallpox. During the 2½ years ending March 31, 1921, of all cases of diphtheria in New York City, an average of over 78 per cent. occurred in and were treated in private homes. In 1920, there were 10,386 cases thus treated. Such statistics emphasized the outstanding importance of private physicians—pediatrists and practitioners—in all matters looking to diphtheria control in the community. Dr. Byard described the results of a survey of 192 families showing the response of the average parents and guardians to a new program of diphtheria prevention. Of these 192 families slightly over 15 per cent. refused cooperation, both in the Schick test and toxin-antitoxin prevention. Eighty-five per cent. accepted the program in whole or in part. In these 192 families, 388 children were included. Of 317 children receiving toxin-antitoxin, 286 were Schick tested at a date averaging seven months after inoculation. Of these 286 tested, 7 were susceptible and 5 were regarded as slightly or doubtfully positive. Of 299 children tested, accepting the combined results of early and later retesting by the Schick method, five, or 1.7 per cent. failed of immunity. In the Schick testing and retesting during the last year and a half for all the older subjects a control reaction was observed. This was important as a gauge of the degree of the frequently observed reactions due to protein. While no statistical value was claimed for these clinical observations, they did, however, attest large parental cooperation and the summaries closely approached the expectation of result of Schick test and toxin-antitoxin use, which the precise and extensive work of Dr. Park and Dr. Zingher had formulated. They particularly instanced the high susceptibility to diphtheria of groups of children in private families having average community contacts and exposure. The records of these children, over 50 per cent. of whom were under one year of age, confirmed the safety and expediency of the preventive measure. The high degree of conferred immunity warranted an urged, aggressive program. The responsibility was theirs. The public, sufficiently advised, would prudently cooperate in this undertaking which so importantly concerned it.

Diphtheria Preventive Work in the Public Schools of New York City.—Dr. ABRAHAM ZINGHER presented a comprehensive report describing the active campaign in diphtheria preventive work in the public and parochial schools of New York City. Between the end of February, 1921, and the end of the school year, they had applied the Schick test in 44 of the larger schools in Manhattan and Brooklyn and had tested over 52,000 children. Those who gave a positive or a positive combined reaction were injected with toxin-antitoxin. The results of the Schick test in these schools indicated that the socalled "natural immunity" depended to a large extent upon *contact immunity* developing after repeated exposures and mild infections with the diphtheria bacillus. The children of the more well-to-do classes of our population showed a much higher proportion of positive Schick reactions than did the children of the poorer classes. Relative segregation of the first, crowding and close contact of the second, probably accounted for these results. The factors of race and hereditary family tendency also seemed to influence considerably the development of natural immunity to diphtheria. Negative pseudoreactions were found in some schools in fully 20-25 per cent. of the children. These figures indicated that it was strongly advisable always to use the control test along with the Schick test in children over 5 years of age so as to identify accurately the children who showed a negative pseudoreaction and thus avoid giving them the injections of toxin-antitoxin. The results of the Schick retests which were made in the schools after two to five months indicated that it was better to wait six months or preferably longer before testing for the development of an active immunity after toxin-antitoxin inoculation. Two injections of toxin-antitoxin, even of a larger amount, did not give as good results as three injections of a smaller amount. The mixture should be under-neutralized and yet perfectly safe for the human being. Children under six months should not be injected with toxin-antitoxin, since 58 to 90 per cent. of them were immune and did not respond to these injections, as was shown when they were Schick tested later. *All children from six months to five years should be injected with toxin-antitoxin.* The omission of the Schick test in this age group was not of much consequence, as most of the children gave a positive reaction. A majority of these children could be reached in the homes, in milk stations, day nurseries, children's dispensaries, infant and orphan asylums, etc. To place the diphtheria preventive work in the public schools of a large city on a practical basis, it was advisable, for the present at least, to simplify it for the school physician by omitting the preliminary Schick test in the younger children and by immunizing all children of the incoming classes with toxin-antitoxin. No child should be pronounced immune to diphtheria until it gave a negative Schick reaction. The test should not be made until at least six months had elapsed after the injections of the toxin-antitoxin. School children in the grades above the incoming classes should have the Schick test and control test made before they were injected with toxin-antitoxin. Only reliable outfits for the Schick test and carefully prepared mixtures of toxin-antitoxin were of value in such preventive diphtheria work. The Schick work in the public schools was carried out under the direction of Dr. William H. Park and in cooperation with Drs. S. J. Baker, Jacob Sobel, and J. Blumenthal of the Bureau of Child Hygiene, and Dr. Louis I. Harris of the Bureau of Preventable Diseases of the Department of Health; Dr. I. H. Goldberger of the Bureau of Educational Hygiene of the Department of Education, which was largely instrumental in gaining permission for them to do the work in the schools, and by the Manhattan Chapter of the American Red Cross, through Mr. George Bedinger, who was in charge of its Health Service Department, which had lent substantial financial support to the work.

Does a Negative Schick Test Indicate Present and Future Security from Diphtheria?—Dr. WILLIAM H. PARK made this contribution, in which he said that this question could only be properly answered by considering not only whether the amount of antitoxin in the body which was sufficient to neutralize the toxin injected for the Schick test was sufficient to prevent diphtheria, but also whether a negative test indicated this; that was whether there was apt to be error in the technique so that occasionally a negative outcome meant a faulty injection or an improperly standardized toxin rather than a neutralization by antitoxin present in the body. During the past eight years they had carefully investigated every case of suspected diphtheria occurring in children or adults who had given a negative Schick test. They had collected altogether 18 cases. Six of these they believed to be due to errors. On the other hand, they had met with two experiences in children and two in adults, all reported to have given negative Schick tests in which the development of exudative inflammation of the tonsils, or of the tonsils and lateral wall of the pharynx, required some other explanation. In the case of the two children the supposition was that these were cases of croupous tonsillitis and that the diphtheria bacilli were present without producing lesions. The other supposition was that while the children were ill with streptococcic tonsillitis the diphtheria bacilli present in their throats grew in the exudate, producing endotoxins and exotoxins, and these added slight diphtheritic lesions to those caused by the streptococci. The amount of antitoxin present would thus be conceived as too small in amount to prevent contact irritation but as sufficient to prevent general poisoning. It might be concluded that a negative Schick or a negative result from vaccination was a strong suggestion of immunity but not an absolute assurance. In both cases this uncertainty was because of doubt as to the potency of the product and the accuracy of the technique. In either case, a repetition of the inoculation

might be followed at times by a different result. Because of these facts it would be foolhardy to refuse to give a child antitoxin who had a history of a negative Schick test in the face of suspected diphtheria, just as it would be foolhardy to rely on a recent unsuccessful attempt at vaccination in the face of definite exposure to smallpox. Either improperly measured toxin or imperfect technique would probably prevent the development of the positive Schick reactions in susceptible persons. The failures were so few, however, that it was justifiable to consider that persons were in all probability immune who had a record of a carefully done negative Schick test. Careful investigation led to the belief that about 2 per cent. of the persons giving negative Schick tests did so because of error in technique. Where great care had been taken to have the toxin strength correct and the injection given strictly intracutaneously they had not discovered any errors.

Dr. LOUIS I. HARRIS said the community ought to be grateful to Dr. Park for having helped to establish the Schick test and the use of toxin-antitoxin on a firm basis with the aid of his devoted and loyal staff. In a promiscuous and crowded population, such as that of the city of New York, there were many diphtheria carriers and contact with them was inevitable. According to the estimates of Weaver, Hartley, Martin and others there was probably a total of from 160,000 to 200,000 diphtheria carriers in the city during the winter season. It was a marvel that we did not have a larger number of diphtheria casualties. While we might estimate the direct and immediate morbidity and mortality from diphtheria, who could tell to what extent diphtheria and its sequelæ were responsible for many of the ills of adult life. Because of its effect on the heart and kidneys, who could say how great a part diphtheria was playing in causing diseases of these organs which became manifest in adult life? Surely the problem of controlling diphtheria was enormous and the Schick test and toxin-antitoxin immunization bid fair to solve it. The present faith in the universal efficiency of the Schick test recalled the situation in respect to typhoid prophylaxis when antityphoid inoculation was first introduced. It was thought that it would be universally effective, but we learned in the war that there were exceptional cases in which typhoid inoculation failed to give immunity. The same mistakes should not be made in regard to the Schick test. We should be guarded in our promises of ability always to confer immunity. We should not instil the thought that the Schick test and toxin-antitoxin immunization offered a sure protection against diphtheria. A point brought out during the discussion, but not sufficiently stressed, was that if the Schick test were read too early a positive reaction might be overlooked. One could be sure of the reading only on the third, fourth or even fifth day after its administration. The work of Weaver and of Hartley and Martin and others brought the point out strikingly, how frequently diphtheria cultures taken to terminate quarantine in cases of diphtheria misled those who relied upon a single or even two negative cultures. He pointed out that we had been compelled to make an oblique attack upon diphtheria through the use of the Schick test and toxin-antitoxin, because the direct attack in terminating the carrier state had failed. If the people were to reach the full value of the Schick test and of active immunization against diphtheria, the cooperation of the medical profession was essential. They should remember that every physician if he were doing his full duty was an unofficial health officer. The medical profession should supplement and extend the work of the Health Department as Dr. Byard had done, even though they might not be able to do so on as large a scale. In that way only the frightful mortality from diphtheria could be controlled.

Dr. EVERETT W. GOULD said that these interesting and valuable papers had covered the scientific aspect of the subject so thoroughly that it seemed best to give the experience with the Schick test and the protection of susceptibles at St. Luke's Hospital. They had been relying upon the Schick test in all cases entering the hospital, both surgical and orthopedic as well as the medical cases. All those giving a negative Schick test were not immunized, while those giving a positive test were thoroughly immunized. Since this procedure had been adopted seven years ago, they had not had more than four cases of diphtheria in children developing among those who had previously shown a negative Schick reaction. Those cases were all given antitoxin and recovered. It was impossible to say whether these were true cases of dipntheria developing in children previously showing a negative Schick reaction or diphtheria carriers who had developed tonsillitis, or, more likely, were instances where the Schick reaction had been falsely reported as negative as a result of a mistake in the technique or in the interpretation of the reaction. He thought that the fact that only four cases of diphtheria developed among the hundreds and thousands who had been subjected to this test was an excellent argument in favor of this method. About five years ago a nurse had a Schick test made by a capable man and reported as negative. About four weeks later she developed a sore throat, which gave a negative culture, although clinically it resembled diphtheria. On account of the previous negative Schick no antitoxin was given. Two days later the nurse developed laryngeal diphtheria, but after large doses of antitoxin were administered she recovered. That was reported as a probable instance in which an individual with a negative Schick reaction developed diphtheria. Two years later, and again recently, she showed a slightly positive Schick. This meant undoubtedly that an error had originally been made in the test or in its interpretation. Last year Dr. Gould said they had a slight epidemic of diphtheria in a surgical ward, there being two cases in children and two cases in nurses. Careful investigation showed that one child had had its Schick test in 24 and 48 hours, but on the fifth day it was not read. He believed that if the test had been read on the fifth day it would have been found to be positive. They had frequently found that reading the reaction on the second and third day was not sufficient, it should be read also on the fourth day, or better even on the fifth. The second case of diphtheria occurred in a child whose Schick test was reported positive, but through some error the child had not been immunized. One of the nurses was subsequently found to have a mild positive Schick test; the other had a mild form of throat trouble, which subsided without antitoxin, and they thought that probably she was a carrier. From their experience they could say that they believed the Schick test to be a most dependable method of determining the susceptibility to diphtheria, and cases reported in which it had apparently failed were probably instances where errors had been made either in the technique of the case or in its interpretation. It was very easy for one unfamiliar with the details of the test to make such errors. All cases showing evidences of clinical diphtheria, even though credited with a negative Schick, should receive antitoxin for fear an error may have been made in the previous test. If a blood examination could be made to determine its antitoxin content in such a case the antitoxin might be withheld for a few hours to await the result, for there was, of course, no advantage in giving antitoxin to one who already had sufficient in his blood even though he had virulent germs in his throat.

Dr. JACOB SOBEL stated that his experience with the Schick test for the detection of diphtheria susceptibles and for the production of active immunity in these susceptibles by the administration of toxin-antitoxin had been derived from private practice and from his rather extensive supervision of this work for the Bureau of Child Hygiene of the Department of Health, which was charged with the administrative health control of children from birth up to the age of sixteen years. Dr. Park and his group of pioneer workers in this field had told us that within the past twenty-five years there had been a reduction in the mortality in this disease of from 150 to 22 per 100,000 of the population. During the last ten years, however, the mortality and morbidity from diphtheria had remained practically stationary. It seemed as if we had reached the limit of possibilities of control by means of the methods at our disposal, namely, the use of antitoxin

therapeutically and prophylactically, isolation, quarantine, hygienic and sanitary measures, etc. Dr. Sobel stated that his remarks would be confined to the clinical, administrative, and educational aspects of the subject, inasmuch as the papers had taken up the scientific side so thoroughly. There were two outstanding reasons why further progress in the control of diphtheria had been limited. The first was because of the fact that one-half or more of the cases of diphtheria gave no history of having been exposed to active or convalescent cases of this disease, and secondly, because of a large susceptible population. Why, then, if one or more of the cases did not come in contact with active or convalescent cases of this disease was there so much diphtheria? It seemed to him that the reason for this was three-fold: First, carriers; second, missed cases; third, nasal diphtheria. Dr. Harris had spoken of the large number of carriers extant in this community. It had been estimated that at certain seasons of the year, one to two per cent. of the population of approximately six million harbored diphtheria bacilli of varying degrees of virulence. This, however, did not cover the situation entirely, because there was in New York City a daily floating population of approximately 500,000, which had a similar percentage of diphtheria carriers. Furthermore, from studies conducted by the Bureau of Child Hygiene and from the contributions of Weaver and of Moss and his coworkers, in a recent issue of the Johns Hopkins Bulletin, it was shown that among children the percentage of carriers was from 4 to 8 per cent. Since children came in contact more generally with those of their own kind and age, the significance of this high percentage of carriers among them was evident. By the missed cases he meant that large group of sore throats, either angina or follicular tonsillitis, which were either true cases of diphtheria or carriers, and which were frequently unknown, unsuspected, undiagnosed, and untreated, and which, by mingling with the general population, disseminated diphtheria. It was this type of cases that explained what Dr. Zingher referred to, namely, the larger percentage of positive "Schicks" among children of the well-to-do, or, in the better schools, socalled, as well as the larger number of susceptible children in rural districts and rural schools. Closer association and more intimate contact among the poorer element resulted in the greater spread of the diphtheria bacilli with resultant establishment of artificial immunity. The third source of infection was the mild cases of diphtheria. Dr. Sobel said he was convinced that these cases were of far greater frequency than was generally known or admitted. The severe cases were readily recognized, isolated and treated, but the mild cases, those with muco-sanguinous discharge, slight, moderate, or no temperature, submaxillary adenitis, etc., very often escaped detection and literally poured out diphtheria bacilli. These cases were not infrequently looked upon as "cold in the nose" and by association with others spread the disease. Add to these three important sources of contagion the large percentage of susceptibles, and the need for the Schick test and the production of active immunity became apparent. We had learned through Dr. Park's school that the greatest number of susceptibles were found among children between the ages of one and two years; or, as a group, in children of the pre-school age, from two to six years. Sixty per cent. of the susceptibles were found at this age period. Why then was the problem first attacked among the children of school age? In the public and other schools there were approximately one million children readily accessible easily supervised, easily controlled, easily followed up. Among this number there were 25 to 30 per cent. susceptible to diphtheria. This percentage was even higher for the kindergarten and children admitted to school for the first time. It was felt that if this 25 or 30 per cent. were immunized just that number of potential cases of diphtheria would be controlled and removed as a source of community danger, and thus younger children of the family would be protected. Through the school authorities and the school children, a vast amount of educational propaganda could be instituted. Most important of all was the fact that through the work in the schools, the public could be taught. The public must be educated up to all types of preventive health work. They were not so ready to accept preventive measures which were associated with the injection of heterogeneous substances into the body. They felt that the public would learn through the school children that the Schick test was harmless and that the injections of toxin-antitoxin were comparatively free from ill effects, they would gain confidence in the procedure, and that then, as a matter of course, they would be ready and willing to have it applied to the large susceptible element of the population—the children of pre-school age.

Mr. GEORGE R. BEDINGER stated that he represented the New York Chapter of the American Red Cross, and being a layman felt doubly honored in being able to say a few words. The starting point of all the work of the American Red Cross was that public health was the job of public authorities in the long run. The work of the Red Cross was simply to tie together the activities of other agencies in the community and to place them on a basis where they could offer a more coherent and effective organization for work along public health lines. The majority of their activities were in the nature of a demonstration, and whenever the public health authorities came to regard these demonstrations as practical the American Red Cross welcomed that time and were glad to have the public health authorities take over such activities. The reason they had become interested in the application of the Schick test was because Mr. Homer Folks and Dr. Copeland had asked them to help to meet an emergency occasioned by the fact that the Board of Estimate refused to make an appropriation which would enable the Department of Health to carry out the work of Schick testing and immunizing public school children against diphtheria. They saw in the Schick test the opportunity for doing a great work in the community, and it had given them great pleasure to be associated with Dr. Park and his associates in this activity. Dr. Park presented the subject to them and told them that he needed money and personnel to carry on the work necessary to demonstrate what could be done in the control of diphtheria. It had been a great pleasure to be associated with Dr. Zingher in the practical work among the school children. He hoped Dr. Zingher would pardon him if he attempted to make one point a little clearer. Dr. Zingher had mentioned that the Red Cross was going to establish a health center in East Harlem. He wished to say that the American Red Cross was only one of the agencies interested in this project. The Red Cross was going to provide a building and personnel, and other organizations in that locality would work with them in these headquarters, the headquarters being merely the Red Cross contribution to the work.

Dr. ZINGHER invited those in the audience who might wish to see a demonstration of the method used in making the Schick test to remain after the meeting, when he gave a practical demonstration.

The Plague at Marseilles in 1720-1.—Boinet calls attention to the very severe outbreak of plague at this port two centuries ago. The first case was reported June 1, 1720, the patient having reached town in a vessel. The disease was believed to have spread through the merchandise brought by the ship in question. During the following September the death rate went as high as 1,000 daily.—*Gazette des Hôpitaux.*

Bismuth in Syphilis and Trypanoses.—Sazerac and Levaditi have ascertained that a double salt of bismuth, the tartrate of bismuth and potassium, has an undoubted curative power over rabbit syphilis and the spontaneous spirochetosis of that animal. In the trypanosis known as nagana this property is less marked. In other words, bismuth possesses powers akin to those of arsenic and antimony in protozoan diseases.—*La Presse Médicale.*

Temperature of Epileptics.—Hartenberg has found both subnormal and supernormal temperatures in the intervals between seizures although in the majority there is no change from the normal. In some cases the evening temperature was so high as to suggest tuberculosis. In a few instances the temperature was highest in the morning.—*Journal de Médicine de Paris.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100. No. 11.
Whole No. 2653.

NEW YORK, SEPTEMBER 10, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

HUMAN READJUSTMENT.
OR
COORDINATION OF STRUCTURE AND FUNCTION IN THE ORGANISM AS A WHOLE.*

AN APPEAL FOR THE EMPLOYMENT OF PRINCIPLES WHICH GUIDE ORTHOPEDIC SURGEONS AND ARE OF EQUAL VALUE FOR INTERNISTS.

BY J. MADISON TAYLOR, A.B., M.D.,

PHILADELPHIA, PA.

PROFESSOR OF PHYSICAL THERAPEUTICS AND DIETETICS, MEDICAL DEPARTMENT, TEMPLE UNIVERSITY.

THE reestablishment of health involves much more than the use of any scheme of medication, dietetics, suggestion, or of any other single means of remediation. When one group of major needs is supplied, it often happens that the organism can and does then recover equilibrium. When, however, this happy consummation does ensue, the problem is shown to have been a simple one; the chief handicap having been removed, the urgent requirements were met and recovery followed.

Man is a vitalized mechanism endowed with rare and varied self-regulative energies, defense reactions, powers for self-adjustment, to meet the needs of admirably designed, elaborated, and balanced structures. The majority of disorders require for their radical reestablishment that adequate attention be given to many accessory, collateral, or subsidiary disabilities or maladjustments, otherwise dissatisfaction may ensue.

Guided reintegration is thereupon needed, an intelligent bringing to a focus and putting to use all factors of remediation in order to achieve a relative norm of vigor, and of balanced consciousness.

Disorder or disease is in no single instance alone; it is always complex. Whatever anomalous states, latent weaknesses, or developmental faults exist, they must be reckoned with in the accounting.†

We must first learn to appraise conditions as they are and the due proportion between primary and acquired defects. The effects of disorder or disease, of acquired inadequacies, of minor deformations, of anomalies in structure, in reflex circuits, of ancient "insults," form a complex group of problems. Many of these are due to wrong habits, omissions, commissions, and commotions. Some or other such handicaps are invariably present in varying form or degree—but there they are, and to ignore any significant one of them is to invite disappointment, delay or defeat. These effects of previous disturbances—notably the less obvious ones—deserve more attention than they get, from the standpoint of readjustments of structure, of function, and also of consciousness. To omit a full, practical evaluation of these residua, whether obvious or determinable or rationally inferable, often nullifies our best laid plans. Hence attention is here asked to certain principles gleaned from the orthopedic surgeons. These when viewed in their due proportions should meet acceptance from every form of medical adviser, especially that most useful of men, the general practitioner.

Terminology.—Let me ask consideration for a few descriptive terms which should aid in simplifying concepts so soon as they become familiar. We must come to agreement on definitions which define, and words which describe and do not divert concepts.

I would use to describe the process of straightening out, or adjustment, the word "orthos" or upright—now a part of the word "orthopedic"—and substitute for "pedic" the word "kinetic," or the transition of energy potential into energy kinetic—energy in action, doing, performing, that is, actual movement. Hence we may use the term "orthokinetic," restoring orderliness through one or other of the modalities of movement. These manifestations of movement, active or passive, in their infinite modalities, constitute the prime condition of livingness. The crux of reestablishment is to stabilize consciousness through conditioned or trained reflexes.

Two forms of consciousness exist, the cerebral and the cellular. With cerebral consciousness we are all very much at home, thanks to the prodigalities of the psychologists. With cellular consciousness we need especially to familiarize ourselves. It is not only on a full parity with the other, but all signs point toward a consciousness which resides in cells, structures, mechanisms, as being rich with undeveloped possibilities in every day exigencies. Orthopedic surgeons during the war have come to accept the imperative demand for greater conscious, purposive self direction of motor mechanisms—assisted volition—in the restoration of many wounds of joints, amputations, and from the start. Here we have mass demonstration of cellular consciousness in the functioning, doing, performing, employed in the work of rescue, restitution *ab initio* and without ceasing. This is kinesia (doing) as contrasted with akinesia (not doing) or rest.

A term is in use by the French, "bio-kinetic treat-

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921.

†This was a dictum of that towering master in medicine and in artistic readjustment, S. Weir Mitchell.

ment," the adjustment of life (bion) through movements of the body (kinesis).*

The Objectives and Principles of Orthopedics or Orthokinetics.—Orthopedic procedures aim at the restoration of departures from the anatomical norm, including shape, conformation, posture, and functional correlationships (or adjustments) making for equipoise, symmetry, and harmonious movement. They are applicable equally to a large proportion of clinical or so-called medical or internal problems, and in particular where the element of mechanical disarrangement is prominent, or recognized as causative or contributory.

The problem becomes one of how to recognize and appraise the significance of the factors which produce such distresses as can be removed by readjustment (orthokinetics). The objective is to replace structures which may be found in positions of *disadvantage* (thereby inducing the disability) into those of *advantage*. For example: Note the paramount significance of the reciprocal action and reaction of the overlying structures and the organs or viscera they enfold and protect; (1) the chest which contains the lungs, heart, and primary vessels; (2) the trunk and pelvis, containing the digestive, elaborative, and procreative organs; (3) the big muscle masses, static, locomotive, and shoulder girdle as oxygen elaborators; and (4) the accessory and supplemental action and reaction of these upon the well being of the special sense organs, the brain and the organism as a whole.

This repositioning includes the means of relieving the disability or even of reestablishing the organism in its entirety.

A review of disadvantageous attitudes, both structural and functional, motor or static correlationships, will reveal the baneful resultants of long antecedent structural anomalies or functional disorders which have produced the element of stress. Among these are: undue or protracted pulls or twists or compressions on muscles, on fibrous structures, on tendon sheaths, on nerves, on venous and lymph channels, also interferences with the economic distribution of static forces whereby disordered, over-tense, relaxed or painful states are brought about, such as follow disturbances in the nicety of poise. The reflexes being disordered (shown by tonic spasm, cramp, or anomalous attitudes of structures), the expenditure of motor forces becomes so large as to simulate protracted weariness, fatigue. Hence arise tonic spasms, aches, transferred pains, often lameness. These may, and constantly do, produce in acute conditions added distresses which, not being recognized, become merged into the clinical picture already formed, as merely a part of the original or more obvious disability.

Contributing factors to be considered are: protracted weariness, fatigue, or stress passing on to strain, exhaustion or functional commotion. These may arise long before the element of pathogenicity brings about changes in structure, which may be regarded as pathologic.

*In this connection it may be interesting to mention a yet longer but eminently descriptive word to visualize the whole round of bringing about orderliness, suggested to me by Dr. R. Tunstall Taylor, "orthobiokenetics." This may well describe the reestablishment of orderliness in the whole cycle of life processes.

Among earlier or temporary changes readily observable are: tonic protective muscle spasm, depletion or misdirection of forces being expended through loss of the automatic adjustabilities of the reflexes. The action of a disturbed reflex is shown in both passive and active phases. There is also the negative phase during which the mechanism is in repose and ready to perform. During this negative or resting phase the creature is, of course, not conscious of the reflex tonus. Whenever something arouses a hypersensitive reflex, howsoever little, the active phase is set in motion, keeps it too busy, force becomes expended over-actively. This stress, if not relieved, brings about an energy leak. This energy leak leads to weariness, to further stress and, when protracted sufficiently, to strain and finally to exhaustion, also serious perturbation of body or mind. Hence we have not only somatopathies but psychopathies of cognate significances.

Sensory mechanisms become likewise involved, first to so slight a degree as to be only subconsciously recognized as vague distress. Ultimately this distress rises above the threshold of consciousness and becomes pain. Also latent susceptibilities in the reflexes are to be reckoned with which no doubt vary in different individuals and also in the same individual under differing states or exigencies, but which impair harmonies of function.

Motor and sensory susceptibilities, or variants in susceptibility, serve as the background of disorders called functional. Also there must be considered divergencies in the status or tonus of the regulative mechanisms, the ductless glands, which through hyper or hypo-functioning lead to exhaustion and deteriorative states. Take for example the phenomena of the asthenias, the effects chiefly of adrenal hypofunction, also the well known effects of mild secondary hypothyroidism in producing asthenic states. Indeed, in order to interpret rightly many of the underlying or background states requiring orthopedic (or orthokinetic) readjustment, it is necessary to be familiar with, or consult an expert in, hemadenology (or endocrinology). A familiar example of this is defective bone growth, incompetence in ligament, tendon, etc., (hypothymus or hypopituitary), noticeable in such disabilities as weak foot arches.

Consideration must be taken of the fact that disordered states often fail to respond to perfectly correct attempts at orthokinetic (readjustive or orthopedic) relief, for the reason that equilibrium in circulatory and reflex arcs is temporarily impaired. For example: In headache which is capable of being caused by so varied a group of origins, each an acute or subacute state, remedial pressure, such as manipulations made over the posterior occipital nerves, often fails to soothe as it ordinarily does; it may indeed aggravate. So also of backache due to most divertified causes, direct and collateral.*

It should be noted that in order to do justice to the resources of orthokinetics (or orthopedics) in diagnosis or treatment, a fair familiarity must be had with many unfamiliar sources of gross func-

*See article by author, "Backache or Tenderness," *Int. Clinics*, Vol 1. Series 29, 1919. Also "Fibromyositis," MEDICAL RECORD, June 28, 1919. Also reproduced in the *Lancet*, Nov. 29, 1919.

tional disequilibrium. Next we should consider in connection with reflex regulation the various cycles of energizing, the cardiovascular-renal system and its regulation,* the respiratory, the genito-urinary, the digestive and metabolic (peristalsis being the chief motor factor); the special senses (in which reflexopathies are often paramount), and last, but not least, the finer, as well as the gross, motor mechanisms.

Note the effect of an unrealized, often unremembered, over-sudden action of muscles, in causing agonizing pains. Example: an individual who is muscularly powerful, but long has been sedentary, slips on the ice, automatically makes an immense effort to recover balance, succeeds, then for two or three days suffers excruciating pains due to fibromyositic strain, but the disorder is suspected of being something quite different. So of any extraordinary or unusual muscular efforts. The alarm is often quite pathetic, almost ridiculous, yet eminently real. Almost any form of trauma, displacement, "subluxation," etc., may be incriminated.

To be kept in mind too are the manifold effects of slight arthritides, irritations, often merely metabolic, affecting the joints of the backbone, the rib insertions, and the arthroses, amphiarthroses, and other articulations. Spondylitis has been shown by Vanderhoof (of Richmond, Va.) to be a relatively frequent but a rarely recognized source of much confusion.

Then I may mention the large and varied factor of posture (attitude) faults. Self-acquired or posture deformations may be visualized as due to such compensatory adaptations as the body is impelled to make by reason of effects (chiefly sensory) of protracted irritation whereby functional equipoise in static as well as motor mechanisms is disturbed. They may also ensue upon traumata of less or more severity. All these practically constitute "medical orthopedics" or orthokinetics.

Post-traumatic or post-operative orthopedics (or orthokinetics) is another matter; differing both as to kind and degree. A large proportion of these lamenesses or deformations arising primarily in self-acquired minor traumata or distortions or disfigurements may be so mild as to be scarcely noticeable and only to be demonstrated by expert observation or palpation. Many require little more than replacement by passive (manual) or by actively directed effort or movement remedies (kinesitherapy). Few conditions, comparatively, need severing of tissues (surgical interference), or complete fixation, or immobilization by apparatus.†

Moreover many, indeed a large proportion of lamenesses, disabilities, or deformations are due to tonic spasm, to local exhaustion, to disturbed sensory reactions, to pain reflexes, and disappear upon kinesigenic regulation of activities, especially after attention.

*See article by author, "Cardiovascular-Renal Regulation, Remarks on Certain Practical Devices or Processes Useful for Conservation and Reconstruction of Cardiopathic Patients," *Boston Medical and Surgical Journal*, October 9, 1919.

†Todd, Clinical Lectures on Paralysis, quoted by Kouindjy; and also Kouindjy, Pierre, "Le Traitement Hemiplégique," etc., *Arch. Neurologique*, 1900; Gilles de la Tourette, *Iconog. de la Salpêtrière*, 1897; also Kouindjy and Stragness, "Physiotherapy," C. V. Moseby & Co., St. Louis.

localized rest (akinesia), or by suggestion, voluntary relaxation by precise direction, by regulation of "nervousness" (psychomotor or anxiety hypertension), by tactful guidance, by subtlety, such as diversion of attention, and by substitution of energies. Hence the mind equally demands adjustment, compensatory and regulatory procedures, mental readjustment (or psycho-orthokinetics). To secure the mind and body (psychophysical) equipoise necessary it is my experience that soothing touches, tactile suggestions, or deep firm pressures are needed to supplement any mental suggestions; usually both are required.

As to that field to which we might apply the term "medical orthopedia" (Dubois), or let us say, medical orthokinesia, the straightening out of function by means of medication, drugs, biologic or serogenic remedies, vaccines, serums, etc., the subject is so large as to embrace the whole domain of internal medicine and its abundant resources. It is here merely referred to.*

Body defenses are to be studied in accord with the status of reality, of the individual as he is found; that is, his original, acquired, depleted, or deteriorated reactions. My personal inclinations are toward determining how body defects may be set in order from a mechanistic standpoint. It matters less how these deformations or maladjustments have been acquired, and what their extent may be, than it does as to their forms and manifestations and relievability. Hence the nutritive status always looms large and demands primary attention. Each clinician has his "flair," his point of view, his plan of remediation.

All roads, however, lead to Rome—the one goal being constitutional rehabilitation, restitution to the norm, or a relative norm. Through special studies of the ductless glands, the internal secretions, as a pupil of Sajous, I find many problems yield by using the light shed by a study of these great autoregulative governors. These glandular functions are capable of partial regulation by means of the several forms of orthopedia (orthokinetics).

Man, after all said and done, is a sentient mechanism with immense powers of automatic adjustment, of tending to return spontaneously to equilibrium. Man is exceedingly sensitive, yet capable of large self-regulation, and to a great extent, of self-repair, whenever favorable conditions are supplied. None the less is he a mass of static, mobile, interacting motor and psychomotor mechanisms, among which are: framework, muscles, connective tissue, ligaments, joints, tubes, fluids, containers, pumps, distributing channels, reflexes, bellows, gases, cells, reservoirs and regulators of energy.

Man being a sentient mechanism we must always reckon practically with the status of the "spirit," the mind, the psyche. When the psychogenic status is pretty well grasped, gauged, and the internal processes, biochemical, nutritive, and respiratory, are fairly assessed, it seems to me we are only then in a position to give equal attention to the make-up as a whole. Here the body as an engine for the generation and the transmission, transformation, application and elaboration of forces, deserves equal

*See article by author, "Supplemental Action in Reparative Measures, with Special Reference to Serogenic Remedies Reinforced Through Kinetogenic Agencies," *N. Y. Med. Jour.*, Sept. 18, 1920.

No more convenient or practical basis exists on which to appraise a clinical problem than by determining the question whether an individual is adequately "engined" or endowed with energy, also whether he be over- or under-engined—supplied with available power to run smoothly under normal and also under varied, trying, or disadvantageous conditions. Hence the topic of "Types of Men" is interesting in this connection.*

It is not safe to infer that an individual is equipped with just enough vigor to meet most exigencies. Perils ensue from disregarding the dangers of over-energizing (hyperdynamics) quite as much as from low energy content. The "human dynamo" exhibits excess pressure which is a defect of the structures against which pressure is exerted, they being inadequate to equalize the internal pressure. Here we have the analogue of hyperfunctioning of the ductless glands.

Military experiences have enriched us here in many directions, none more so than as to the nature, phenomena, and complex causation of shock. From this period we shall do well to appreciate the importance of appraising the shock value. This shock coefficient, reduced to simplest terms, is the capability of recovering functional equilibrium after stresses and strains, and is a province of medical orthopedics, or orthobiotics or orthokinetics.

Surgeons having experience in the war zone tell us that the treatment of all injuries comes practically within the strict interpretation of orthopedic remediation. The attention bestowed on the wounded or shocked (or cell commotioned) requires from the first special care in replacing the injured parts in the most favorable attitudes for advantageous mechanistics for functionation and equilibration, and in immobilization during the jars and jolts of transit and often after reaching the base hospital. Then throughout the treatment adjustment, adaptation, and compensation, also volition, self-direction, are constantly needed, not only to prevent subsequent deformity, but especially to defend the integrity of the parts and preserve their functional competence. While rest is one of the chief agencies in preventing, limiting, and curing local infection it must not be unduly prolonged. Voluntary movements are, however, frequently necessary from the outset as in joint injuries. (See the exploits of Willems in conserving joint traumatisms and infections.)

It is desirable that our students of medicine should be given particularized instruction and training in the principles of orthopedic (orthokinetic) prevention, remediation, and reconstruction. Much progress, so it seems to me, could be made by simplifying, by systematically grouping, all therapeutic agencies and measures. The fact is being made plainer every day that the principles on which these are based interdepend; that they interact helpfully.

We may profitably consider orthokinesis or orthokinetic adjustment and readjustment, as expanded to include the application of orthopedic principles to most, perhaps to all, problems of human disability, mental as well as structural.

*Stockard suggests that of the over-engined type the majority are hyperthyroid; of the placid, plump, pink type the majority are hypothyroid. This serves as a rough classification.

Psychogenic Factors to be Reckoned With.—Kinetogenic, orthokinetic, (or orthobiogenetic), principles or enterprises may be visualized under five heads which are interrelated, but not strictly separable, thus:

1. Developmental orthokinetics, primary or constructive kinesitherapy.

2. Mental or psychogenic, or educative, or regulative orthokinetics, the process of achieving conscious control of the body and mind as a unity.

3. Medical orthokinetics, including the selection and application of any or all the resources of internal medicine.

4. Manipulative orthopedia (kinetogenic or coadaptative remediation) by moulding, adapting, adjusting, freeing of limitations, of contractures, of adhesions, also passively moving (mobilization), stretching (traction), directing, in short passive and active hand compulsion within normal limits, etc. In all this the hand is shown to be the one perfect and ever available instrument.

5. Surgical orthopedia (orthokinetics), the use of supports, special apparatus, mechanical guides in action. (The strictly surgical, cutting, reattaching of parts, and the like, will be only referred to and regarded as a separate enterprise; also the removal of offending parts, whatever acts as an irritant or disturber of function.)

All clinical problems involve interactions of the mind and the body, and both require a certain degree of straightening out, readjustment, some more, some less; some by plain and simple means, others are so involved, complex, and obscure as to tax the abilities of the wisest experts. Also the body needs to be consciously and purposively controlled, to obey the will, and the will (volition, voluntariness) likewise deserves specific or particularized training.

In acute conditions of a trivial or transient nature the mental (psychogenic) element of disarrangement may not be noticeable, yet few persons when out of health escape misconceptions of their personal attitude toward their disorder. Any suffering one is better for counsel, suggestion, explanation, in order to be shown one's duty in its economic aspects, which is mental orthopedia or orthokinesia.

When any disorder becomes protracted or runs into chronicity the need for moral, mental or psychic, and kinetic orthopedia becomes urgent. Hence in a large group of morbid conditions five angles of approach or repair deserve attention, the developmental, the mental, the medical, the manipulative, and the surgical.

If the meager outline here offered does not interest the reader now, it should do so when the lessons of the war come to be better appreciated. Civilian and industrial injuries run each year into the millions deserving similar attention. Moreover the time—by all indications—has come when attention should turn in accord with my aims and those of better men who have taught along similar lines. Out of all the efforts made should emerge *an improved system of therapeutics* in which each and every reputable remedial and curative agency deserves a proportional degree of open-minded attention. The teachings of medical schools must take into full consideration the domain of biokinetics in

fitting young graduates to become better surgeon-physicians.

In lecturing, my personal endeavor has been to supply hints and recommendations which shall afford the most good with the least elaborate equipment. Only passing reference is made to those specialized domains of therapeutics such as electro-therapeutics, balneotherapeutics, radiotherapeutics, phototherapeutics, etc. They are left to experts in those arts. Attention is confined in teaching (chiefly) to such instrumentalities as any one either possesses or can readily obtain. One specification, or reservation, must be mentioned, somewhat rare and yet capable of attainment by effort and training. This is:

No one can either diagnose, or successfully treat, a case by externally applied measures who has not a fair equipment in, or knowledge, or appreciation of, the principles of physics; who can think in terms of mass, motion, hydraulics, pneumatics, mechanics, resistances, hyper- or hypo-tonus, tactile apperception, ponderability, in short of biophysics (or physicodynamics or orthobiotics).

He must at least cherish a respect for fundamental principles of hygiene based on facts and less on archaic, fragmentary, traditional beliefs, or sheer preferential methods. Candid gleanings of a life time have shown me that the "knowledge" (*sic!*) of hygienic principles employed by the majority of the profession is inadequate and vague. At this point the obvious losses which professional potential has suffered can be replaced and supplied by improved methods of readjusting the organism as a whole.

Diagnosis, general and particular, is obviously the first step; especially is it needful to learn and appraise the nature, extent, and form of manifestation of those instrumental causes on which depend the special kinds and degrees of disability or diseases demanding relief. The fact is, the chief obligation of the clinician is to repair the effects, the residua, of antecedent disorder or disease, and the best, often the only, means is by efficient readjustments.

Full clinical histories should, in every case, be secured. In order to proceed systematically and cover the whole purview, I have devised a "Preliminary History Blank, to be Filled Out by the Patient, the Family, or the Family Adviser." This blank is thorough and has been favorably commented on by reviewers and by those to whose criticism it has been submitted in manuscript. From this complete survey any outstanding points which appear should demand special exploration; the trends of evidence and in particular the local states which promise to reveal what it is important to know in order to institute treatment. This "Preliminary History Blank" can be had from the publishers, F. A. Davis Company, Philadelphia, Pa.

A familiarity is always desirable with the major principles of biophysics which, in my opinion, should be presented to the undergraduates with particularized applications to not only normal but abnormal states. Any physician should read over, once in so often, a primer on physics; this is a most enlightening procedure.*

Two courses of action should arise in the adviser's consciousness in times of need: one is to act promptly, guided by sound inferential interpretations: to supply such urgent help as experience suggests, a hit or miss, rule of thumb, rough and ready, but an efficient method, *e. g.*, to fix a watch we may listen to it, note disorders in action, may proceed to oil it, move its hands, shake it, and perhaps it will go. The second and more certain (or orthokinetic) method is to secure particularized information as to abnormal conditions and proceed to readjust them; in the matter of the watch, *e. g.*, to open it and, after carefully inspecting its mechanisms, to repair precisely what is found to be amiss.

Human reconstruction is the applying to an individual as he or she presents, at any age, or state, or stage, every reputable means obtainable (in particular biokinetic) to bring his or her coefficient of energy to such a degree of perfection as shall suffice either to: (*a*) raise whatsoever repair energies or survival values are available so as to reach as high a plane as the individual is capable of; (*b*) encourage and enhance the functional powers of all direct and contributory mechanisms in order that the organism as a whole shall respond as completely as possible to whatsoever corrective stimuli, or remediation, may be determined as essential. In brief, the major problem is to do the best for *the man affected by the disease*, and not confine attention to the *disease which has affected the man*.

The first steps are: a searching for, collecting, correlating, combining, and applying systematically and consistently any or all those agencies inclusive under personal hygiene, and in interpreting them in terms of development or structural and functional integrity to deal successfully with conditions of not only those in ordinary health, but also when states of ill health, and in particular the effects of disordered health (or unhealth) coexist.

Reconstructive remedial agencies (orthokinetic) are applied from without (*e. g.* by physical control or regulation) along with full cooperation with those meliorating agencies for psychogenic control (or mental regulation) inclusive under the term regulation of behavior.

The objective should always be plainly to avow and inculcate the need for, and to render the patient expert in, conscious purposive control, or in self-regulation of that kind, and to that degree, which shall meet the largest variety and number of exigencies.

Attention is commended to the curative value of those activities, in or out of health, which functionate on the sensorimotor level of nervous energy, as contrasted with those acting more prominently on the vegetative (or physicochemical) level on the one hand, and on the other the psychogenic or symbolic level. The proposition includes a summary of all

*Physics deals with molecular changes of matter. Mechanics deals with the laws of energy and motion. Psychology deals with the facts of consciousness; with classification and generalization of mental phenomena. Geometry deals with spatial facts. Chemistry deals with atomic combinations and mutations; different forms of matter. Physiology deals with processes going to make the equilibrium of organic life. Sociology deals with processes of social life, etc. Biology deals with the properties of matter and energy of living matter. The lines of demarkation between them are not defined; they interact. The admirable treatise on "Medical Physics," by John W. Draper, H. C. Lea & Sons, 1886, affords much help. This deserves to be revised and amplified to meet modern requirements.

these items and also that common denominator, a working knowledge of the unit of structure, the reflex circuits or activities, which are capable of affording much assistance in diagnosis, as well as indications and means of treatment.

In the balance of mental (psychomotor) attitude, or poise, or conscious control, there is also to be found the origin of, and key to, the phenomena of tension and overtension, of tonic muscle spasm, hence of exhaustion effects, of contracture, and of referred pains due to strains from maladjustments, wrong posture, static faults, defects in local tone, *e. g.*, excess motion (hypertonus or spasm) or in deficiency (hypotonus or relaxation). Here, among disturbances in this domain or level of nervous energizing, especially when following exhaustion, disorder, damage, or shock, do we encounter a variegated group of body and mind (psychophysical) symptoms whose significance too often escapes right interpretation because wrongly assessed.

The subject of suitable behavior, of self-regulation, of conscious control, taught in accord with expert knowledge of what is right and what is wrong to do, and how and why, I maintain, has as yet by no means received the clinical attention it merits.*

In the absence of expert knowledge of muscle education among physicians the bewildered laity turn to "professors of physical culture," *et id omne genus*, sometimes fortunately and again they fall upon varied forms of error. The regimental drill master does pretty well but he too often is of limited knowledge and crude experiences. The surgeon, especially the orthopedic surgeon, is equipped with much significant information and expertness, but he rarely gives due attention to the correlations of these proficiencies to problems of internal medicine.

As a matter of fact ample opportunity is thus afforded for the exercise of education or training in behavior by expert physicians, especially in restoring health and efficiency to the young men who may be rather below par or not up to standard. In particular is there urgent need for skillful reclamation services, restitution to the full norm, among all classes, groups, planes of society, young or old.

The tendency is to overlook any specialization developed along other lines than one's own, and to be content with our own purview, our range of experience or teaching. Every clinician should have some practical acquaintance with the leading principles of each and every specialty in order to make best selections.

Mental Readjustment or Reconstruction (Psychokinetics).—In every clinical problem the psychogenic or emotogenic factor enters; in some to a greater, in others to a less degree. This is particularly true after long stress and strain and in any protracted state of disability. Hence it is important, indeed necessary, for every surgeon, as well as physician, to possess some training in conditioned reflexes in psycho-pathology and psychotherapy.

The point of view here presented is of those conditions wherein mind and body together suffer from the effects of disordered feelings, ideas, and their misinterpretation. The mind is an essential attribute of the organism as a whole. The mental processes in and out of health are usually described from three points of view, viz.: feeling, willing, and doing; yet the whole may be graphically grouped under the will as a name for:

Behavior is the sum of actions of the body and mind under the control of a personality. The mind is at all times influential upon the body for better or for worse whenever, or especially wherever, there occur departures from health, from physiogenic and psychogenic poise. This is perhaps less noticeable in acute conditions; but is more pronounced in long standing, protracted or chronic disorders or diseases; also as manifested in their reactive and retroactive effects, direct and indirect. Experience leads to the inference that this department of therapeutics, that of:

Mind control, direction, conservation, and at times reconstruction enter as factors of extreme importance in readjusting an ailing person to his or her environment. This environment consists of two parts, that which the individual makes for himself from origins within, and that into which circumstances force him from without. Both of these exert peculiar effects on behavior by producing two kinds of reaction, physical and psycho-physical. The whole demands harmonizing. These psycho-reconstructive (psychokinetic) measures then are capable of making over a disorderly mind into an orderly, efficient, reliantly self-directive mind. In the process are evoked the:

Forces of common sense, well poised awareness of actual conditions in their normal associations and quantivalences, hope, cheerfulness, wholesome resolves to learn the rules of the game of life, and to play fair with one's self. The object is to induce the patient to see where he has stood in the hierarchy and determine clearly where he now wishes or determines to stand; to realize how essential it is that any problems, arising from departures from spontaneous health, require to be studied with frank cooperation and by guidance of the self-controlling forces and functions all along the interacting nervous levels, the vegetative, the sensori-motor, and the psychogenic.

Reflexes.—Closely associated is the subject of the reflexes, reflex circuits the unit or element of nervous function. By eliciting, for example, the reflexes, governing the functions of vegetative life through judiciously applied mechanical stimuli, there is at hand an important realm of medical as well as diagnostic endeavor. Reflex circuits can be both improved by training and modified or disordered by good or bad habits, and by disease. Some true reflexes can be modified advantageously by attention and conscious control; they may be brought to relative perfection; so also they may be vitiated by a number of somatic disorders and by pathological over-stimulation.

*Most physicians would have you believe they are competent to direct in all matters of behavior, of conduct, and even in so simple a one as hygiene, but if you put me on oath I should have difficulty in supporting this view!

Calcium Need of the Tuberculous.—Laufer and Lematte show that this demand is satisfied by from 1.75 to 2 gms. of alimentary calcium daily. This is easily obtained from milk and fresh cheese, for a pint of milk alone contains nearly one gram. It is, however, just as important for the patient to receive his daily ration of the other mineral constituents of the tissues.—*La Presse Médicale.*

THE TEACHING OF MEDICINE AND THERAPEUTICS TO UNDERGRADUATE STUDENTS.*

By THOMAS F. REILLY, M.D., F.A.C.P.,

NEW YORK.

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE, FORDHAM UNIVERSITY SCHOOL OF MEDICINE.

ASIDE from the increased requirements for entering on the study of medicine, the most noticeable change in medical education in this country within the past quarter of a century, has been the substitution of a large amount of clinical instruction in place of didactic and recitation work. That this has been a decided improvement on the older régime will be admitted by everyone. But that the pendulum has swung too far in the direction of clinical instruction, to the ultimate disadvantage of the student, will be a debatable question. If one visualizes the education of the young physician of a quarter of a century ago, it will be seen that the majority of such graduates stepped out of the medical school into general practice. Unless they were fitted by the instruction of a preceptor, or some practical experience in clinical ward work, such as is given at the present time, they were grossly incompetent. In England, where the system of clinical clerking had its birth, graduates commonly go out into general practice directly after leaving the medical school. The success of this method of clinical clerking in England is generally pointed out when this subject is under discussion.

In this country, however, at the present time an entirely different course is pursued by at least 98 per cent. of the graduates. Throughout the country, it may be said that it is an exception that a student fails to spend a period of at least one year as interne in a hospital. In many instances, two or three years are spent in this way and an abundant practical experience is gained. In view of this clinical experience, is it not germane to ask, whether it would not be better to concentrate the work in the medical school on the book-side of medicine, rather than to have the student spend, as he does in nearly all Class A schools, between sixty and seventy-five per cent. of his time in the senior year in clinical and ward work? From the standpoint of popularity with the student, there can be no question but that clinical instruction is the most favored form of instruction; he feels that he is learning without effort. In many instances, the clinical teacher likes it better because it is less onerous from a pedagogic standpoint. However, these reasons do not make it clear that clinical instruction is preferable. The objection will be raised that the student has, by the time he enters the senior year, completely covered the principles of medicine. If this were really so, and if he had grasped all of the essentials, there could not be any justifiable argument against the present arrangement, and this brings up the whole question as to the best methods of teaching the practice of medicine. Everyone has met students whose minds were so active and so receptive that, in the first instance, they grasped and retained practically everything given by recitation or by lecture. Such minds are few and far between. Fortunately, or unfortunately, many of these quickly climb the ladder of success and take their places as teachers of medicine. I say, possibly unfortunately, because the possessors of such minds, and they are inherited —not constructed by educational methods—expect the student to have mentalities like unto their own and expect him to grasp and retain all of the mental pabulum offered to him. Extended experience has made me feel that most of the fundamental facts and theories of medicine must be repeatedly driven into the average mind, before it is definitely fixed there. If one goes back and visualizes his own experiences as a medical student, I think that most of you will agree that your first reading or lecture, on any of the great problems in medicine, was mere jargon. This mental indigestion can be easily recognized, particularly in an attempt to study the anatomy and diseases of the nervous system, as well as the irregularities of the heart. This is true, to a greater or less degree, with all of the problems of medicine, but it is not so easily recognized. After going over such a subject a dozen times or more, order begins to grow out of chaos, and the facts become readily accessible to one's memory; even at mature age when one takes up some problem, such as, for instance, irregularities of the heart, mentioned above, it requires many repetitions of the facts before they can (as it were) be placed on one's finger tips. Of course, it is true that one occasionally meets a very clever student who recites brilliantly the first time he has studied a subject and who has this information readily accessible for years afterward, but he is the exception rather than the rule. It is not an uncommon experience in ordinary work, to find that such a student may recite or grasp a subject at the time of demonstration or recitation, and yet in from three to six months, when the identical question is put, his mind is for the most part a blank. If someone else has taught him this subject before, it may give a sense of satisfaction to the questioner and he, the examiner, may readily be excused if he says that the student was, unfortunately, not properly taught, but if it happens to be one whom he himself has taught, one has an opportunity to *swallow hard* and is not so filled with self approbation. The only practical solution for dealing with ordinary minds is continued repetition. The exponents of clinical instruction, as opposed to text-book instruction, maintain that by the presentation of the actual case, the subject is more firmly impressed upon the student's mind than is the text-book picture of the same. For the vast majority of minds, I do not think that anyone can seriously dispute this claim; on the other hand, each clinical case can represent only one phase of any illness, whereas the text-book picture covers many varieties of the disease. It is a practical impossibility to deal with more than a very few clinical entities in any single session, whereas the text-book recitations cover a large number of clinical pictures; furthermore, no matter how large the service may be, it is a physical impossibility to have any regular systematic sequence of cases. Unless this is done, many facts fall between and are lost. From a pedagogic standpoint, it is generally accepted that memory, certainly available memory, is better acquired when mental impressions are made on as many senses as possible;

*Read at the annual meeting of the American Therapeutic Society, June 3 and 4, 1921. (See page 475.)

in other words, a fact that comes to the mind through three senses is more apt to be fixed than one acquired through one sense, so that when one hears a subject discussed, writes the same subject, reads it over and over again, masticates it, digests it, and then puts it forth in the form of a recitation as his own mental product, which it is, he has a better detailed understanding of it, and it is more permanently fixed, than when he simply visualizes it in the shape of a clinical demonstration. It will be objected, that we visualize most of the incidents in life; even if this is granted, we do not visualize them in the sharp details, that we do the well repeated printed page. It must be granted, in any discussion of this subject, that there is no single process of mental fixation that will work for the minds of all students. To some minds, the clinical picture is a fixed and lasting impression; probably this preference depends on inherited racial traits, but for the average student, as I have seen him, I am convinced that book knowledge fixes a more accurate picture in his mind than clinical observation, provided he digests it and puts it forth in the shape of a recitation. Incidentally, I might remark that, in discussing this matter among teachers and practitioners, I have found that the surgeon usually answers, that he considered the clinical teaching superior to the book work, whereas the medical mind, in most instances, prefers the opposite.

I believe that the student's interest should be stimulated, to some degree, by seeing and looking after some clinical cases, from his second year in medicine, but this should not, as it is doing now, largely eliminate text-book recitation. The phase of the lecturer has justly been replaced in most schools. The number of teachers who can cover the ground by lecture, interestingly, without a clinical case in evidence, are admittedly few, and the text-books are so good and complete, that competition is out of the question, yet there is a field for some lecture work, just as there is a field for clinical instruction. With the passing of the lecturer one finds fewer idols in the shape of the old professor. If the whole subject of Materia Medica and Therapeutics of any text-book, were recited on year after year, there would not be so many practitioners taking up every new medical fad that is brought into their office by the detail man. As it is, dosage is seldom fixed in the student's mind; for that reason, he orders the proprietary, which he knows is not, in a general way, going to be toxic and he does not have to worry over dosage and incompatibility, and it saves him mental calculation. He does not stop to consider that the dosage is likely to be too small for any physiological effect, as long as the label states that the bottle contains drugs that he knows have therapeutic value and which, furthermore, states that they have a specific value for the type of case that he has under consideration. If he has his dosage fixed in his mind and readily available—as available as the months of the year—he is not apt to fall into this habit of allowing someone else to set the dosage. The study of dosage is a steady grind, that must be gone over and over by many frequent repetitions, and not by lecture or any kind of demonstration.

Recently, in a hospital examination of students, from various schools, I asked twenty-five men, what was the dose of fluid extract of Buchu and what was its principal use. It was surprising to find that 50 per cent. had never heard of the drug, some thinking it a patent medicine. If any standard text-book had been studied, and recited on from beginning to end, and repeated at least twice, such ignorance would be impossible. It is, particularly, the minor subjects that are apt to be missed in classes where the text-book is not made paramount. It will be objected that there is a certain amount of material in the text-books that is useless from a practical standpoint; this must be granted, yet any standard text-book covers the subject completely and makes the student familiar with the terms of the subject, so that, even though he forgets much of the total, the subjects and terms are not strangers to him when he sees or needs them, and at least he knows where to find the facts. These contentions pertain not only to the teaching of diagnosis, but to therapeutics as well. The knowledge of the action of drugs is largely a matter of memory. The experimental pharmacology is necessarily limited and the student must get the knowledg of drugs from many angles, but above all, from his text-books. The attempt to teach *all* therapeutics from a pharmacological standpoint entirely is a failure, and makes for an attitude of mind, that, unless things can be proven, they are useless; in other words, it causes loss of faith, unless positive proof is forthcoming. There are so many things in life that we must take on faith, that cannot be proved, that without it, life would be very uncomfortable. This attitude of mind is a perfectly proper one for the investigator, but it does not fit well in general practice; it is an attitude of mind that, once developed, is difficult to throw off. It is, undoubtedly, a large factor in inducing the medical student to prefer surgery and specialties, since his work can be seen and proven, definitely, without any question of faith or doubt. At the present time, I believe there is too much time spent on "fad lectures" and the minutiæ of the specialties, to the disadvantage of the major subjects. Some of this is doubtless due (1) to the frequently repeated lament of the older practitioners, who state that they were never taught such and such in their course; (2) to the enthusiasm of the specialist who thinks that the entire field of medicine revolves about his orb; (3) to the student who thinks he ought to be taught every new method that he reads in the journals and who feels that he could outline a medical course better than the Faculty. As it is, the curriculum is overcrowded in all Class A schools.

In summing up this discussion, we would like to point out that (1) Clinical instruction, in the three or four years of medicine, must constitute a large portion of the instruction of the student in medicine, who does not take a hospital interneship in a properly graded Class A hospital. (2) When a hospital interneship is taken, the time spent in medical school on clinical instruction may, for a *large* portion, be more profitably spent in text-book study, than in ward study. (3) Materia Medica and therapeutics, certainly the latter, are better fixed in the student's mind, in the medical school, by many repetitions of his text-book, than by a physiological demonstration. I am perfectly aware

of the fact that the views here expressed will be considered by many as being reactionary; anyone who runs counter to popular movements is thought to be reactionary, yet these views have been crystallized, after fifteen years of teaching, under both the text-book and clinical regimes.

34 WEST EIGHTY-EIGHTH STREET.

ON THE AIMS OF INTERNAL THERAPEUTICS.

BY L. RADCLIFFE GROTE, M.D.,

UNIVERSITY OF HALLE, GERMANY

EVERY pharmacological, but no less every physical influence upon the organism represents a sum of stimulations upon the cells of the body. By stimulation we here understand all influences upon the morphological and functional entity made up by the organized cells, whether this action be caused from without or from within—in the latter case from the functioning of the cell itself. A priori it may be said that, in principle, there must be two kinds of stimulations that are of different natures: first, those which are adapted to the chemical and structural organization, which can be termed, *adequate stimulations;* and secondly, those which, owing to their nature, cannot be adapted to the chemical and structural organization—*inadequate stimulations*. A cell can react upon a stimulus only when the latter corresponds to the cell's organization, which again is given by the constitution of the macroorganism. For the cell of the intestinal epithelium the molecule of the glucoside of digitalis constitutes no stimulus while it does constitute one for the heart muscle. Just as little can a morphine molecule effect an influence on the cell of the bone marrow. In the sense of a general external reaction these bodies are indeed stimulations, but the above cell species, by their very constitution, have no possibility of reacting to this stimulus in a manner typical of them. Their "immanent" specificity has no effective relation to an inadequate stimulation. Such a behavior has been known for a long time in the doctrine of immunity which is explainable by the deficiency of receptors. Accordingly a cell responds upon adequate stimulation only, and then in a specific manner. The law of specific energy of the sense organs has an analogue in the specific irritability of each single cell organism.

Physiologically the cell experiences stimulations only from its own healthy macroorganism, and these are always adequate since they represent on their side functions of personal identical cells or cell groups and therefore arise from the identical general constitution. A renal cell reacts with its specific function, diuresis, only in response to an adequate stimulus. If it were possible to transmit to it a stimulus which would, for example, contract the trapezius muscle, no diuresis could be expected. It would not be adapted to the renal cell and its specific activity. The adequacy involves both a qualitative and a quantitative moment; accordingly there exists adequate physiological and unphysiological stimulation. To this group belongs the electrical stimulation which can produce a specific reaction in the renal cell as well as in the muscle cell, but does not occur as a purely electrical stimulus in the physiological working of the body. The electrical stimulus must by no means be identified with the mere processes of conduction in nerves. Chemical and physical processes of different nature play a rôle not as yet sufficiently investigated, in physiological stimulation.

The classification of possible stimulations may be attempted thus:

A. *Physiological stimuli may be:*
- (*a*) endogenous, i.e., they take their origin in personally identical cells.
- (*b*) exogenous, i.e., acting only upon cells that are receptively adequate in a special manner, such as resorption cells of the digestive canal, or of the lungs, and sensory cells.
- (*c*) always adequate, i.e., they are both qualitatively and quantitatively adjusted specifically to the constitution of the cell that receives the stimulus. This is based upon a common coordinating relation of both factors, namely, the stimulus and the receptive cell.

B. *Unphysiological stimuli may be:*
- (*a*) endogenous: under pathological conditions cells may be formed, the products of which represent in their diseased and changed original substratum a conditional deviation from the personal normal state (toxins of malignant tumors, etc.).
- (*b*) exogenous: of not personally identical origin.
- (*c*) adequate: inasmuch as their nature is of such a character that the living substance can react upon them (thermic, chemical, electrical stimulations). Here the cell reacts by virtue of its innate specificity.
- (*d*) inadequate: the stimulation in question does not represent any stimulus for the cell. There does not exist any chemical or other relation between the stimulus and the receiving cell.

From this survey it is evident that the purpose of every therapy must be the preservation and increment of the healthy function which is most surely achieved when medicaments are used so that the qualities of the physiological stimulus are preserved. At all events, the quality of stimulus designated under B (*d*) must be avoided.

All unphysiological stimuli have the common quality that they are more or less easily exhausted. Eventually habituation to the stimulus sets in which necessitates a continual increase of the stimulus. In the case of employment of some medicaments, even toxic substances in the long run lose their poisonous qualities. The latter may be called only a function of the quantity or of the quantitative intensity of the stimulation; the destructive effect of certain bodies upon the living substance always depends upon a certain minimum. Physiological stimulations, on the contrary, do not lose their effectiveness by the duration of their influence, but only through a general senility of the cells. If physiological stimuli grow ineffective, it means the normal death by age of the organism.

*Read at the annual meeting of the American Therapeutic Society, Washington, D. C., June 3 and 4, 1921.

The sphere of lastingly effective interferences, however, is restricted in therapy by the fact that exogenous physiological stimuli presuppose a specifically adapted cell system for the evolution of their effects. The sharply defined functional relation—digitalis, heart muscle; morphine, brain ganglion cell—is not met with in many cases. Often we are dealing with "polytropic" remedies, as in the case of many alkaloids (atropine, etc.). This "regional breadth" of effectiveness, in the special cases often undesirable, is characterized as a secondary effect, which, however, makes the success of the therapeutic effect questionable.

Under this viewpoint a certain therapeutic school which has only lately attracted attention gains in importance. Through the work of Weichhardt and his collaborators the conception of protoplasmic activation created by this investigator was given at least an empirical importance. The meaning of this expression is to be found in the increased power for work of the living cell due to certain therapeutic influences. General increase of the functions of active organic cells at first resulted from the direct introduction of albumin and albuminous disintegration products into the blood stream with exclusion of the intestinal canal. Weichhardt and Schittenhelm began with investigating the immediate effect of such albumin upon the blood picture, metabolism, and especially the thermic centers. The method then became more generally accessible through the investigations of Rudolf Schmidt and his disciples. They used milk injected in doses of 5 to 10 c.c., as their therapeutic agents. The general effects in this procedure were the same as with the injections of muscle "juice" applied by Weichhardt. An increased temperature and neutrophile leucocytosis constitute the general effect. This method was very soon used in therapy. (Grote, proteintherapy in *Zeitschrift für ärztliche Fortbildung*, 1919, N. 24, where the literature may be found.)

Certain observations upon which, however, we shall not enter, favor the idea that the therapeutically working principle of protein body therapy is to be found in albuminous disintegration products formed by proteolysis in the tissues caused by the proteins that are injected. We are dealing here with amino acids and similar bodies. But these—and that is of fundamental importance—are not essentially different from the disintegration products normally found in the body. Through this method a possibility seems to be given to inject stimuli into the body-cell that are adequate to it. These stimuli, although provoked exogenously, nevertheless work in exactly the same manner as stimuli that have arisen within the body itself.

Already these experiences have been applied to the known immune therapeutic successes with specific sera, and it might be discussed whether or not the effect of tuberculin might not in the last analysis be due to the action of a mere nonspecific protein disintegration product. R. Schmidt obtained from milk injections the same focal reactions as with original tuberculin. Bingel in Brunswick (Monograph, publ. by F. C. W. Vogel, Leipzig, 1918) treated diphtheria with horse serum free from immune bodies; his successes are as surprising as satisfactory. Typhoid fever has been treated in a similar manner successfully by Saxl and Grote. Especially satisfactory were the successes with male and female gonorrhea and its complications. (R. Müller and Weiss). The well-known undeniable good influence of blood injections on anemias of all kinds very likely is due to the same principle.

The important point in this matter seems to be the fact that in reality in this therapy we exert only a physiological stimulation. The body is in no way offered an agent with which the cell cannot accomplish anything. Albuminous disintegration products constantly circulate in the body and their temporary increase is the medium of stimulation which causes the cell to increase its most proper vital functions. This therapy represents an exogenous adequate stimulation which the body itself through fermentative action changes into an endogenous adequate stimulus, bestowing upon it thereby, according to our division, the character of a physiological stimulation.

With this insight there seems to be established the principle according to which all future medicinal and physical therapy will have to work, namely, the *changing of an exogenous stimulation which is accessible to the ferments of the body and which consequently must be adequate—into an endogenous adequate stimulation for the individual cell.*

A more accurate analysis of some hitherto called specific interferences (e.g. serum therapy of carcinoma by Abderhalden, etc.) will very probably show that the same principle is at the bottom. At any rate, the so-called "immune bodies," known hitherto, are not identical with the substances effective in protein body therapy. They may cooperate, but their rôle is only a secondary one, since it appears possible to increase them, or at least to activate them by the physiological stimuli.

It will be the task of future investigation to test the individual disintegration products as to their effectiveness in increasing cell work or cell resistance. Even now it seems certain that not all bodies formed in the fermentative parenteral splitting process are of equal value as to their effect upon the cells.

In the foregoing deduction I have considered also the physical actions. This was done because in physical influences (heat, cold, electricity, Röntgen rays, etc.) similar fermentative splitting processes of protein (protein disintegration) can be presupposed as parenterally originated in the body. But the details are totally unknown as yet. It has been possible, however, to demonstrate such processes in the case of extensive burns.

But this will not put an end to the specific immune body therapy. It means rather a clearer comprehension of its possibilities and purposes. The specific antitoxin, *e.g.* of diphtheria serum, fully retains the significance which is given by its specific binding to the bacterium. But there is the possibility of an essentially increased effectiveness as soon as we shall know the means by which we may assist the living cell of the organism in the functions injured by the infection. That the diphtheria antitoxin itself cannot do. It is specifically adjusted to the bacterium (Klebs-Löffler bacillus). The bacterium, however, is not the essence of the infectious disease. The essence is rather found in the lowered function of the cells in the body.

Therapy directed by these viewpoints, *i.e.* the highest possible conservation of physiological stimuli for the purpose of greatest possible preservation and strengthening of physiological function, will be in the best sense a therapy that can be termed etiological.

SOME OBSERVATIONS ON THERAPEUTIC NIHILISM.*

By F. M. POTTENGER, A.M., M.D., LL.D., F.A.C.P.,
MONROVIA, CALIF.

DURING the past thirty years a revolution has been going on within the ranks of medicine. Coincident with the development of laboratory methods and the discovery of the causes of many diseases prevention assumed the place of first importance while the cure of disease and the relief of the patient's symptoms took a secondary place. With this relegation of the practice of medicine to a place of secondary importance has come a change in the relationship between physician and patient. The old family physician with his medicine case full of pills and his heart full of interest in the patient and sympathy for him in his illness has been almost pushed off of the stage by the man whose chief interest lies in the study of diseases as they appear through the microscope, and in the test tube, and whose thought of the patient afflicted has necessarily appeared to be minimized.

Both the profession and the public have recognized and deplored this change with its inevitable result of separation of interests. The sick man demands more than our scientific medicine is giving him. He requires more than a knowledge of disease and disease processes can furnish. Nor is his illness confined to his material body alone. His condition as a thinking, willing, hoping being is also disturbed. One of medicine's great mistakes has been its failure to recognize that there are two factors to be considered, the patient and the disease; and to give to each the consideration which it deserves. It has pursued its studies and its practice with a lack of comprehension of the nervous and psychic sides of the individual, and a failure to understand his reactions toward disease that seems inexplicable.

The older medicine without the knowledge of the causes of disease and of pathological changes in the tissues caused by them, which we possess today, failed to satisfy the investigating mind of medical men, but it gave much comfort and satisfaction to the patient, because it made him the center of interest. Modern medicine with its development of the various laboratory branches and specialties has taken upon itself a far more scientific aspect than the medicine of previous times, which has been a great source of satisfaction to the profession; but can we claim that it is appreciated by the layman to the extent that our belief in its superiority warrants? If not, why not? The answer is very complex, but I desire to point out a few facts that I believe are fundamental to its understanding.

The age through which we are now passing has been dominated by bacteriology and pathological anatomy. It has been an age in which the study of material factors has received greater attention than nervous and psychic. Pathologists, too often, have been out of harmony with the efforts to treat the sick, and too often, with an air of superior knowledge rather than an air of helpful suggestion, have shown at the post-mortem table the errors of the clinician's diagnosis. They, too, with dogmatic assertion have announced that therapy can not change the pathology of disease. Those who have been best informed in pathology have often been most pessimistic as to the accomplishments of clinical medicine in both diagnosis and therapy. Unfortunately this pessimism on the part of the more scientifically trained toward the practical application of discovered facts to the relief of symptoms and cure of disease has led to the study of the problems of each branch of laboratory medicine as a specialty with insufficient thought to its application to the practice of medicine. It has also made the path of those who practise medicine unnecessarily difficult.

Aside from this group of ultra scientific men there have been those who have been obliged to minister to the sick and help those who are ill to overcome their disease. They have not always measured up to the height of scientific standards in their work. They have had a hard time to square their accomplishments with their own ideals; but they deserve honor to the extent to which they have added to the sum of medical knowledge and succeeded in applying it to the relief of those who are ill. Some practitioners of medicine have assumed a disinterested attitude toward the laboratory side of medicine which is comparable to that of the many laboratory workers toward medical practice. This is illustrated by the following incident. A physician was doing post-graduate work in Vienna. Some of his colleagues were telling of the wonderful opportunities for study under Prof. Weichselbaum and his assistants in the Pathologic Institute and invited him to go with them. He replied "Weichselbaum never cured anybody." This practitioner, who only wanted that which would aid or cure his patient, and the pathologist, who laughs at the errors in diagnosis and ridicules the attempts at curing disease, represent the extremes in medicine. The one's opinion reflects the pessimism which comes from an appreciation of the paucity of our real knowledge and a lack of sympathy for the problems of administering to the needs of the sick; the other shows a failure to recognize the importance of a study which does not directly aid one in his desire to meet the demands which are made upon him to do something to relieve his patients.

The main error on the part of the pathologist is that he assumes too much for his branch. He has assumed a place of much greater relative importance for pathological anatomy than time will accord it, after the correlated branches of medicine have been thoroughly developed. No one ever will be accused of knowing too much pathological anatomy, but the error is in measuring its importance in relation to medicine as a whole. The error on the part of the practioneer is that he recognizes the problems of the practice of medicine but fails to see that the knowledge derived from the study of these laboratory branches is essential to the unfolding of the science

*Read before the twenty-second annual meeting of the American Therapeutic Society, Washington, D. C., June 3 and 4, 1921. (See page 475.)

of medicine, and that the greater medicine can come only through correlating the knowledge derived from study in all of its branches.

Physiology is one of the most important studies in medicine. Normal physiology contrasted with pathological physiology, gives our disease pictures and furnishes data upon which to make a diagnosis and establish a therapy. Further, physiological action is subject to change through therapy. Even pathological anatomical changes in tissues are sometimes brought about by altering physiological function and are relieved by correcting it. The study of pathological anatomy, although not intentionally nor necessarily, has fostered medical pessimism and the spirit of therapeutic nihilism; the development of pathological physiology, on the other hand, will bring a clearer conception of the working of the human machine in health and disease and will add intelligence and optimism to diagnosis and therapy.

The development of diagnosis and therapeutics will be greatly aided, if our profession can only obtain a broader grasp of what medicine is. Medicine is a comprehensive study of the causes of disease; the prevention of disease; the effects of disease upon the body tissues; the manner in which functions of the body are disturbed by its presence; the nervous, endocrine and psychic imbalance which is brought about by it; and measures for the cure of the patient or the relief of attending symptoms.

Each branch, whether it be pathological anatomy, bacteriology, biochemistry, physiology, pathological physiology, psychopathology, or any other, is only a part of medicine. One branch may be of greater importance than others in the minds of the profession at one time and in the minds of some members all of the time; but one must never lose sight of the fact that they are one and all only of interest to medicine as they can furnish information which helps to prevent or cure disease, relieve symptoms, or alleviate suffering.

Therapy will be a legitimate and necessary branch of medicine as long as illness exists. No pessimism can destroy its usefulness and no nihilistic attitude can remove it necessity. If therapy is a necessity, then it is the duty of medicine to develop those phases of study which will make it more accurate and more successful.

No one can read medicine without recognizing the force of the struggle for better therapeutic measures. This struggle, however, has not been guided by a clear conception. Much of the effort in the past has been confined to the discovery of plants with medicinal virtues and chemicals which would in some way relieve symptoms. There has been too much of a tendency to confine ourselves to drugs and surgery to the exclusion of physical and psychical measures.

This grasp of therapy has been wrong. While theoretically our profession stands ready to employ any measure that will aid in the cure or relief of disease, in practice we have been extremely narrow in our attitude toward remedial measures. Probably the majority of graduates from medical schools in the past have left college with the idea too strongly in their minds that disease was to be cured, if at all, by drugs or surgery. The fact is that they have graduated without a true conception of what the practice of medicine means.

It is no wonder that medicine has found itself so vulnerable to the attack of isms and cults which have arisen during recent times; for in its own ranks it has many who scoff at therapeutic attempts. The purely scientific worker, often possessed of the best brains of the profession, rarely interests himself in therapy and is too often content with the statement that drugs influence disease processes but little, if any; and the surgeon, carried away by his brilliant advances in his field and not yet fully appreciating the shortcomings of his therapeutic attempts, is too much of the opinion, "surgery or nothing." On the other hand, there are many practitioners who from their intimate contact with the sick, make an earnest effort to find methods for relieving symptoms and cutting short the period of illness. The more eminent the man the less he depends upon drugs and the more he prescribes proper care and regulation of the patient's life. The physician with less knowledge and reputation, however, is apt to depend mostly upon drugs for his results.

Medical teaching fails utterly in preparing men for meeting the therapeutic demands made upon them in practice. The graduate in medicine is imbued not so much with trying to help the patient as with trying to understand his pathology, bacteriology, and pathological chemistry. The patient on the other hand desires relief from his symptoms, and has no interest in the recognized scientific lines of study unless they give him relief.

While some disease processes have anatomical changes standing as causative, others have them only as a result. All, however, show physiological change resulting in disturbances in normal function. It is the duty of physicians then, to study thoroughly normal and pathological physiology, to learn what governs the normal working of the human organism, and to recognize the manner in which disease alters this. This leads to a thorough study of the nervous, endocrine, and psychic controls of the body with the application of remedies and measures which will preserve or restore their balance when disturbed.

In a former paper, in discussing this point, I called attention to the fact that normal physiological action is under the control of the nervous and endocrine systems and that during disease these systems are disturbed by stimuli which are of either physical or psychic origin. It seems to me that this covers comprehensively the control of body action in health and in disease.

It is the duty of medicine to comprehend these controls fully and also to learn the things which will restore them to normal when altered. Drug therapy is based on the action of substances, upon nerve and chemical control. To the extent that we learn the physiological action of drugs shall we be able to use them with intelligence. One would think from the teachings of materia medica that the principal way of influencing disease is by drugs, but in practice such is not the case. Any measure that may be employed to remove or directly combat the cause of disease or to counteract the pathological action of any organ or tissue may be utilized in the treatment of disease; so may any measure that will increase the normal stability of the nervous and endocrine systems and improve the physical and

psychic condition of the patient so that he will better withstand the disease.

The treatment of the sick then is accomplished in three principal ways: one by attempting to remove that which is causing the disease, another by restoring disturbed function, and a third by attempting to stabilize the nervous and psychic equilibrium and aid the organism in making its own fight to overcome disease. The first has been considered the most scientific during recent years, but because of the limited headway that it has made, it has caused great discouragement to practitioners of medicine. The other methods, while not having as yet fully gained the recognition of scientific men, have been gradually gaining in general favor. Practitioners are beginning to see that anything which will aid the sick is worthy of our profession, and that it is necessary to continue aiding the patient in whatever way we can even if specific remedies cannot be had and the cause of the disease cannot be surgically removed.

As we turn to this rational view of medicine, it brings with it a demand for a closer study of the patient than we have heretofore given him, and a better understanding of his normal and pathological reactions. At the same time it offers a hope for the displacement of pessimism and nihilism in therapeutics and the establishment of a basis upon which medicine can render a more efficient service.

THE FUTURE OF THERAPEUTICS.*

By REYNOLD WEBB WILCOX, M.D., D.C.L., F.A.C.P.,
NEW YORK.

TWENTY-ONE years ago last month this Society was organized under the presidency of Professor Horatio C. Wood in this city. According to the critics this Society was entirely superfluous because, in those days of the full flower of therapeutic nihilism, therapeutics was as non-existent as is disease in the concept of the blind devotees of a contemporaneous cult. But the founders of this organization, men of deeds and with prophetic vision, realized that the theories of the nihilists were incompatible with the proper fulfillment of the duties and obligations of conscientious practitioners of the art of healing. They realized that a thorough knowledge of pathology was essential and that diagnosis was important, and equally well that the period which should elapse before the necropsy should confirm or modify the diagnosis ought not to be one of watchful waiting if the duty of the physician to the patient was to be properly appreciated and fulfilled. In other words, an idle observation of the combat of the human organism against infection or the progress of degenerations of important organs or the impairment of functions, no matter how interesting these might be, was not the sum total of the professional activities of the attendant. Indeed, this inactivity, considered in the light of results, differed little from the beating of tom-toms of the aborigines or its modern successors, the reading of congeries of words, meaningless, irrelevant, immaterial, and incompetent in the presence of a real tragedy.

Slowly but surely the profession has come to realize that he who proclaims that there is no treatment of disease simply asserts that that particular individual knows no treatment and the term therapeutic nihilist has become coterminous with that of therapeutic ignoramus. Further the contemplation of the end results of disease and the study of the havoc wrought by morbid processes, as carried out in the dead house, beget a feeling of pessimism as to the effectiveness of methods and means employed to combat disease. And as it began to be realized that the ruins of the fireworks on the morning of the fifth of July gave little ground for an estimate of the oratory, the enthusiasm, and the more deeply grounding of patriotic sentiments and founding of nobler aspirations of the preceding day, so the despair of the pathologist became out of place in the clinician who knew his resources, as well as their limitations, in alleviating suffering and in the cure of diseases. Hence the cheerfulness of the expert and the hopefulness of the conscientious practitioner made for a more favorable prognosis not only for the patient but as well for scientific knowledge. What has been said applies not only to the domain of internal medicine, for it is here that a real cure, a *restitutio in integrum*, is the goal more frequently reached, but to surgery also, although that often is a process of subtraction, and to the limited specialties. So this Society, early in its history, has enrolled in its membership representatives of all departments of professional activity to the advancement not only of group therapeutics but also of therapeutics in its broadest meaning which has been the outstanding purpose of this organization. If we had accomplished nothing more than this the *raison d'être* of our Society would have been amply justified by the results.

But our achievements have not been limited to the general acceptance of the fact that pathology is not the whole nor even the major jart of medicine; we have demonstrated that pharmacology is not all of therapeutics nor even a respectable moiety of the healing art. This Society pointed out in 1903 (Transactions, Vol. II, p. 26) that a necessary basis for the highest development of the art of therapeutics should be: (1) A practical acquaintance with various remedial physical measures and remedies, not less physiological, and methods of preparing the latter. This should be acquired during the early and mnemonic period of the student's career (recitation and demonstration). (2) Actual knowledge of the action of agencies and remedies acquired by personal experimentation and demonstration under the teacher's eye (laboratory demonstration). (3) Application of these agencies and remedies, the actuality of their effects for good or evil having been fixed in the student's mind, in the treatment of diseases and symptoms, under proper supervision (lecture and clinical demonstration). (4) The actual direction for the exhibition, in strict pharmacopœial nomenclature, of remedies and the scientific use of physical agencies must be so thoroughly comprehended by the student that he can not only intelligently apply them, but give valid reason for his treatment (clinical practice and conferences). That the schools have not been alive to the importance of this basis for education, thus categorically expressed, is the fact that a *questionnaire* sent out by one of the most important, if not the most im-

*Read before the twenty-second annual meeting of the American Therapeutic Society, Washington, D. C., June 3 and 4, 1921 (See page 477.)

portant, of the medical schools, to graduates of more than ten years' standing, elicited the information that more than three-quarters of those who reported attributed their failure to obtain their hoped-for success in practice to the imperfect teaching of therapeutics in the school from which they had obtained their degree. That this is not either a local, or an unusual condition is evident from reading a forcible paper which was presented at our last meeting in Philadelphia by Spencer L. Dawes. Further evidence, if such evidence were wanting, is contained in the assertion of the dean of a medical school which for many years has enjoyed the traditions of a faculty of national reputation and a graduate body of successful practitioners of which a respectable number have been of great reputation for ability and professional skill, and remarkable for their loyalty to their *Alma Mater*. This school has recently been reorganized along the lines of emphasis upon the laboratory and preparation for the student's life work largely founded upon generalities of treatment without special emphasis being placed upon an actual knowledge of the materials used in the treatment of disease and their application to the concrete problem under consideration. This dean in explaining the failure of this new system makes the naïve assertion that success in the practice of the healing art depends largely upon the personality of the practioneer, apparently not realizing that the primary and proper function of the medical school is to educate competent physicians and surgeons. In attempting to develop investigators he fails to realize that some potentially successful practitioners may fail to attain their greatest usefulness because of his system. It would seem that in the classification of medical schools, not only the form of instruction should be determined, but the character of the instruction and the amount of it considered in its proper perspective, that is its bearings upon the equipment of the profession of the future which must take up the work which is new being done by the successful practitioner of the present.

Another set of critics predicted the ownership of this Society, or at least its control, by some enterprising group of manufacturers of materia medica products basing their prophecy upon the history of similar organizations (societies or sections). Article X, Section 3 of the By Laws reads as follows: "No paper, report, abstract, or other communication either written or verbal, which, directly or indirectly, commends or advertises any secret, patented, or trade-marked products, or method of treatment, shall be presented to, or received by the Society; nor shall any discussion upon such products, or methods, be permitted: Provided that nothing in this section shall be construed as presenting adverse action upon such subjects." This section, rigidly enforced and conscientiously lived up to in the letter and the spirit, has resulted in the disappointment of the prophets of disaster.

As to the Pharmacopœia, this Society has always realized its importance and earnestly advocated that the profession become better acquainted with its resources and employ its open, standardized, and eligible preparations. Many members have taken an active part in the decennial revisions which have been made during the life time of this Society.

The importance of the dissemination of accurate and impartial knowledge of the unofficial remedies was early a subject for discussion and action by this Society, and this finally took concrete form in the National Bureau of Medicines and Foods as was originated and proposed by Francis E. Stewart (Transactions, 1903, Vol. I, p. 62). Later the plan, although not in its entirety, was put into practical operation as the now-known Council on Pharmacy and Chemistry, which has been of great benefit, through the publication of the results of its activities, not necessarily constructive, to all workers in the domain of medicine and surgery (Transactions, 1908, Vol. IV, p. 69).

In constructive work to every department of the science of therapeutics this Society has made fruitful and substantial contributions. Every volume of the Transactions has recorded marked progress in the underlying sciences which has markedly improved the practice of therapeutics in its broadest sense. The value of therapeutics is now unquestioned, and the accumulated knowledge, as shown by the work of this Society, has placed the entire profession under obligation to it. With this record of unparalleled success we may well venture to prophesy and with better hope of success than our critics enjoyed two decades ago.

To predict what shall be the future of therapeutics we must bear in mind the abandonment of the methods of investigation which obtained twenty years ago which was the determination of what lesions produced given symptoms and signs and from their consideration deduce the method and form of treatment. Morbid anatomy was then largely the basis of therapeutic endeavor. To-day we strive to ascertain what disturbances of function produce symptoms and to determine during life how the body functions; in other words, anatomical considerations have largely been replaced by biological conceptions and for their study laboratory methods have become of increasing importance, and in so far as they explain the mechanism of variations from the normal they furnish the premises upon which we may base conclusions which may be helpful for diagnosis and prognosis, and especially as affording valuable indications for therapeutics in the broadest sense.

We require as thorough, accurate, and conclusive laboratory investigations of the effects of climate, the various phenomena of the atmosphere as regards temperature, moisture, and other qualities as they affect human life, of physical agencies, as electricity in its various forms of application, of the Roentgen and other rays, including radium emanations, of the effects of exercise and of diet, of massage, including the more limited in form but violent in quality now in some vogue, of the functions of the endocrine bodies, and of psychological operations as influencing somatic processes now chiefly employed by individuals of abnormal mentality—as those investigations which have been carried out for decades in the domain of pharmacology.

Fundamental to the productiveness of these investigations must be a great improvement in the equipment of the workers and a standardization of their technique especially in the field of biochemistry. For instance, the same specmien of blood should not be reported as Wassermann negative by

one, one plus by a second, and three plus by a third observer. The same variations as to blood sugar, purin bodies, or creatinin are by no means unusual. Patience, thorough technical training, and judicial temperament combined, in the laboratory will make for more confidence in their findings. The conclusions to be drawn must not be entirely left to the laboratory worker, for some are known to possess, and sometimes exhibit, a very vivid scientific imagination. The final conclusion must be arrived at by one who not only knows the methods but as well their limitations, and by correlating these findings with those based upon observations in broader methods of investigation and chastened by practical experience, a more sound decision can be reached and one of greater value in determination of therapeutic measures.

Even in pharmacology the field of usefulness of laboratory investigation may be greatly enlarged. In endocrinology much may be placed upon a firmer foundation. For substances derived from the indigenous vegetable kingdom of extensive use by a well known and earnest group of practitioners, many of important action should be the subject of intensive study, in order that their employment may be more intelligent than is possible from purely empirical tradition. It is needless to remark that the great complexities of chemical composition peculiar to all substances of vegetable origin add to the difficulties in reaching accurate conclusions. *Questionnaires* have shown that cactus is in frequent use in the treatment of cardiac and circulatory disorders comparing favorably in extent even with digitalis. Yet scepticism as to its value is frequently expressed, based apparently upon the results of laboratory work by an English observer. As his results were so out of harmony with the practice of excellent clinicians, the most important botanist in this country reported that the material used was an interesting plant in no way related to the substance supposed to have been used. Later a laboratory worker in this country undertook another investigation and reported the substance inert. As the conditions under which this investigation was undertaken were peculiar, it would be charitable to suppose that the material employed was not an active one, due to faulty collection and selection or pharmaceutical preparation. Yet any one who knows how to employ instruments of precision can demonstrate that any of the active preparations of this plant possess the peculiar properties of increasing the frequency and force of the cardiac contractures. Such laboratory investigations as these only reflect upon the accuracy, honesty, and general credit of the pharmacologist, and detract from his reliability.

The investigator, assuming that he is competent, thorough, and honest, is useful, even indispensable, in blazing new paths in the domain of knowledge which may be made of practical use. He is equally important in that he may place the methods and material, which have been employed empirically for decades, upon a sure and broad basis.

But the results of laboratory investigation must not be accepted without question; their value must be established by the conclusions based upon actual employment in the practical work in the art of medicine; the clinician pronounces the verdict and upon this the scientific value of laboratory conclusions must stand or fall. From clinical observation we look to the laboratory for explanation, modification of judgment or rejection upon experimental data, but we come back to clinical observation, and this is the basis of therapeutic advance.

In fine the future of therapeutics in its broader sense rests primarily upon the diminishing importance of morbid anatomy with the increasing study of pathological physiology, for pathology is merely physiology which has become abnormal; upon the deductions from intensive work in biological chemistry of more accurate technique, and upon a more searching analysis of clinical results; and upon the intelligent practice of the science of therapeutics may be based the art of therapeutics, which is the aim of all practitioners sincerely devoted to the alleviation of suffering and the cure of disease.

The wonderful advances of the last two decades of the life of this Society in the treatment of infectious diseases, disorders of metabolism, and degeneration in various physical systems, the production of immunity either special or general, and the clarifying of scientific knowledge are an earnest of the therapeutics of the future the basis of which must be established in the carrying out of the essential methods herein set forth. From our past record we can assuredly predict that in the placing of therapeutics, in its broadest sense, upon competent instruction of the student, upon accurate investigation in laboratory, and upon logical analysis of the results of clinical experience this Society will continue to be productive in the dissemination of knowledge of the science and contribute very largely to the practice of the art of therapeutics.

679 Madison Avenue.

WHAT CAN THE ASSOCIATION OF CARDIAC CLINICS DO?*

By ROBERT H. HALSEY, M.D.,

NEW YORK.

Recently this question has been put by so many persons and organizations who are interested, that it may add to the clarity and value of the discussion if a statement is made of a few of the ways in which profitable results may be gained. It will be evident at once that cooperation by all the components is necessary for the fullest results and, with such union, there will be valuable returns to patient, doctors, and hospitals.

The Association of Cardiac Clinics depends upon the component cardiac clinics, therefore a review of the possibilities of such units will make clear the opportunities.

For the best care of any special group of patients; and this is particularly true of patients with heart disease, because of the very technical difficulties in such diagnosis, it is necessary to have a sufficient number of physicians, who are deeply interested and well enough trained to carry on an intensive study of wide range and inherent difficulty. The clinic should have all the facilities of, and the physicians should be an integral part of the staff, of the gen-

* A résumé of remarks made at the first meeting of the Association of Cardiac Clinics at Boston, Mass., May 20, 1921.

eral medical service with its out-patient ward and social service organization.

In the out-patient service, the patients should be studied first and segregated, just as dermatological or orthopedic cases are, from every other service. They should be examined by all the usual recognized means of physical diagnosis and, when necessary, by means of the technical instruments, fluoroscope or electrocardiograph. The reference to the collaborating departments of eye, dental, nose and throat, *x*-ray, and laboratories equipped to examine chemically, bacteriologically, and serologically when necessary, should be a routine. There may be patients who will require a stay in the ward for a better examination, a course of drug treatment, or some therapeutic procedure such as tonsillectomies. No cardiac clinic properly run will long carry on without requiring a sympathetic, tactful, executive social service worker and her full time. Many patients may be kept out of the hospital and at home by the skilled and well advised visiting nurse. She must, and can, be the intelligent go-between of doctor and patient when their actual contact is not required.

The functions, therefore, of a clinic may be grouped under the following:

1. To diagnose the presence or absence of impaired cardiac function. It may act as consulting physician to (*a*) public schools, and (*b*) other organized charity groups.

2. To classify patients attending clinic by some practical method which will be expressive and facilitate the care of the patient by physician, social service department, hospital, and convalescent home.

3. To educate and advise the patient and family of the patient of the type of handicap and the various means available for increasing the efficiency or earning power of the individual.

4. To follow-up, to encourage, to stimulate confidence, and to insure the carrying out of treatment—preventive, operative, or remediable, drug or serological, recreational or therapeutic graded exercises.

5. To advise the need of and send to a suitable country home for special outdoor constructive treatment.

6. To guide to proper vocations the school graduates and place, or replace, in suitable occupations to continue or increase the earning capacity of the handicapped adult.

7. To collect in orderly records accurate data from a study of which advances in the treatment of heart disease may be suggested.

Comprehending the above lines of service which readily evolve from an up-to-date application of our present knowledge, the association of several such units will at once facilitate and coordinate the administrative work by

1. Coordinating clinic standards and requiring the equipment as described above.

2. Promoting constructive discussion and use of a classification such as that adopted in 1921 by the New York Association of Cardiac Clinics.

The classification of patients attending a cardiac clinic.

Class I—Patients with organic heart disease who are able to carry on their habitual physical activity.

Class II—Patients with organic heart disease who are able to carry on diminished physical activity: (*a*) Slightly decreased. (*b*) Greatly decreased.

Class III—Patients with organic heart disease who are unable to carry on any physical activity.

Class IV—Patients with possible heart disease. Patients who have abnormal physical signs in the heart, but in whom the general picture, or the character of the physical signs leads us to believe that they do not originate from cardiac disease.

Class V—Patients with potential heart disease. Patients who do not have any suggestion of cardiac disease, but who are suffering from an infectious condition which may be accompanied by such disease; *e.g.* rheumatic fever, tonsillitis, chorea, syphilis, etc.

3. Increasing the efficiency and service of the social service by districting the city.

4. Promulgating and diffusing knowledge of advances in the diagnosis, treatment and social service care of patients with heart disease.

5. Stimulating the convalescent homes to properly equip themselves to care for cardiacs. Selecting proper cases for such homes and advising the homes as to what the individual patients with heart disease may do to accelerate restoration of function. Encourage homes to preserve the continuity of supervision by reporting back to clinics from which patients come, the behavior and results of stay at home, by some such filing card device as adopted by the New York Association of Cardiac Clinics.

(Face)

Association of Cardiac Clinics

From Clinic of ..... Hospital

Name..... Age..... ...M.S.W.....

Recommended for Admission to .....

(Name of Convalescent Inst'n)

Was patient in ..... from ....., 192 ., to ....., 192 ..

(Hosp., Disp., or at home)

Complete diagnosis.....

.....

Complications .....

This patient is in Class (as checked below) and able to exercise { Freely / Moderately / Very Little }

I. Organic (able to carry on habitual activity)	IV. "Possible" heart disease (doubtful murmurs; mainly accidental, possibly organic)
II. Organic (able to carry on diminished physical activity A. Slightly diminished B. Greatly diminished)	V. Potential (predisposing history)
III. Organic (unequal to any physical activity)	

Signed.....

(Physician of Clinic)

(Reverse Side)

Fill in this side and return card to Clinic on discharge

Name .....

Admitted ., 192 Discharged ., 192 . Days stay .....

Weight on adm. ..... On disch. ..... Gain, lbs. .....

Cooperation Good / Fair / Poor

.....

(Notes)

Progress .....

Complications, etc.) .....

.....

Advised on leaving .....

.....

.....

.....

(Signature)

6. Organizing and encouraging a bureau to gather all available knowledge concerning vocation and employment, and maintain it for consultation by clinics, public health organizations, child

labor committees, employers of labor, or other interested persons.

7. Organizing cooperation of clinics in the collection of data concerning heart disease for a wider study than is possible in any one hospital or by any one man.

In the achievement of some of the results enumerated, the Cardiac Clinics of New York City have made a very definite step forward both individually and through the organization of the Association of Cardiac Clinics which is now represented in the Associated Out-Patient Clinics of the City of New York.

THE ROLE OF RADIUM IN SURGERY.

By MARC V. ABRAMS, M.D.,

BROOKLYN, N. Y.

THE discovery of the activity of radium, and its therapeutic application in medicine and surgery, was as important an event as was the discovery of the roentgen ray.

The medical profession, like any other scientific body, is ever eager to hail new discoveries with extreme enthusiasm. Expecting too much from a therapeutic novelty, and not obtaining the desired results, it is dismissed with undeserved condemnation. This has been true of many valuable medical discoveries, and is applicable in the case of radium. On the strength of some exaggerated statements radium has been hailed as the long-expected cure of cancer, and the notion of radioactivity has inflamed some minds to expect results far beyond present possibilities.

When the Curies had collected and insolated radium, they found that the new metal was endowed with astonishing properties. There issued from it continuously radiations (which may be compared with electrified corpuscles) extraordinarily minute, and with a velocity almost equal to that of light. The radiating property of the element would take three thousand years to exhaust itself. There are three distinctly different types of vibrations or emanations, characterized by different effects upon tissue and matter. These are known as the alpha, beta, and gamma rays.

The alpha rays constitute ninety per cent. of the radiations of the metal. These, because of their low efficiency, have little value in radium therapy. The beta rays comprise nine per cent. of the radiations. These also possess little penetrating power and are utilized in the treatment of superficial lesions where they can be directly applied. The gamma rays, which represent only one per cent. of the radiations, are in their character analogous to the Roentgen ray but of greater intensity. They are capable of penetrating iron and stone to a considerable depth, and are of therapeutic value. The gamma is neither a burning nor an irritating ray. It acts directly on the nuclei of malignant tissue cells. Since these are embryonal in nature, the malignant tissue is acted upon and destroyed before the normal tissue cells are appreciably affected.

Radium as now used is generally employed with filters or screens of gold, silver, lead, brass, or aluminum. Any of these metals, one millimeter in thickness, is capable of filtering the soft alpha and beta rays which produce the cutaneous burns. In the passage of the primary rays through these screens, secondary ones are produced from the metals. These secondary rays are stopped in their action by filtering with sheet rubber.

Emanation is another property of radium. It results from the radioactivity. The emanation may be passed off into the atmosphere or into water.

Methods.—The methods of applying radium are varied. It was first employed in little glass tubes and applied to the surface of the diseased tissue. Later these tubes were buried in tumor masses. After that, radium was incorporated in a varnish, and plaques were made for surface application. At present the element is standardized in regulated quantities of milligrams which are placed in non-corrosive needles or metal tubes and the gaseous emanation is collected in very small glass containers. The needle applicators have a twofold usefulness; they may be used for superficial lesions, or inserted directly into a tumor mass. Filtration or screenage is readily accomplished when a specific quality of the ray is desired. The cross-fire method of applying radium is accomplished by placing two or more tubes on opposite sides of the part to be treated, or by making two or more applications from different directions. Thus it is possible by this means to get a pronounced result upon a tumor without too much effect upon the overlying skin or mucous membrane.

Dosage of Radium.—A milligram hour represents one milligram of radium applied for one hour. An erythema dose represents one thousand milligram hours of radium, delivered to a square inch of skin surface at one inch distance, filtered through the silver wall of the applicator and two millimeters of lead. A lethal dose is three times an erythema dose. The term "distance screening" indicates that some substance such as cork, gauze, or felt has been interposed between the radium and the skin surface overlying the area to be treated. The distance bears a relationship to the amount of radium used and the depth of the lesion beneath the skin surface. For deep-seated lesions, a resisting filter of lead, brass, etc., from one to three millimeters is used and about one millimeter of metal is employed for every thirty milligrams of radium used. The object of this is to permit only such rays to pass through as will act uniformly upon the whole mass of the tissue by penetration. The time element in the application depends upon the quantity employed as well as on the size and depth of the area to be treated. The skin surface will not bear more than three hours continuous application without injury.

Technique.—As is the case with all physical methods of treatment, technique is of utmost importance. The personal equation and the familiarity and acquaintance of the operator with the method play an important rôle in successful application. There is no definite standardized technique but efforts are now being made to formulate the results of various operators in order to develop a universal method for the treatment of particular lesions or conditions.

*Read before the Greater New York Eclectic Society, May 10, 1921, and East New York Medical Society, June, 1921.

Action.—The action of radium is twofold. It first acts on the cell and then on the blood-vessel. Like the Roentgen ray, it is not selective in the sense of destroying or eliminating any particular tissues, but when employed in sufficient quantity, it destroys those of low vitality first. The radium causes a swelling of the cell, followed by a swelling of the nucleus, resulting in a bursting of the entire cell which is absorbed by the blood stream. Its action on the blood-vessels is manifested by a swelling of the tunica intima followed by the production of an obliterating endarteritis in the small vessels. It has been calculated that if a specific dose of radium possesses the power to kill a diseased cell or a new growth cell, it would take five times the same dose to kill a normal adult cell. In small quantities radium stimulates normal tissue; larger amounts produce congestion first and fibrosis later. If exposures are prolonged, and the infiltration insufficient, the action of the rays may become caustic, or the process may result in necrosis and sloughing. With proper exposure there will be an inflammatory reaction which slowly subsides. Fibrous tissue forms, cutting off the blood supply with necrosis if the action is rapid, or atrophy if it is slower.

Therapeusis of Radium.—What the practitioner of medicine is particularly interested in, is the therapeutic efficacy of radium and the permanency of its results. Conditions that have responded most favorably to the applications of radium with or without *x*-ray therapy are: Cancer of the breast, splenomyelogenous and sympathic leucemias, epicomas, Hodgkin's disease, tuberculous adenitis, splenomyelogenous and lymphatic leucemias, epitheliomas, uterine myomas, goiters, nonmalignant uterine hemorrhages, and various cutaneous lesions such as nævi, keloid, and lupus.

Cancer of the Breast.—In treating a primary carcinoma of the breast with or without metastasis, a thorough radiation is indicated before operation, followed by radiation after operation as soon as convalescence permits. Patients in this group have received repeated radium and *x*-ray treatment when a general anesthetic was contraindicated owing to some myocardial change, thoracic, or renal complication. The primary results in all of such cases have been very encouraging. The irradiation decreases the glandular cells and increases the fibrous stroma. It first stops all proliferation, producing fibrosis of the lymphatics. This mechanical choking seems to influence the constitutional resistance of the patient. Patients with recurring carcinoma of the breast with or without metastasis improve under the treatment. Ulceration and sloughing are prevented. Roentgenograms of the chest are taken before treatment in order to determine the depth of the metastasis. If the condition is an operable one and ante-operative radiation is instituted, it renders latent many foci of malignant growth. To quote Dr. William J. Mayo in his presidential address before the Clinical Congress of the American College of Surgeons, where he advocated anteoperative radiation in the following words: "Radiotherapy has justly achieved a reputation in the postoperative treatment of cancer. It would appear however to have its greatest field of usefulness in preparing a malignant area against wound grafting during operation, and its ability at least temporarily to reduce the vitality of the malignant cell. Radiotherapy, whether applied as radium, *x*-ray, or heat, sickens malignant cells beyond the area of destruction. During this period of cell-sickness, their resistance is reduced and operation is most efficient; but operation should not be delayed after radiotherapy, since the period of increased cell vulnerability is short and the connective tissue development which interferes with subsequent operation is rapid. By properly combining radiotherapy and surgery we can increase operability, lower mortality, and increase the percentage of cures. Radiotherapy destroys cells for a certain distance, but cells are sterilized at a greater distance, so that their reproduction is checked and connective tissue is caused to develop, which acts as a barrier to the further extension of the malignant process."

Dr. Schmitz of Chicago states that in malignancies it is advisable to use the combined treatment of radium and Roentgen rays. The former attacks the tumor locally, and the latter acts on the surrounding tissues and organs and regional lymph glands. Surgery removes diseased tissues and organs, but cannot modify their pathological state. Radium and Roentgen rays can modify abnormal cells, but cannot remove them. Therefore it is evident that the combination of the two methods of treatment will increase the efficacy of one or the other. Furthermore he states that in his clinic, if they decided to apply radium and Roentgen rays in malignancy they did so either because surgery could not benefit the patient any more, while the rays gave some hope of palliation, or because the rays would increase the efficacy of surgical treatment. His method of treatment in malignant or potentially malignant disease was as follows: He first applied *x*-ray and radium to weaken the abnormal cells. Then he surgically eradicated the diseaser tissues and surrounding areas. This was followed by final applications of the combined rays to destroy any diseased cells or cell nest that might not have been removed.

Cervical and Uterine Lesions.—Radium has taken an important place in the treatment of cervical and uterine conditions. Excellent results have been obtained in primary cancers of the cervix. Most gynecologists concede that radium is the best palliative measure in inoperable and recurrent cancer. Local disappearance of the disease takes place in some cases, while marked improvement is noticed in a large portion of others. After treatment, the offensive discharge disappears. Where there are broken down masses of cancerous tissue, the deodorizing effect is remarkable. Many of these patients show an irregular temperature from absorption of broken down material, but this generally disappears after the application of radium.

Sarcoma.—Round cell sarcomas respond rapidly to radium therapy. The spindle and giant cell sarcomas respond more favorably than the melanotic type. If the involvement is confined either to the chest or to the abdominal cavity. Radium is applied to the anterior surface, and deep *x*-ray therapy is given through posterior and lateral abdominal and thoracic walls by the cross-fire method.

Hodgkin's Disease.—The treatment of acute and chronic cases of Hodgkin's disease is identical. The

first type is less amenable to treatment on account of its rapid clinical course. The majority of patients are treated for cervical, supraclavicular, axillary, and inguinal involvement with or without splenic enlargement. Roentgenograms are taken of the chest, abdomen, and pelvis to ascertain the amount of involvement of the deep lymphatics. Superficial lymphatic enlargements are mapped out and an erythema dose is delivered to each. If there is splenic enlargement, the organ is radiumized. If the Roentgenograms show involvement of the deeper lmyphatics, deep *x*-ray therapy is applied to the respective areas.

Leucemias.—More radium is given in the cases of acute splenomyelogenous conditions than in the chronic cases, in order to put the patient in a chronic state as rapidly as possible. Satisfactory remissions are produced by the surface application of radium. The results in general are a rapid reduction in the size of the spleen, a fall in the leucocyte count, and improvement in the general condition. During the treatment the blood is examined. If the hemoglobin and red cells decrease, the treatment is discontinued and a long rest given. All patients are supported medicinally during the period of treatment.

Myoma Uteri.—Dr. John G. Clark of Philadelphia states: "As a result of five years' experience in the use of radium, it should be considered as an adjunct of surgery and not its competitor. The fact is that radium has worked very well in certain types of myoma uteri and has rendered much easier the life of patients afflicted with incurable cancer." He further states that menorrhagia is the hallmark of a myoma, regardless of its excess, whereas the tiny spot of intramenstrual bleeding is always a danger signal of cancer never to be considered carelessly. Therefore the criticism that in treating myomata with radium, one may overlook cancer, is not based on clinical facts.

Tuberculous Adenitis.—The simple type of tuberculous adenitis offers the best results. If suppuration be present, curetting or drainage may be necessary. The patient is supported by general hygienic and dietary measures. Hyaline or calcarious adenitis may be an end following radiation.

Goiter.—In the various kinds of goiter, regardless of their etiological cause, certain and distinct changes occur in the thyroid gland, in the blood, and in some of the other organs. Many observers have noticed an almost universal proliferation of the glandular cells, an increase in the connective tissue with certain groups of lymphoid tissue scattered through the connective tissue, and enlargement and multiplication of the blood vessels. The colloidal material is scanty. There is lymphocytosis and decreased polymorphonuclear neutrophiles suggestive of disturbance of the lymph stream. This is further evidenced by the presence of an enlarged thymus gland. Dr. Melchior found from personal experience and from data collected from one hundred and fifty-one papers that an unduly enlarged thymus occurred in about ninety per cent. of exophthalmic goiters. In undertaking to treat this disease, we must consider medicinal treatment, surgery, and ray therapy. As the etiology is unknown, we must attack it symptomatically and with regard to what is known of its pathology. Medical and hygienic treatment have an undoubted place, but should not be persisted in until degenerative changes have taken place in the heart.

Dr. Crile of Cleveland is of the opinion that nonsurgical treatment should always be tried. The results of surgery have not been markedly successful. Dr. DaCosta states that it is the Mayos' custom to radiate for several weeks and then to operate. As noted above he also uses the rays preliminary to operation in order to decrease the vascularity of the part and to lessen the amount as well as to diminish the toxic quality of the thyroid secretion. When we consider the pathology of the gland and the action of radium, it would seem to have an assured place as a remedial agent. Bearing in mind that there is a proliferation of the glandular cells, deposits of lymph tissue through the thyroid, an enlarged and active thymus and lymph nodes, we conclude that the disease is not confined merely to the thyroid gland.

When the rays are applied to a blood vessel, there is a swelling of the tunica intima followed by an obliterating endarteritis in the smaller vessels, and a diminution of the calibre of the larger ones. Whether the toxic secretion is due to the additional blood supply or to the activity of the new-born cells in the gland, or to both, it will be affected by the radium action. The thymus and lymphatic glands are also rayed. The radiumizing of the thyroid and its correlated thymus and lymphatic glands accounts for the success in this form of treatment. The mere surgical removal of the thyroid alone will still leave unremoved affected tissue in the other glands. The beneficial effects observed in these cases are the slowing down of the pulse rate from twenty-five to thirty beats and marked reduction of the nervous symptoms. The gland usually diminishes in size. The tremors also disappear entirely and the patients gain in weight and general well-being. If exophthalmus is present, it is usually the last symptom to disappear.

There is no doubt but that radium has a wide field of usefulness in medicine, the value of which can best be estimated only after a painstaking collection of data. It has already passed the experimental stage, and richly deserves recognition in cases to which it is best adapted. It is no cure-all, but merely a therapeutic agent which should be used in connection with other well-established methods of treatment. Experience has shown that it increases the permanent benefits obtained by surgery, converts inoperable into operable cases, and materially relieves the sufferings of hopeless victims of some diseases.

1008 St. Johns Place.

AN IMPORTANT FACTOR IN THE USE OF PROTARGOL IN GONORRHEA.

By MAX HUHNER, M.D.,
NEW YORK.
CHIEF OF CLINIC, GENITOURINARY DEPARTMENT, MOUNT SINAI HOSPITAL DISPENSARY; FELLOW OF THE NEW YORK ACADEMY OF MEDICINE; MEMBER, AMERICAN UROLOGICAL ASSOCIATION, ETC.

It is now over ten years since I wrote an extensive article[1] on the diagnosis and treatment of gonorrhea, in which I strongly recommended the use of protargol.

Since that time there have been added to the therapeutic list many new preparations and chemicals both here and abroad. Many of them have been brought forward by prominent specialists and scientific institutions. I have tried most of them and have also watched with keen interest the trial of some of them by others, and, at the same time have followed up the literature on the subject. During these years I have noted the rise and decline in their popularity, until now, many, which had been heralded as the "ideal," have completely vanished from our therapeutic list.

I must confess, however, that after extensive trial, I still find protargol the best injection material we have at present. It gets rid of the gonococci more certainly that any other drug. It is true I have had my disappointments with it at times also. Every once in a while I come across a case of gonorrhea, in which gonococci of the particular strain are what I would call "protargol-fast." By which I mean, that protargol has absolutely no influence on them, the gonococci continuing to appear in large numbers in the discharge in spite of prolonged use of protargol. Such cases, however, are the exception. In the large majority of cases we can be certain that the gonococci will disappear from the discharge, even though the pus cells are not diminished. In many cases the visible discharge lessens or disappears with the disappearance of the gonococci, but in other cases, while the discharge continues the same, or may even increase, the gonococci disappear.

The main factor that has caused the popularity of many of the other silver preparations was the fact that they were not irritating to the urethral mucous membrane, and could be employed in much stronger solutions than protargol. While this property is of extreme value in the treatment of gonorrhea, I have found, however, that these preparations do not cause a disappearance of the gonococci with any amount of certainty, which, after all, is the main desideratum.

With a view of overcoming the irritation that sometimes follows the use of protargol, especially in stronger solutions, I experimented with various methods, until finally, several years ago, I discovered that by simply dissolving the protargol in physiological saline solution instead of distilled water, we could use very strong solutions (2 per cent.) with very little burning and in many cases without any increase of the urethral discharge, in some cases even a diminution. Of course I do not start with a 2 per cent. solution, but gradually work up to this strength, but strength for strength the saline solution of protargol is far less irritating than the distilled water solution.

I did not wish to publish this fact until I had a sufficient number of clinical cases to back up my observation, but when I was ready to publish it I found that a German professor had hit upon the same point about the same time and had published it in an extensive article.[2] This, therefore, precluded my publication of my experience as original.

I find, however, that even at present, many prominent specialists are not aware of this advantageous method of administering protargol, and a search through our most modern text-books on gonorrhea also fails to find any mention of this fact. Stating this to the editor of a prominent New York medical journal, I was advised by him to publish it. In writing prescriptions or in making it up for home use, all that is necessary is to substitute physiological saline solution for distilled water.

REFERENCES.

1. Huhner, Max: Clinical Gonorrhea in the Male, *New York Med. Jour.*, January 23, 30, and February 6, 1909.

2. von Notthafft: Zur modernen medikamentösen Therapie der akuten Gonorrhöe, *München. med. Wchnschr.*, July 27, August 3, and August 10, 1915.

320 CENTRAL PARK WEST.

Medicolegal Notes.

Services to Employees by Agreement with Employer—Compensation Cannot Fix or Enforce Fee of Physician, Who May Sue at Common Law.—In an action by a physician to recover the reasonable value of professional services he rendered at the request of the defendant company's superintendent to several of its employees, who were injured in the course of their employment, the defendant contended that under the Workmen's Compensation Law the plaintiff's exclusive remedy to recover the money value of his services was by application to the Industrial Commission, upon whom the law imposed the duty of fixing the plaintiff's fees. There was no dispute as to the rendition of the services, nor as to their reasonable value. The Compensation Law requires that an injured employee be given necessary medical services when injured in the course of his employment. That duty primarily falls upon the employer. If he refuses the employee's request for such aid or neglects to furnish the proper service, the employee may select his own physician. Manifestly, therefore, it was held, the defendant here was legally obligated to furnish the services to its injured employees for the value of which the plaintiff sought to recover. Could the plaintiff enforce his claim by an action at common law, or is he by statute law restricted to an application before the Industrial Commission for the fixation of his fees? The court found no authorities on the point, and was cited to none. It was held that the sentence in section 13, providing that, "All fees and other charges for such treatment and services shall be subject to regulation by the commission as provided in section 24 of this chapter, and shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living," has reference only to fees and charges incurred by the workingmen for medical treatment where the employer refuses or neglects to provide such treatment. Section 24 provides for the approval of the value of the services by the commission and the inclusion of the charge as part of the award, showing that it is the charge incurred by the employee, and not the employer, that is subject to regulation by the commission. "No attempt to regulate private arrangements entered into between the employer and the physician he might select is either expressly made or by implication to be spelled out of its provisions, and wisely so, for in no way could that be a matter of public concern. Nor is there any plan or schedule set forth for enforcement thereof. Recourse to a court of law therefore follows as the sole remedy, in the absence of a proper, expressed, and comprehensive provision for enforcement under the act. It is clear, therefore, that where the physician's claim is based solely on an agreement with the employer, and is not a part of the injured workman's claim for compensation, the compensation commission is without legal authority to fix the fee and enforce it, and the physician still retains his right to prosecute his claim in a common law action." Judgment for the plaintiff was therefore affirmed.—Feldstein v. Buick Motor Co., 187 N. Y. Supp. 417.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, September 10, 1921.

CONGENITAL AND OTHER LESIONS OF THE FEMALE GENITALIA IN THE INSANE.

LESIONS of the genital organs are frequent in insane females. Verhaeghe, at the Bailleul Insane Hospital, France, found that 73 per cent. of the patients presented some type of such lesion, and he suggests that a gynecological examination should always be made when insane patients are admitted to hospital. Congenital defects of the genitalia are more frequent in the insane than in females mentally normal, according to Verhaeghe's statistics. Out of a total of one hundred and thirty patients examined five presented uterine or vaginal congenital defects. Gynecologists, on the other hand, give much lower percentages, their figures being derived from mentally normal women. The congenital defects consist of single or multiple transverse septa, complete or incomplete, of the vagina and stenoses occupying a short length of the vagina, annular or diaphragmatic in type, and usually seated at the junction of the upper with the middle third of the canal. Fetal inflammation, persistence and union of the epithelial folds so evident at the onset of intrauterine life, or a strangulation of the vagina from a tardy development of the pelvic floor have all been invoked for explaining these congenital defects. Absence, imperforation, and abnormal situation of the vagina are also met with in the insane, as well as double or bicornate uterus, or absence or rudimentary state of the organ. All these defects are explained by a fusion of the two ducts of Müller, and the manner of production of these lesions represents a developmental defect that would naturally be more frequently met with in degenerate females, occupants of insane hospitals. The five cases mentioned by Verhaeghe presented an arrested development of the intellectual faculties even to the extent of profound imbecility. Rivalta has also reported four cases of congenital defects of the vagina, and in three of these patients mental degeneracy was manifest.

Briefly, these defects should be regarded as true genital stigmata of mental degeneration, and this is also the opinion expressed by Raffegeau, who points out that the medicolegal examiners and alienists should never neglect examination of the genital organs, and when congenital defects are found either in the male or female the subject should be suspected of mental degeneration unless the contrary can be proved.

Noninflammatory lesions of the uterus or adnexa may by various mechanisms react upon the cerebral functions, keep up delirium, giving it a new direction, and sometimes even being the cause of its outbreak. Surgical treatment is required as mental therapeutics in every case in which there is not an evident disproportion between the extent of the lesions and the local sensations complained of by the patient. Inflammatory lesions of the organs of generation are particularly frequent in insane women, Verhaeghe finding the proportion of 353.84 per cent. in his cases. In 33 per cent. these lesions had resulted from a recent delivery, and in puerperal insanity uterine infection is the rule. The frequency of the lesions and the happy effect of treatment in these circumstances lead to the supposition that infection occupies the foremost place in the pathogenesis of puerperal insanity. When the lesions are due to some other etiological factor their treatment does not give such good results from the viewpoint of the mental affection, a fact that can be explained either because the lesions developed after the mental process or because when preceding these they were of too long standing when treatment was undertaken.

Menstrual disturbances are also common in the insane. In epilepsy the menses do not often appear to have a marked influence upon the attacks and in many subjects the attacks become more frequent after the menopause. General paralysis usually causes amenorrhea, while the reestablishment of the menses frequently coincides with the occurrence of a remission in the mental process. In about 33 per cent. of the cases, early dementia accompanies suppression of the menstruation, while amenorrhea is present in about the same proportion in melancholics. In maniacal cases the menses are usually regular, and this is also the case in the delirium of persecution.

PROGNOSTIC VALUE OF THE LEUCOCYTIC COUNT AFTER SURGICAL OPERATIONS.

ALL surgical interferences, aseptic or otherwise, are usually followed by a neutrophile polynuclear hyperleucocytosis which appears on the second day following the operation and usually disappears by the tenth day. In some cases this hyperleucocytosis attains its maximum the day following the operation—17,000 to 25,000 leucocytes and 82 to 91 per cent neutrophile polynuclears—a maximum followed by a gradual drop to the minimum on the tenth day. This curve coincides with a pulse and temperature of favorable augury and clinically the case undergoes an aseptic evolution. This polynucleosis has the same prognostic value as the pulse and temperature curves. In other cases the polynuclear hyperleucocytosis occurs tardily after the operation and in these circum-

stances it never has the same numerical value, ranging from 75 to 80 per cent., and coexists with a normal pulse and temperature. In these cases there is some suppuration during their progress toward recovery. There are also cases in which polynuclear neutrophile hyperleucocytosis attains its maximum on the day following the operation, but with a very high pulse rate. In these circumstances the outcome is apt to be unfavorable, as general infection ensues. Therefore, a high pulse rate with an early and high leucocytosis is of bad prognostic import. In one series of cases studied by Bouchez, he found a notable decrease in the percentage of eosinophiles the day following the surgical intervention, although they did not completely disappear, and this was followed on the third day by a very marked eosinophilia—5 per cent. The patients in this series had an aseptic recovery and the prognosis was favorable. In this respect it should be remarked that the more favorable the outcome the higher will be the eosinophilia after the operation. Therefore, it is an excellent index to recovery.

When there is complete absence of this element in the blood after a surgical operation the outcome of the case will certainly be less fortunate. Suppuration will be accompanied by delayed and low (3.7 per cent.) eosinophilia, and in fatal cases the eosinophiles will not appear after operation. In those cases in which a relatively high percentage of mononuclears is present the prognosis is not favorable, suppuration or septicemia ensuing. In Bouchez's experience, the basophiles acted in about the same way as the eosinophiles. This observer is therefore of the opinion—all due reserves being made—that the curve of polynucleosis and eosinophila compared with that of the pulse is an excellent and ready means of making a postoperative prognosis. The temperature curve is perhaps less sure, because he has had the opportunity of studying cases in which the termination was favorable in spite of a high temperature where the polynucleosis continued to retrogress.

The leucocytic curves indicate the intimate reactions of the organism with the greatest exactitude when their study is carefully carried out. Generally speaking, the intensity of hyperleucocytosis will be in direct ratio to the intensity and gravity of a given affection. A relationship of the same order is established between the degree of the polynucleosis and the gravity of the disease. In affections with a polynuclear leucocytosis, an excess or absence of this reaction may be taken as an index of the gravity of the morbid process; therefore, great reserve should be exercised in respect to the prognosis when applying the leucocytic count. In smallpox in particular, an enormous drop in polynuclears is an index of a fatal outcome. In other infectious diseases eosinophilia serves as an element in the prognosis. Piechi, Pieraccini and Noegeli have shown that in typhoid fever the persistence of eosinophiles at the height of the disease and their reappearance in the second and third phase of the process indicate a favorable prognosis. The blood-count after operations is useful in order to arrive at a prognosis in many cases where this is doubtful.

FORENSIC SIGNIFICANCE OF TATTOOING.

Tattoo marks are often of service for identification but only within limits. To have an anchor tattoed on the back of the hand, for example, would be indecisive. On the other hand, a large ornamental design with an inscription would possess considerable significance. If other individuals showed similar patterns this similarity would not extend to identity of location, measurements, etc. Tattoo marks have identified individuals after decomposition of the cadaver. Lombroso cited an old custom prevalent in his native neighborhood of tattooing foundlings. The question of disappearance of tattoo marks in connection with identification is an old one in the courts. It is accepted by jurists that they never vanish spontaneously, although this must be qualified by the nature of the substance used. Cinnabar marks fade to such a degree that we may visualize their disappearance. Marks produced by ordinary writing fluid can certainly disappear, although material of this kind is not in demand for tattooing. The most famous court case was the Tichborne claim, the pretender having been shown to be without the tattoo marks known to have been present on the true Tichborne.

Cattani, who discusses this subject in the *Schweizerische medizinische Wochenschrift* for March 10, 1921, li, 10, says detattooing is a difficult one to generalize on. As a rule, efforts of this kind—and very many are in use—fail, although there are methods in which the tattoo marks could be replaced by scar tissue, or excised. At present there are methods by which the most of the pigment can be removed, but while this might be called a cosmetic success, the traces which would remain might make or upset an identification.

The motive for tattooing may have forensic significance; for while propinquity explains most of the cases among sailors, tattoo marks in criminals may have a deeper motivation, and Lombroso built up a theory of atavism, a persistence of the savage tendency to symbolize something, express one's personality, etc. According to this view, the choice of pattern is an index of the psyche. The author agrees with Leppmann that tattooing has no deep anthropological significance, and that the motivation comes entirely from environment. Otherwise we would find men in distant parts of the world, belonging to distinct nationalities, using similar patterns in response to endogenous symbolism. Much of the choice is left to the professional tattooer, who is influenced by a variety of motives. Thus he may excel in a certain design and advocate it for that reason. To find a crucifix tattooed on the chest of a man may not argue any devotional im-

pulse; perhaps beside it there may be seen the figure of a nude woman. Neither can occupation be predicated from tattoo marks. The author makes no allusion to the systematic or formal tattooing of the Paris Apache. Self-tattooing is not uncommon and may sometimes be suspected from the location, which would necessarily be restricted. The author, like others, has seen cases in which a subject was tattooed against his will. This has been done by intimidation or violence, but also during insensibility. In regard to the consequences of tattooing on the health the practice has conveyed both syphilis and tuberculosis, to say nothing of causing phlegmon, gangrene, erysipelas, and keloidal scars.

DUALITY OF THE SYPHILIS VIRUS.

THE growth of the problem of unicism and duality has been gradual and the evidence cumulative. For many years we have known that paresis is a relatively new disease and one which is peculiar to civilization. Fournier used to speak of the extreme mildness of the course of syphilis in the tabetic and paretic, which very mildness, he thought, caused treatment to be largely ignored. But it was shown that paresis could follow well treated syphilis. Then conjugal syphilis came to the fore and it was shown that a neurotropic syphilis in the husband often caused the same type in the wife. To this may be added the celebrated case of the woman who infected five of her lovers, all of whom died of paresis within 20 years. Another document in support of dualism is the resistance of paresis and tabes to treatment.

Mirande, who gives the latest exposition of the status of this subject in the Syphilis number of the *Journal de médecine et de chirurgie pratiques* for December 10, 1920, xci, 23, says that after the discovery by Noguchi of the spirochete in the brain of paretics an era of experimentation was inaugurated. The first experiments showed that the treponema which is found in the venous blood of the paretic can transmit syphilis to the rabbit. Comparison of the course of this type of rabbit syphilis with the ordinary type shows differences which involve the time of incubation, appearance of lesion, evolution, and virulence. The orginal or dermotropic virus exhibits a necrotizing and sclerosing power not possessed by the neurotropic virus which causes mild papulosquamous lesions. The dermotropic virus also attacks the blood vessels. In human experiments on volunteers, inoculation of the neurotropic virus have been negative and this is true of the anthropoid apes. It also appears that after the cure of rabbit syphilis of the neurotrope type the animals can be readily infected with the dermotrope form, and rabbits immunized against dermotropic virus can also be successfully inoculated by the neurotropic virus.

At present the case for dualism appears to be complete, for there are many experiments that cannot for want of space be recapitulated here. The differences between the two syphilis spirochetes may be as marked as those between the spirochetes of Dutton and Obermeier, causes respectively of African and of European recurrent fever. This throws no light on the origin of the neurotropic form but the evidence points to evolution of the latter from the dermotropic form by a process of adaptation in which an increased sensibilization of the nervous centers may play a part. Once the neurotropic strain has developed it behaves as an autonomous organism causing a mild type of syphilis of the skin, mucosæ, and viscera. The refractoriness in man of neurotropic syphilis to treatment is inexplicable by animal analogy, for in rabbit syphilis the neurotropic disease readily responds to organic arsenicals.

ENDEMIC SYPHILIS IN BOSNIA.

ONE of the greatest stumbling blocks to the theory of the modern origin of syphilis is its failure to explain the so-called endemic syphilis which has often occurred side by side with the ordinary venereal type, completely ignored by the syphilographers of the day. This was well illustrated in Ireland. History shows that venereal syphilis was very slow in getting a foothold into the interior of this country. For centuries perhaps it was found only in the ports and vicinity. But there was an affection known as "button scurvy" which appears to have been known from time immemorial. The Dublin school of syphilographers with all their experience and acumen failed to note the identity or even any resemblance with venereal syphilis until one of their number, Porter, grasped the fact after much research that they were one and the same. Many years before this recognition Colles, Carmichael, and others described and even in one case illustrated "button scurvy," which representation looks syphilitic enough to us to-day even in the crude colored plate. Failure to recognize it as syphilis was due to the absence of venereal contacts and primary lesions on the genitals, occurrence in family incidence among the poor but virtuous peasantry, knowledge of similar endemics (like "sibbens" in Scotland) among rural peoples, etc. In the *Schweizerische medizinische Wochenschrift* for June 16, 1921, li, 24, we find that identical conditions still obtain in Bosnia, as they have for many years past. Side by side with ordinary venereal cases with primary lesions are seen exquisite familial cases in endemic incidence. In one locality 230 such families were found, all infested with the disease. In one family of eight all presented buccal lesions. Hereditary cases are so rare that they may be regarded rather as belonging to venereal syphilis. These endemic cases respond quickly to treatment and no case of neurosyphilis or metasyphilis has ever been reported.

ETIOLOGY OF HERPES FEBRILIS.

THIS subject has recently assumed importance because of the results of certain laboratory investigations which seem to show an analogy between simple herpes and epidemic encephalitis. But Luger and Lauda, who discuss it in the *Wiener klinische Woch-*

enschrift for May 26, 1921, xxxiv, 21, do not allude to this relationship. Herpes febrilis now suggests an autonomous general infection of which ordinarily the skin lesion is the most constant or characteristic symptom. Something of the same nature is evident in herpes zoster. The bacterial flora isolated from the vesicles do not point to any one exciting cause. The authors examined the exudate in herpes febrilis due to the most dissimilar causes. In some cases the patients had ordinary colds, in others pneumonia and meningitis, and in still others there had been injections of therapeutic substances, as salvarsan, or ordinary milk. The results were flatly negative. The successful inoculability of the rabbit cornea with the contents of herpes vesicles is now discussed but despite the genuineness of this phenomenon no microorganism has yet been isolated. The authors have been unable to produce by this inoculation the general infection with lesions of the nervous centers described by some laboratory men (Kooy, Doerr). However, they announce one very striking find obtained as follows: The contents of an ordinary fever-blister or "cold-sore" two days old, were injected directly into a rabbit's veins. The animal became ill with a constitutional infection and succumbed in three days (incubation period ten days). An emulsion of brain and cord was now filtered through a Berkefeld and the filtrate injected into the veins of a second rabbit which practically duplicated the experience of the first animal. Thus far, therefore, the authors uphold the contention of their colleagues in this research.

News of the Week.

Typhoid Fever Outbreak Spreads.—The epidemic of typhoid fever in Burlington County, N. J., continues to increase, there being twenty-five new cases reported on August 30, with four deaths. Physicians and nurses of the State Department of Health are in charge of the situation and several Red Cross nurses are in the fever zone.

National Cancer Week.—The American Society for the Control of Cancer announces a seven days campaign to be designated "Cancer Week" from October 30 to November 5, 1921. The purpose of the movement is to reach as many persons as possible in the United States and Canada with the hopeful message of cancer control. In order to carry out the campaign the first step will be to effect a complete organization through the appointment of State Chairmen, who will see that a chairman of local committee is appointed for every community of five thousand population or more in his State. The chairmen of the local committees will in turn select their committees. The campaign will be carried on through three main activities, namely, lectures, literature, and publicity. It is expected that health departments, medical societies, medical schools and colleges, nurses' training schools, nurses' organizations, schools for health officers, insurance companies, and the Federation of Women's Clubs will cooperate in carrying out the activities planned. A feature of the campaign in the larger cities will be demonstration and diagnostic clinics in which an effort will be made to interest all physicians in the vicinity. The American Society for the Control of Cancer will provide literature for distribution at the lectures. It will also provide outlines for lectures and suggestions for press publicity. The support of the entire medical profession is solicited in order that the humanitarian purposes of the campaign may be realized in as full a measure as possible. The headquarters of the Society are at 25 West 45th Street, New York City.

An Invention for Photographing Surgical Operations.—According to reports of the lay press from Berlin a new apparatus has been devised which can be fitted to the ceiling of the operating theatre and set in motion from below. While an operation is being performed it enables films to be taken showing the minutest details of the operation. After a demonstration in Berlin of what can be done with this device, it was announced that the German Government was considering establishing a technical cinematograph institute in Berlin and a special lectureship in cinematography.

Hospital Notes.—Plans have been formulated looking to the expansion of the Elliott Hospital, affiliated with the University of Minnesota. The hospital at present has a capacity of approximately two hundred beds which will be expanded to four or five hundred beds.

A permit has been granted to erect a new laboratory as a part of the New Haven Hospital. The entire cost of the new building and the equipment will be about $55,000.

A new hospital is to be erected in South Lawrence, Mass., under the direction of the Sisters of Charity of the Order of the Grey Nuns.

Occupational Therapy at Bellevue Hospital.—According to a statement issued by the Hospital Occupation Committee, three hundred and fifty patients a month are brought back to usefulness and produ tive activity by its teachers in the wards of Bellevue Hospital, New York. The results achieved at Bellevue Hospital afford a convincing demonstration of the value of occupational therapy as an aid to the recovery of patients in a large city hospital. Patients who are experiencing its benefits range from those who have had amputations, to those who are temporarily deranged, or are the victims of tuberculosis, or just breakdowns of body and spirit. Six paid teachers and several volunteers have been giving the instruction in occupational therapy with the full cooperation of the hospital authorities, who give the work their most emphatic endorsement. Dr. George O'Hanlon, General Medical Superintendent, states that "the work has been most beneficial to the entire hospital. The Hospital Occupation Committee is asking for $4,000 with which to continue its work.

Philippine Lepers Without Medicine.—President Harding's mission of inquiry to the Philippines, after a visit to the leper colony on the Island of Culton, reports that there are about 5,000 lepers on the island. The report shows that a lack of funds is preventing the treatment of more than 300 of these with chaulmoogra oil. Aside from these the remaining lepers are said to be practically without treatment.

Ship Passengers Protest Against Vaccination.—Passengers on the *Rochambeau* which reached here August 27 severely criticised the immigration regulations which forced them to be vaccinated before they were allowed to board the ship in Havre on

August 10. The ship is what is known as a "one cabin" vessel and everybody is considered in the light of a second cabin passenger and has to undergo vaccination. A physician who refused to submit to vaccination because he said it was being improperly done was told he must appear before the American Consul and sign a release absolving the line and the surgeons of blame in case pestilence broke out.

Dr. Calmette Fights Antivivisectionists.—Dr. Calmette, director of the Pasteur Institute, has taken up the cudgels against antivivisection, declaring that its advocates are threatening the prestige of the medical and scientific world in France. Antivivisectionists are said to have raised a fund of several million francs for propaganda in France, Austria and Italy.

French Birth Congress.—The Bordeaux Chamber of Commerce, with the General Council of the Gironde, and the municipality of Bordeaux, have organized in that city the Third National Birth Congress, to be held September 22-26, 1921. The Congress will be under the official patronage of the President of the Republic, and the Chairman of various Chambers of Commerce, and will comprise five sections—religous activities, instruction, hygiene, professional activities, and legislation. The two former birth congresses, one held in Nancy in 1919 and the other in Rouen in 1920, emphasized in a striking manner the necessity of solving the problem presented by the lessening of the French population.

Professor Tuffier, the well-known French surgeon, has been invited to deliver the inaugural address at the opening of the University of Pekin Medical College in September. His subject will be "Study of Surgical Septicemias and their Treatment." The lecture will be on September 17 and on the three ensuing afternoons he will hold surgical clinics.

Dr. Marie M. Long has been placed in charge of the newly established division of child hygiene of the Department of Health of Memphis, Tenn.

Dr. Harlan L. Paine, for the past year executive officer of the Boston Psychopathic Hospital, has been appointed superintendent of the Grafton State Hospital.

Dr. Edward A. Spitzka of the Neuro-Psychiatric Section, U. S. Veterans' Bureau, Washington, D. C., has been appointed Chief of the Medical Rating Section in the Second District Branch (New York) of the U. S. Veterans' Bureau.

Dr. Mark Cohn has removed his office to 1802 Crotona Avenue, New York City.

The Annual Conference of Sanitary Officers and Public Health Nurses of New York State will be held at Cornell University, Ithaca, September 13 to 15, under the auspices of the State Department of Health. The conference will be opened by Dr. Hermann M. Biggs, Commissioner of Health, who will introduce Governor Nathan L. Miller. Following the Governor's address, Acting-president A. W. Smith of Cornell will welcome the delegates to the convention. Dr. Hugh Cumming, Surgeon-General of the United States Public Health Service, will represent the Federal Government, and Miss Ella Phillips Crandall, the National Organization for Public Health Nurses. Representatives of a large number of other health organizations will be present. On Tuesday evening the delegates will be shown a number of new health films. On Wednesday afternoon the Ithaca Board of Commerce will give a reception to wives of delegates and other visiting ladies. On Wednesday evening the annual dinner will be held.

Obituary Notes.—Dr. WILLIAM CURTIS DEANE of New York City and Douglaston, L. I., died at his home in the latter place on August 29, at the age of sixty-five years. He was graduated from New York University Medical School in 1884.

Dr. MATTHEW H. CRYER, Professor Emeritus of Oral Surgery at the University of Pennsylvania, died August 11, at the age of eighty-one years. He was graduated from the University of Pennsylvania School of Medicine in 1877.

Dr. SAMUEL B. WHITTINGTON, head of the Sprague Institute, New York, died at his home in Kew Gardens, L. I., on August 16, at the age of fifty-two years. He was graduated from the University of Southern Illinois.

Dr. HENRY W. MINDEL, for forty-two years a practitioner of medicine in Philadelphia, died in Wildwood, N. J., on August 14, at the age of seventy years. He was graduated from Jefferson Medical College in 1873.

Dr. THOMAS H. LEIDY of Reading, Pa., a graduate of Jefferson Medical College in 1869, died on August 14 at the age of seventy-six years.

Dr. PETER R. HATCH of Youngsville, N. C., a graduate of the College of Physicians and Surgeons, Baltimore, in 1883, died on July 30.

Dr. EDWIN ATLEE HAMBRIGHT, a graduate of Hahnemann Medical College, Philadelphia, in 1874, died at his home in that city on August 10, at the age of seventy-five years.

Dr. PHILIP Y. EISENBERG of Norristown, Pa., for ten years president of the Norristown Hospital and a former president of the Montgomery County Medical Society, died on August 14 at the age of seventy-five years. He was graduated from the University of Pennsylvania Medical School in 1873.

Dr. W. J. REDDITT of Carrollton, Miss., Louisville, Ky., Medical College in 1872, died on August 13.

Dr. ALEXANDER MITCHELL LOEWENSTEIN of Troy, N. Y., died in Cleveland, Ohio, on August 10, at the age of thirty-six years. He was graduated from the Albany Medical School in 1908. He served as a captain in the World War, being stationed in Russia for a time.

Dr. W. E. BROWN, a retired physician of Fort Worth, Texas, died on August 7. He was a graduate of Washington University Medical School, St. Louis, in 1869.

Dr. FLOYD W. MCRAE, Sr., of Atlanta, Ga., a graduate of the Atlanta Medical College in 1885, died suddenly on August 13, at the age of fifty-nine years.

Dr. JUSTIN LOWE JACKSON, a graduate of the Southern Botanico Medical College, Macon, Ga., in 1902, died at his home in Savannah on August 11, at the age of forty-six years.

Dr. JOSEPH C. WINANS of Belleville, N. J., a graduate of New York University and Bellevue Hospital Medical College in 1905, died on August 9, at the age of forty-two years. He served as a captain in the Medical Corps of the Army during the late war.

Dr. EDWIN W. MOORE of San Diego, Calif., who formerly practiced medicine in Franklin, Pa., died of pneumonia in a New York Hospital, about August 3. He was a graduate of the University of Wooster Medical Department, Cleveland, Ohio, in 1869.

Dr. JOHN C. FELTY, retired, formerly a member of the medical staff of St. Luke's Hospital, Bethlehem, Pa., died at his home in Gettysburg, Pa., on August 7, at the age of seventy-two years. He was graduated from the University of Pennsylvania Medical School in 1873.

Dr. ELMIRA Y. HOWARD, believed to be the first woman who practiced medicine west of the Alleghany Mountains, died in Covington, Ky., on August 8, at the age of eighty-one years. She was graduated from the New York Medical College for Women in 1868, and began the practice of medicine in Cincinnati in 1869.

Dr. JAMES HETHERINGTON MACKINTOSH of Westwood, N. J., a graduate of Bellevue Hospital Medical College in 1872, died on August 5, at the age of eighty-four years.

Dr. HENRY A. HENRIQUES, president of the State Hospital for Tuberculosis at Morris Plains, N. J., died suddenly at his residence in Morristown, on August 19, at the age of sixty years. He was graduated from the College of Physicians and Surgeons, New York, in 1883. He was a former president of the Morris County Medical Society and for many years a visiting surgeon to the Memorial and All Soul's Hospitals of Morristown.

Dr. MELANCHTHON SAYRE AYERS, a graduate of the Long Island College Hospital in 1871, died at his home in Teaneck, N. J., on August 18, at the age of seventy-four years.

Dr. EBENEZER ALDEN DYER of Whitman, Mass., a graduate of Bellevue Hospital Medical College in 1882, died on August 5, at the age of sixty-five years. He was a member of the Board of Health of Whitman and in 1906 a member of the Massachusetts State Legislature.

Dr. ROBERT T. FRENCH of Rochester, N. Y., died suddenly of heart disease on August 11, at the age of fifty-seven years. He was graduated from the Buffalo Medical College in 1888. He was a member of the American Medical Association and the Rochester Academy of Medicine.

Dr. FREDERICK D. VANDERHOOF of Phelps, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1864, died on August 6 at the age of seventy-eight years. For several years he served his town as health officer. He was at one time president of the Ontario County Medical Society.

Dr. JOHN HENRY OSWALD MARLING of Toronto, Canada, died suddenly in Baltimore on August 1, at the age of fifty-six years. He was graduated from Trinity Medical College, Toronto, in 1888.

Dr. HIRAM M. HILLER, formerly of Chester, Pa., died at Bellefonte, Pa., on August 9, at the age of fifty-four years. He was graduated from the medical department of the University of Pennsylvania in the class of 1891. He was a member of the Delaware County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. EDWIN ATLEE HAMBRIGHT died at Philadelphia on August 10, at the age of seventy-five years. He was graduated from Hahnemann Hospital and Medical College, Philadelphia, in 1874.

Dr. GEORGE STEDMAN of Boston, for twenty years medical examiner for Suffolk County, died on August 16, at the age of seventy-three years. He was graduated from Harvard College in 1871 and from Harvard Medical School in 1875. He was a member of the American Medical Association, the Massachusetts Medical Society, and the Massachusetts State Medico-Legal Association.

Dr. CHARLES E. A. LAFERRIER of Woonsocket, R. I., a graduate of Victoria University Medical Department in 1887, died on August 15.

Dr. DANIEL W. HARNER of New Holland, Pa., a graduate of the Cleveland University of Medicine and Surgery in 1878, died after a lingering illness in Atlantic City on August 14, at the age of sixty-six years.

Dr. HANSELL CRENSHAW of Atlanta, Ga., a graduate of the Atlanta College of Physicians and Surgeons in 1900, died July 30, at the age of forty-four years. He was at one time professor of chemistry at the Atlanta School of Medicine and later was assistant professor of psychiatry at Emory University Medical School. He served overseas in the Medical Corps of the Army during the late war.

Correspondence.

HAZARDOUS OPERATIONS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Of course, there are degrees and differences among these. In the case of a young person, strong in health and limb, they may and should be undertaken when medical treatment has proved unavailing.

When, however, the patient is already well on in years and even when good physicians and the best care have failed to bring relief, should surgeons operate? If there is a fair chance of cure, or if not, of relief from pain and suffering, not to speak of invalidism, an operation may properly be done. When, on the other hand, the probabilities are very largely against any favorable outcome to the patient in any way, I protest against operations. Too many are done, nowadays, which have no justification in my eyes. They cannot hope either to cure or relieve, and if they do not, the patient is again compelled to take medical remedies, with the added trouble or discomfort which results as a rule from an operation. Further, I object to a patient being transported to a hospital for operation, when it can really be equally well done at home, provided the patient's feelings and comfort are duly considered by the surgeon.

The claim that there is greater comfort to the patient in an operation at a hospital, is often delusory, especially if the patient has abundant pecuniary means. The effect, mentally and bodily, upon a patient's being taken from his home surroundings to a place strange to him, is often pitiful and disastrous.

Besides, while some hospitals are new, well constructed, properly ventilated, and kept aseptic, others are not. Therefore, home is a much better place for the patient during and subsequent to the operation.

These, I know, are not prevalent opinions, but they are true and correct, as I believe. Be it understood that I am not urging that poor men and women should be kept at home for severe operations. This should not be, because things required cannot be forthcoming, and sentiment should be relinquished in favor of what is reasonable.

My thoughts are dictated by not a few cases of wealthy patients, operated on at hospitals, when they should have been kept at home. Death sometimes occurs a few days subsequent to the operation at the hospital, whereas if the patient had been operated on in his own home, I believe he might have recovered.

BEVERLEY ROBINSON, M.D.

123 EAST 35TH STREET, NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, August 17, 1921.

Smallpox Outbreak in Great Britain.—Smallpox has broken out on a somewhat considerable scale in the midland district of England. While, of course, every precaution is being taken to guard against the disease spreading, a disquieting feature of the situation is the enormous growth in the number of exemptions from vaccination since the passing of what is known as the "John Burns Act" in 1908. A medical expert of the Ministry of Health explained in an interview to a representative of the *Daily Telegraph* published in its issue of August 16 last that the number of births registered in England and Wales during the year was 929,882, and in that year 644,366 infants were vaccinated, that is to say, the percentage of vaccinations to births was 71.4 per cent. In the same year 39,925 infants were legally exempted from vaccination. In 1919, the last year for which the corresponding figures are available, there were 691,370 births and 251,029 infants vaccinated, equivalent to 40.6 per cent., while 277,558 infants were legally exempted. The official returns show very clearly that as soon as the vaccination act of 1907 came into operation the number of exemptions immediately jumped from 76,709 in 1907 to 160,350 in 1908, while the percentage of vaccinations to births dropped from 70.9 to 63.2 per cent. By 1914 the number of exemptions had reached 320,421. During the war years there was a slight decrease, due in part, of course, to the fact that the birth rate showed a considerable decline, but since the armistice the number of exemptions has steadily mounted. This medical authority went on to say that the public sometimes forgot the extent to which England suffered from smallpox in the days before Jenner discovered the efficacy of vaccination. In Chester, for instance, in the year 1774, an epidemic of smallpox occurred, and out of a population of 14,713, 1,202 persons were attacked by the disease, and of those, 202, all children under ten years of age, died. At Warrington in the previous year, another epidemic of smallpox was responsible for 211 deaths in a population of 8,000, and again the highest mortality was among children under nine years of age. This was due to the fact that the susceptible population would be composed mainly of those who had been born since the previous epidemic. Thus the incidence of the disease would fall mainly on children, for it is a remarkable fact that one attack of smallpox renders a person immune from subsequent epidemics. It is not generally known that in 1721 many persons used to inoculate smallpox artificially in order to produce a mild attack at a convenient time rather than run the risk of a severe attack at an inconvenient time. This, of course, was made illegal by Act of Parliament in 1840. Asked whether the Ministry had power to enforce vaccination in areas where a serious outbreak threatened, the official said they had not, but the Ministry of Health were pressing the need of a voluntary revaccination very assiduously. The experience of the last century, he said, had shown that vaccination did not necessarily protect every life. It was probable that its tendency to modify an attack of smallpox never entirely disappeared, but its protective power waned with the lapse of time. It could, however, be stated that although vaccinated persons under ten years had contracted smallpox, the attacks had been very mild and fatal issues had rarely occurred. For the great majority of persons it would suffice to renew vaccination at the end of ten years. At the present time it was certain that a greater number of the male population between the ages of 20 and 40 had been revaccinated than would have been the case in former years. The position, therefore, was that the whole adult population was better protected against an attack of smallpox than had previously been the case. As regards the child population, however, only about one-half the children under ten years of age had been vaccinated.

Second Annual Report of the Ministry of Health.—The second annual report of the Ministry of Health has just been issued. With regard to the question of international health the report runs as follows: "The establishment by the League of Nations of an International Health Organization, which was approved at the first session of the assembly of the League in December, 1920, is destined to forward the work of safeguarding the health of the people in this and other countries in a number of directions. The organization will have, among the functions specifically assigned to it, the duty of bringing administrative health authorities in different countries into closer relations with each other, and of securing not only the rapid exchange of information but the adoption of swift and simple methods of action against the attacks of diseases which transcend national boundaries. Pending the effective establishment of the new organization, a provisional committee, on which the department is represented has been set up. The assistance of the Council of the League has already been invoked in assisting the Polish health authorities with the financial and sanitary measures required to check the spread of typhus in Poland. It is pointed out that so far as tuberculosis is concerned a considerable decrease in the number of deaths from tuberculosis in England and Wales occurred in the year 1919 as compared with previous years, and a further decrease in the year 1920 is to be noted.

The number of treatment centers for venereal

diseases opened during 1920-21, and the number of patients dealt with for the first time increased by 23 and 7,000 respectively. The attendances at centers rose to 1,489,000, as against 1,003,000 in 1919, and 488,000 in 1918. The amount of the grants in aid of venereal diseases schemes paid during the year was £327,596, or approximately £100,000 ($500,000) more than in 1921. The report goes on to say that at four treatment centers the number of attendances during the year 1920 exceeded 60,000. It may be noted that more than 284,000 patients have been dealt with at the treatment centers between January 1, 1917, when the first centers were opened, and December 31, 1920, and that the total number of attendances during this period at the outpatient clinics has exceeded 3,156,000.

Dealing with maternity and child welfare, the report states: The number of centers rose during the year by 183 to a total of 1,780, 1,068 provided by local authorities and 712 by voluntary agencies; the health visitors at work increased from 3,000 to 3,215; a somewhat larger proportion of births in London and in county boroughs was attended during 1919 by registered midwives and their assistance is now estimated to be available to 68 per cent. of the rural population. The infant death rate fell from 89 per 1,000 births in 1919 to 80 per 1,000 births in 1920, the lowest point yet reached in the recorded figures for England and Wales. Under the Blind Persons' Act, 1920, persons so blind as to be unable to perform any work for which eyesight is essential, become eligible for old-age pensions at the age of 50.

About 12,300,000 people in England are now entitled to medical benefit under the National Health Insurance Acts. The annual cost of this service is about £8,000,000, of which nearly half is defrayed by the National Exchequer in the form of statutory contributions and special grants. Steps have been taken during the year to promote the efficiency of the treatment thus made available to insured persons, both by the appointment of divisional and regional medical officers, whose primary duty is to advise upon cases of incapacity for work referred to them either by approved societies or by insurance practitioners; and by the revision of the system of records of patients' illnesses kept by insurance practitioners with the main object of securing for clinical use a continuous history of such illnesses. With respect to tuberculosis notification it is pointed out that the provision of treatment for tuberculosis as a benefit under the National Health Insurance Acts has now been brought to an end. Insured persons will continue to receive domiciliary treatment from their insurance practitioners, but the responsibility for the provision of residential treatment for insured, as well as for non-insured persons now rests with local authorities and not with insurance committees. During the year capital grants of £275,609 were paid and loans of £378,320 were sanctioned in aid of the provision of sanatoriums and other institutions for the treatment of tuberculosis; approval was given to institutions containing 1,571 additional beds, 1,009 provided by local authorities and 562 by voluntary bodies. Over £900,000 was paid as grant in aid of the cost of maintaining institutions; the number of cases notified for the first time was 73,372, made up of 57,544 pulmonary cases and 15,488 non-pulmonary cases. The deaths from this disease, which in 1918 reached the figure, 58,073, were in the calendar year 1920, 42,545, pulmonary tuberculosis accounting for 33,469 of these deaths.

The most prominent feature of the report is the plea made at the outset for economy in public expenditure, and it is noticeable that although the mass of the population comprehend more fully than before the war the benefits conferred by general good health and are thus more favorable to projects for the extension of health services, at the same time it has become more and more evident that they are unwilling that such projects should be realized at the expense of the ratepayer and taxpayer. Conditions are not now propitious for carrying out ambitious and necessarily expensive schemes in behalf of the public health. The Ministry of Health have now grasped the fact that the temper of the public is such that no plans of a costly nature will be permitted at the present time. The following quotation from the report will show that the situation is understood by the Ministry "so long," says the report, "as the financial prospect remains unfavorable the department and the local authorities can profitably devote increased attention to the task of surveying the whole field of health services and health organization with a view of insuring that when the economic situation permits fresh progress to be made, whatever action is taken is based upon a mature and deliberate plan."

Of course, under present conditions this is the only way and moreover in the long run may prove the wisest way. No scheme will be undertaken without mature consideration. It must be borne in mind that the Ministry of Health up to the present time have been beset with difficulties. Sometimes their policy may have been indiscreet, but the population have not been educated as yet to a belief in the value of preventive medicine, which is the basis of a Ministry of Health's policy.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, Aug. 1, 1921.

Wounds of the Thorax.—Dr. Janssen, a Belgian surgeon, has recently given his statistics, based on a total of 326 cases, of wounds of the thorax treated by him during the war, to the Surgical Society of Belgium. Briefly in his experience wounds of the thorax in war are usually penetrating—64.7 per cent. being penetrating as against 35.3 per cent. parietal. Simple penetrating wounds are much more frequent than thoracoabdominal wounds, there being respectively 82.4 per cent. and 10.8 per cent. Thoracic wounds resulting in death from other lesions represent 6.8 per cent. In the category of simple penetrating wounds those with a closed thorax compose the vast majority, being 77.4 per cent., as against 10 per cent. of wounds with open thorax and 8.3 per cent. of wounds of thorax and mediastinum, while the nature of the wound was not determined in 4.3 per cent. of the cases. In the category of thoracoabdominal wounds, lesions of

the liver, spleen, or kidney represent 75 per cent., as against 19.6 per cent. lesions of the stomach and intestine, and 5.4 per cent. lesions of the diaphragm and peritoneum. The most common and at the same time most valuable symptom in this type of wounds is hemothorax; subcutaneous emphysema is frequent. Open pneumothorax presents a particularly dramatic symptomatology, while the diagnosis of a thoracoabdominal wound is difficult to make on account of the frequency of abdominal muscular rigidity in simple penetrating thoracic wounds. General emphysema is serious when it reaches the mediastinum. In Janssen's experience infected hemothorax is rare, the diagnosis of infection being made by the bacteriology and cytology of the collection.

The general treatment of closed thoracic wounds is abstention from operation with absolute immobilization of the patient, and operation will be indicated only when hemorrhage is going on or in the presence of a large piece of shell buried in the pulmonary parenchyma. Every open thoracic wound requires operation; the operative act should realize occlusion of the opening by suture or gauze plugging. The technique of thoracotomy for hemorrhage is a long incision, but with excision of a single rib, hemostasis by suture of the lung, with or without removal of the foreign body as indications may point, and hermetic closure without drainage. Mortality after gauze plugging of the thorax is 45.1 per cent., after suture, 40.8 per cent.; and cent. and 33.3 per cent. respectively. Abstention excluding deaths from some other lesion, 41.7 per from operation gives only 15.8 per cent. mortality, all cases being included. Thoracotomy reserved for cases of otherwise fatal hemorrhage gives a death rate of 83.3 per cent. The treatment of infected hemothorax should be early, simple pleurotomy with irreversible drainage being the best procedure to adopt. The mortality of cases operated on by the older methods is 32 per cent., that by pleurotomy and irreversible drainage is only 6.7 per cent. The total mortality from purulent pleurisy without operation is 24.3 per cent., and 37.5 per cent. when primary thoracotomy is done. Late removal of missiles is indicated in all cases where subjective or objective disturbances persist.

Transmission of Typhoid Fever in Hospitals.—Contagion of typhoid fever is always a matter of practical interest to medical men, and hospital contagion is not as uncommon as many would have it, as is proved by a recent experience at the Medical Clinic of the University of Geneva. A young woman was admitted to the Clinic with typhoid. She was in a very delirious state, so that it was quite difficult to carry out treatment properly, especially bathing, because not only did the patient struggle but also passed feces involuntarily. All the necessary conditions for direct contagion were consequently presented by the patient, and in spite of all the precautions taken by the personnel, ten days later two nurses came down with typhoid fever. A short time after this event another young woman with typhoid was admitted to the hospital. This patient also was not docile and in turn infected two night nurses. Such cases are unfortunate but may sometimes occur unless vaccination of the personnel is done.

But what is still more difficult to avoid is transmission from an unrecognized case of typhoid to other patients in the same ward. Last spring a woman, 48 years of age, was sent into the hospital with the diagnosis of gastroabdominal influenza. She complained especially of general fatigue, which she attributed to overwork on account of recent illness of one of her children. The absence of any rise of temperature and the indefinite gastric symptoms presented did not lead even to the suspicion of typhoid fever, until ten days after her entrance the temperature went up, and a seroagglutination reaction was positive. The patient was at once removed to the typhoid ward, but nevertheless she had had sufficient time to infect her two neighbors who had come to her bedside. The two patients were convalescing, one from a cardiac affection, the other from chlorosis. Another example of typhoid contagion was that of a young woman 26 years of age. Her child, 18 months old, whom *she had nursed up to that time*, was given to friends to be cared for while the mother was in hospital. The friends soon noticed that the infant had a slight diarrhea, which they thought was the result of weaning, but a fortnight after, the woman who took care of the child came down with typhoid, and shortly afterwards four other members of the family were taken ill with the disease, as well as a relative, eighty-six years old, who came in to help. The latter died in six days after the onset of the typhoid symptoms. Although the infant had only a mild diarrhea which did not affect its general health, a positive typhoid seroreaction was obtained and bacteriological examination of its stools revealed the typhoid bacillus.

Pathology of Malignant Tumors of the Anterior Mediastinum and Thymic Region.—Dr. Delessert, late assistant at the Clinic for Children's Diseases, has carried out some interesting researches on the pathology of malignant tumors of the anterior mediastinum and thymic region, which have not been published in the medical press. His material comprised six cases, and an interesting fact to be noted is that in none of them was it possible to discover the presence of characteristic elements of the thymus, such as Hassal's corpuscles, or cortical or medullary cells of the thymus, although long and repeated histological examinations were made. In all the six cases with the exception of one, an anatomical diagnosis of lymphosarcoma of the mediastinum could be made with certainty after a carefully controlled microscopic examination. The case making the exception was of a very special nature, as microscopically the presence of nerve cells and fibers was distinctly evident, so that the diagnosis of malignant ganglioneuroblastoma was made. Dr. Delessert is of the opinion that primary malignant growths of the anterior mediastinum and thymic region develop from the various tissues and organs contained in the mediastinum. The thymic origin of the majority of primary malignant growths of the anterior mediastinum is not usually evident, so that the term malignant neoplasms of the thymus should be reserved—at least until more information is obtained—for tumors of the mediastinum in which there is no doubt as to the presence of anatomical elements of unquestioned thymic origin.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 25, 1921, clxxxv, 8.

1. Unusual Cure of Large Hemangioma. Donald S. Adams.
2. Experience in Massachusetts and a Few Other Places with Smallpox and Vaccination. Jonathan E. Henry.
3. Myocardial Lesions in School Children. Harold W. Dana.
4. The High-Grade Neurasthenic. Herbert J. Hall.
5. Congenital Hypertrophic Pyloric Stenosis. Charles A. Sparrow.
6. The Diagnosis of Paralytic or Early Poliomyelitis. Samuel A. Levine.

1. Unusual Cure of Large Hemangioma.—Donald S. Adams reports the case of an infant five days old, one of twins, delivered by forceps, with a tumor of the right chest wall. The physician who delivered the child noticed the tumor at the time of birth. Inasmuch as it did not decrease in size he aspirated, getting several cubic centimeters of blood. The tumor became somewhat larger so it was thought best to have hospital care. Examination on admission to the hospital showed a hemangioma, rather malignant in appearance, attached to the mid-axillary line, by a sessile pedicle. Its measurements at the time were 17.5 cm. x 15 cm., and 35 cm. at its greatest circumference. After remaining stationary in size for some ten days the tumor increased in size, and the child's temperature slowly rose to 102° F. The temperature, of a septic type, continued for over two weeks, when it came down and the child's general condition seemed improved. The tumor appeared to be decreasing in size and in places had broken down and sloughed. From this time the tumor gradually contracted and discharged a moderate amount of bloody fluid. When the child was 2½ months old the tumor had gone, leaving only a reddish scar. The writer concludes that the cure was not spontaneous. The credit was due to the outside physician who introduced the exploring trocar and to the surgeon in charge of the case, who deemed it safer to wait and watch its progress before attempting anything radical. The rise in temperature, lasting from the last of December to the middle of January, is significant. At the end of this time the tumor began to decrease in size. Either there was secondary infection following the introduction of the trocar, or a thrombotic process was started, thus leading to the subsequent slough. It may have been a combination of the two. At any rate its disappearance was not unlike the results obtained in the use of Coley's serum, both locally and in the general reaction, as evidenced by the temperature.

4. The High-Grade Neurasthenic.—Herbert J. Hall says that William J. Mallory recently classified neurasthenics into six types: (1) Neurosis or anxiety neurosis; (2) mild, rare, or atypical psychosis, that is, manic depression, psychosis, and dementia precox; (3) incipient tuberculosis; (4) low grade cryptic infection; (6) cerebral arteriosclerosis. He believes the general practitioner into whose hands most of these cases fall will have a good deal of difficulty in fitting all of his "neurasthenic" patients into these classes. He sees many patients who are relatively normal physically and mentally, and yet they are tired, inefficient, nervous, irritable, sleepless, have rapid hearts, a high or low blood pressure, dyspepsia, and are depressed, worried, and apprehensive. A careful examination into the lives of such patients usually shows a surprising disregard of mental and physical hygiene. Having done all that can be done for these patients from the standpoint of habit modification, a valuable lesson may be learned from the orthopedist, who has drawn attention to the relationship between bodily mechanics and metabolism. It happens that a good many sufferers from flat-foot, sacroiliac strain, and backache belong also to the relatively normal or what may be called the high-grade neurasthenic class. The orthopedists discovered that they could not bring about permanent relief for backache and foot strain without rebalancing and rebuilding the entire body. Rebalancing the body in relaxed, slumped, flat-chested individuals, which most of these patients are, has involved taking up the abdominal slack by appropriate exercises, and submitting the patient to a general physical setting up. Very interesting results have followed such treatment. Not only have orthopedic difficulties been relieved, but functional disturbances, even those of very long standing, have frequently been disposed of. This same setting up process has yielded no less striking and encouraging results among the neurasthenic. The neurasthenic, plainly enough, needs exercise, but the orthopedists have realized that it is not muscular development which is needed first, but rest and overcorrection of faulty posture in bed. Weeks of treatment, with massage and careful feeding, may be required before results begin to appear, but persistence meets with due reward. Such treatment cannot be carried out offhand; one must learn the details from the orthopedist, as the job is often mechanically difficult. Only in a well-ordered sanatorium can such treatment be adequately and safely carried out.

Journal of the American Medical Association.

August 27, 1921, lxxvii, 9.

1. Graduate Training in Nervous and Mental Diseases. Arthur S. Hamilton.
2. Laryngeal Diphtheria. John F. Hogan.
3. Sequelæ of the Communicable Diseases of Childhood as a Public Health Problem. Isaac A. Abt.
4. Diphtheria Control. Bernhard W. Carey.
5. Heart Disease in Children of School Age. Robert H. Halsey.
6. The Treatment of Infected Abdominal Wounds by the Closed Method. Thomas J. Watkins.
7. Retrobulbar Neuritis, Secondary to Diseases of the Nasal Sinuses. H. H. Stark.
8. Medicolegal Application of Human Blood Grouping. Reuben Ottenberg.
9. Food Accessory Factors in Bacterial Growth: VI. Further Obesrvations on the Substances Necessary for the Growth of Pfeiffer's Bacillus. David J. Davis.
10. Endoscopic Removal of Sand Spurs from Larynx and Tracheobronchial Tree. H. Marshall Taylor.
11. The Borderline of Rhinology, Neurology and Ophthalmology. Greenfield Sluder.
12. Observations on Hemorrhages of Ovarian and Tubal Origin Not Associated with Ectopic Pregnancy. Edward A. Schumann.
13. The Surgical Treatment of Lesions in the Internal Genital Organs Associated with Chronic Infections. W. Blair Bell.
14. Tumors Involving the Gasserian Ganglion. Walter D. Shelden.

2. Laryngeal Diphtheria.—John F. Hogan quotes statistics showing that in 1919 and 1920 there were 246 deaths in the city of Baltimore due to diphtheria of various types. Of this number 82.11 per cent. were laryngeal diphtheria. This fatality was in inverse proportion to the promptness with which the physician was called and antitoxin administered, and intubation was performed in only 50 per cent. of the fatal cases, and antitoxin given in only 83.74 per cent. The death rate in this type of diphtheria should be practically *nil*. A most erroneous belief that seems quite prevalent today is that diphtheria of the larynx cannot exist without clinical manifestations of diphtheria of the pharynx, postnares, or the nares. It should be remembered that in many cases of laryngeal diphtheria there is no pseudomembrane, and in some few not even a hyperemia of the pharynx. Yet the edema in the larynx may be quite sufficient to cause death by mechanical obstruction unless intubation is resorted to promptly. Once laryngeal edema develops to such an extent as to cause marked edema, antitoxin will not act quickly enough to overcome the necessity of intubation. It is obvious that the desired reduction in the death rate from diphtheria lies in earlier recognition and timely treatment with antitoxin and intubation.

5. Heart Disease in Children of School Age.—Robert H. Halsey. (See MEDICAL RECORD, June 25, 1921, xcix, 26, p. 1115.)

8. Medicolegal Application of Human Blood Grouping.—Reuben Ottenberg calls attention to the fact that although the inheritance, according to definite Mandelian principles, of group specific substances in human blood has been known for ten years, the application of this information to medicolegal questions has not yet been made. He refers to the literature on this subject and presents the results of a detailed analysis of the offspring resulting from unions of persons belonging to the various groups, showing that in certain instances the possible kind of offspring are sharply limited. The unions which he tabulates are instances in which under certain circumstances deductions of medicolegal value may be drawn. On the other hand all unions containing a member of group IV and

unions of II and III may give rise to offsprings of any of the four groups. If the child's blood is the correct group for the alleged parents, then we can say that the child *could* be their offspring, not that it of necessity must be. But, on the other hand, if the child's group is wrong for the two asserted parents, then one can say with absolute certainty that the child must have a parent other than one of those asserted. The commonest instance in which this kind of information could be applied, of course, is that of disputed paternity. Here one can readily tabulate the instances in which it is possible to be sure that the child is illegitimate, or is not the child of an asserted father. The same kind of evidence can be used to prove the illegitimacy of the offspring or to prove the innocence of a corespondent asserted to be the father of a given child. Likewise in cases of disputed maternity or substitution of one child for another it can be shown under certain findings that the child is spurious. In view of the importance of the questions often at issue, Ottenberg says it seems as though some legal means could be devised by which persons concerned be compelled to allow the examination at the hands of a representative of the court.

10. Endoscopic Removal of Sand Spurs from Larynx and Tracheobronchial Tree.—H. Marshall Taylor discusses a type of foreign body in the air passages which he finds has received very little attention, there being only sixteen cases of sand spur as a foreign body reported in the literature so far as he has been able to ascertain. In Florida, where the sand spur (*Cenchrus tribuloides*) is very abundant, he has collected sixty-nine cases, nineteen of which have come under his personal observation. The sand spur as a foreign body is seen most frequently in children. When the sand spur is aspirated the larynx is the most frequent point of lodgment. The sand spur has no inherent property. It should be placed in the category of a foreign body producing only mechanical effects. The method of its removal which has proved satisfactory in the writer's hands consists in putting the head in extension at the occiput resting on the table. This insures an extension of the occipito-atloid joint, and gives a satisfactory view of the anterior commisure, which has been the most frequent point of lodgment of the sand spur. In every case in this series the child or parent had made the correct diagnosis, giving the history of inspiring the foreign body, and citing the occurrence of laryngeal spasm. In reply to a questionnaire sent out the writer has learned of five fatalities in which the sand spur was the etiological factor, while one fatality occurred in the series of cases herein reported.

12. Observations of Hemorrhages of Ovarian and Tubal Origin.—Edward A. Schumann asserts that the recognition of other causes than ectopic gestation as a cause of hemorrhage into the abdominal cavity from an ovary or fallopian tube has been rather neglected, even though such other causes are known to exist. The preoperative differentiation from hemorrhage due to ectopic pregnancy is rarely possible. It is important, however, from the personal, as well as the medicolegal standpoint, that a diagnosis of ectopic pregnancy should not be made in cases in which pregnancy should not exist, until an embryo is found or evidences of decidual and placental formation are revealed by the microscope. Pathological studies show that when hemorrhage takes place from an ovary, there is usually, if not olways, to be found some disease of the ovarian blood vessels such as degenerative arteritis. Normal ovaries do not give rise to massive hemorrhage.

The Lancet.

August 6, 1921. cci. 5110.

1. Croonian Lectures on the Objective Study of Neuroses. F. L. Golla.
2. Some Notes on Oriental Sores. M. L. Treston.
3. Notes on the Administration of Hydrochloric Acid. J. Campbell McClure and Henry A. Ellis.
4. The Action and Uses of Kaolin in the Treatment of Asiatic Cholera. Ronald R. Walker.
5. The Inadequate Attendance of the Male Syphilitic Outpatient. R. E. Roberts.
6. Phantasies of the Dying. Some Remarks on the Management of Death. J. Norman Glaister.

3. Notes on the Administration of Hydrochloric Acid.—J. Campbell McClure and Henry A. Ellis state that the address of Professor Haldane delivered in Edinburgh on March 4, on "Recent Advances in the Physiology of Respiration, Renal Secretions, and Circulation," has rendered it advisable to publish certain observations and deductions made in the course of another investigation. They feel, however, that in view of Professor Haldane's lecture confirming their observations of the extreme importance of the acidity of the urine in the regulation of the kidney system, that the importance of the estimation of the renal functions in this direction should be emphasized from a clinical point of view, while the material importance of estimating the blood pressure of all cases in which acid was being administered should be reported. So far, experience has taught the writers that dilute hydrochloric acid is not the—in acid sensitive cases, at least—harmless tonic the books would have one believe it to be, and they are sure that when acid is being administered the blood pressure should always be estimated from time to time, and the urine be tested occasionally for its acid and ammonia relations. They also feel that in cases in which an early condition of renal insufficiency is suspected, the "rest urine" should be compared with the "alkaline tide urine" in respect of their relative acidity. Their observations lead them to the following conclusions: (1) That acid largely regulates the amount and character of the urine excreted, by its action on the renal tissue. (2) That this is largely controlled by the increasing acidity of the blood (acidemia) tending to raise the blood pressure; otherwise the kidneys would not be able to maintain the necessary balance between acid and alkali. This regulation is so delicate that in health the normal variation of blood pressure is not apparent, other causes of increased blood pressure contributing to its concealment. (3) That when impairment takes place owing to the breakdown of the chemical balance, general acid sensitiveness occurs, and this condition is accompanied by a rise in blood pressure. If the structure of the renal cells is not injured this is not maintained unless the acidemia continues. If the structure of the cells is injured, the rise of the blood pressure is more or less permanent until other forms of compensation are established. When this structural alteration has occurred acid administration and acid feeding are contraindicated. Where acid is being administered in doubtful cases the blood pressure should always be observed, to avoid the danger of overdose. Overdose is also indicated by the "alkaline tide urine" approaching the "rest urine" in character. The writers have come to the opinion that the reason why, during treatment with acid, a rise in the blood pressure is reversible, that is, followed by a more or less similar fall, while this subsequent fall in blood pressure is not easily reversible, is because an acidosis may be transferred to the tissues, the acidemia thus being changed into a histo-acidosis, and this causes a fall in the blood pressure. If a histo-acidosis is established it is not easy to raise the blood pressure again, because of the difficulty of either raising the acid content of the blood above that of the tissues or of reducing the acidity of the tissues below that of the blood, the fluid pressure thus persisting toward the tissues, while the balance is against the blood.

4. The Action and Uses of Kaolin in the Treatment of Asiatic Cholera.—Ronald R. Walker points out that the kaolin treatment of cholera has been found to possess the following advantages: (1) Simplicity of method; (2) absence of relapse; (3) cessation of loss of fluid; (4) great improvement in the condition of the patient, the patient becoming rapidly free from a general "toxic condition"; (5) early return of the passage of urine; (6) early and rapid convalescence. He describes laboratory experimental work carried out to determine the method of action and the effects of kaolin, from which he draws the following general conclusions: The action of kaolin is twofold, mechanical and adsorptive. (1) *Mechanical*—The administration of such large quantities of kaolin as are used in the treatment of cholera almost fill the bowel, and the passage of this mass through the bowel must enclose and carry with it a very large number of bacilli. It has, however, no bactericidal effect, and this fact calls for energetic action in the destruction of feces in all cholera cases treated by this method. The fact that

the kaolin forms an adherent coating to the walls of the bowel points to its usefulness in ulcerative forms of colitis, though in these cases the rectal method of administration in the form of enemata and long-tube lavage would be preferable owing to the possibilities of errors of digestion arising, long after administration, due to the adsorptive properties of kaolin for ferments 2. *Adsorptive.*—This, the chief function of kaolin, is very marked. From the experiments reported it is clear that, at least in the case of cholera, and probably in diphtheria, ptomaine poisoning, bacillary diarrhea, and general toxic conditions, kaolin has a wide range of use. In cholera, the first result of its administration is the cessation of vomiting. This seems to be due to the adsorption of toxic bodies in the upper alimentary tract. This is followed by cessation of diarrhea and consequent loss of fluid which is caused by the presence in the bowel of irritant substances of a toxic nature. The presence of a layer of kaolin on the walls of the intestinal tract would appear to act partly as a filter-bed and prevent the transmission of toxins to the patient. The adsorptive action of kaolin does not appear to be chemical. Professor Bayliss has pointed out that kaolin is an electro-negative colloid, which sign may be changed by allowing it to adsorb ions of opposite sign to itself. This, the writer takes it, occurs in the small intestine. This electrical reaction may explain the marked difference in treatment of cases of cholera which have had saline injections preceding the kaolin treatment, to those treated only by kaolin.

British Medical Journal.

August 6, 1921, II, 3162.

Discussion on Visceral Syphilis, Especially of the Central Nervous System and Cardiovascular System.
1. Introductory Remarks. Thomas Beattie.
2. Opening Paper. Clifford Allbutt.
3. Clinical Observations. Ernest S. Reynolds.
4. Syphilis of the Heart. John Cowan and J. K. Rennie.
5. The Anemias of Syphilis. John Eason.
6. Syphilitic Aortitis. A. G. Gibson.

2. Visceral Syphilis, Especially of the Central Nervous System and Cardiovascular System.—Clifford Allbutt reviews the morbid anatomy of the syphilitic process and shows that it may be seen in little in the primary sore. Wherever it is found it consists in a lympharteritis with consequential irritative and atrophic effects. The visceral lesions are essentially similar and may be regarded essentially as a disseminated lympharteritis. The division of syphilis into time periods—as primary, secondary, tertiary, and visceral—is based upon superficial characters and is misleading. The pyrexial phase, slight as it may be, indicates a general syphilitic sepsis, in which the cerebrospinal system is soon involved. Early necropsies have shown that in the pyrexal phase the aorta, brain, liver, and other viscera become infected, and that the central nervous system does not long escape. In all diseases of the cord the cerebrospinal fluid should be examined soon after the onset of the pyrexial phase, and the cerebrospinal fluid tested from time to time parallel with the blood testing. The fact is emphasized that syphilis can evade intermittent and precarious treatment better than any other virus, hence the necessity for early, thorough, and systematic treatment.

4. Syphilis of the Heart.—John Cowan and J. K. Rennie record the fact that they have seen more than one example of syphilitic disease of the pulmonary artery in patients who died a short time after infection. The lesions are similar to those found in the aorta but much less common. They have also seen in a case of secondary syphilis a diffuse fibrosis of the muscle exactly comparable to that described by Warthin as occurring in the hearts of children who had died from congenital syphilis, in which he found spirochetes. The diagnosis of syphilitic disease of the heart is by no means easy, and in fact any disease of the heart may be due to syphilis. In an endeavor to ascertain the incidence of syphilis in a series of 104 patients who were suffering from disease of the aortic valves it was found that 32 (30.7 per cent.) gave a definite history of antecedent syphilis, or showed a positive Wassermann reaction or other evidence of syphilis. Of these patients 33.6 per cent. had suffered from acute rheumatic fever, and in the remaining 34.5 per cent. of patients the nature of the valvular lesion was undetermined. It seems probable that the incidence of syphilis is greater than that shown, a conclusion that is emphasized by the fact that a corresponding series of cases of aortic aneurysm, 19 in number, showed a syphilitic origin in 63.1 per cent. The figures in a corresponding series of cases of mitral valvular disease show a very different picture, only 0.8 per cent. having suffered from syphilis. The combination of aortic and mitral disease, particularly in the twenties, strongly suggests a rheumatic cause, while the occurrence of purely aortic disease after 35, and the absence of a clear history of rheumatic fever, strongly suggests a syphilitic origin. There does not seem to be any close connection between syphilis and other forms of cardiac disease, such as auricular fibrillation, heart block, and myocardial disease. In the treatment of cardiac syphilis the two sides of the question—the cardiac side and the syphilitic side—must be borne in mind. In the cases due to syphilitic disease specific treatment is as urgently required as in other syphilitic diseases. Too much, however, must not be expected from such medication, since the lesions are as a rule in an advanced stage when recognized. It is advisable to refrain from heavy drugging with kharsivan and the like, using only moderate doses. The best results will, of course, be attained if the disease is recognized at the outset, before gross cardiac failure has ensued, and the appropriate treatment instituted at that stage.

5. The Anemias of Syphilis.—John Eason states that in addition to the features mentioned as characterizing the anemia of secondary syphilis by the usual authorities, a number of cases have come under his observation which have shown a much more severe degree of oligocythemia and also of poikilocytosis, aniscytosis polychromasia, and punctate basophilia. There were normoblasts and megaloblasts. Eosinophile and neutrophile myelocytes were found sometimes in fair numbers in one case. The color index was definitely above 1 in all cases. The anemia was grave with about 1,000,000 red cells, and about 20 per cent hemoglobin. Enlargement of the spleen was a feature sooner or later in all cases. In the cases that died there was bone marrow reaction but no hemosiderin reaction of the liver. An attempt to demonstrate the spirochete failed in bone marrow and also in spleen; nevertheless it was practically certain that syphilis was the causal factor in these cases. Anemia with chronic splenomegaly is a condition which may occur in the tertiary stage of acquired syphilis. The last stage of the untreated condition is contracted cirrhosis of the liver, ascites, and melena. Throughout the whole tertiary period the sole clinical difference from Banti's disease as described by him may be the history or demonstration of syphilis, and possibly of abdominal pain and tenderness. In the spleen excised during the tertiary period spirochetes are found. In view of the fact that splenectomy is the only treatment which stays or prevents the otherwise fatal issue of Banti's disease, it is necessary to learn whether this form of treatment should be recommended in the syphilitic form. So far as can be stated at present Eason believes that the recommendation to operate cannot be based on quite the same grounds. It is not known whether the syphilitic cases run the comparatively brief and fatal course of Banti's disease or pernicious anemia. Moreover, some of them do make a partial response to antisyphilitic treatment. Of six collected cases and one of his own treated in this way the Wassermann test became negative in one only. In one the general condition became less satisfactory; in two no benefit was derived, while in three some improvement occurred. In the few cases in which operation has been done the early result has uniformly been improvement after the operation. In the management of these cases, the writer has had no untoward result from thorough antisyphilitic treatment controlled after each injection of salvarsan by a complete blood examination.

American Journal of the Medical Sciences.

July, 1921, clxii, 1.

1. The Leucocytic Picture in Influenza. C. H. Bunting.
2. Observations on the Basal Metabolism in the Goiter Clinic of the University Hospital. Charles H. Frazier and Francis H. Adler.

3. Clinical Observations on Paroxysmal Auricular Fibrillations and Flutter. Fred. M. Smith.
4. The Relation of the Endocrine System to the Glycemic Reaction Following the Injection of Homologous Protein. G. L. Rohdenburg and O. Krehbiel.
5. The Leucocytes After Hemorrhages. John J. Musser, Jr.
6. Polaroscopic Study of Urines in a Group of Syphilitics. S. P. Taylor and K. P. A. Taylor.
7. Neurogenic Irregularities of the Heart in Adults. Alfred M. Wedd.
8. An Evaluation of the Allen Method of Treatment of Diabetes Mellitus. John R. Williams
9. The Application of Occupational Therapy in Civil Life to Cases Presenting Paralysis, Contracture, Fibrosis, or Lack of Coördination. John H. Arnett.
10. Some Observations on the Use of Arsphenamin: Its Effect on the Kidneys and Its Therapeutic Results. Horace B. Anderson.
11. The Treatment of Tuberculous Adenitis by Roentgen Rays and Radium. Russell H. Boggs.
12. Some Considerations in Connection with Gallbladder Disease. Truman H. Schnabel.
13. Physical Exercise in Heart Disease. Theodore B. Barringer.
14. Occultism with Particular Reference to Some Phases of Spiritism. Charles K. Mills.

1. The Leucocyte Picture in Influenza.—C. H. Bunting, after reviewing the recent literature on this subject, says it may be summarized by stating that in influenza there is an early inhibition (not exhaustion) of the marrow activity by the infecting agent, resulting in a leucopenia which is characteristic of the disease. The marrow is capable of stimulation upon pyogenic infection as a complication, and there results a leucocytosis usually of moderate degree. He has made a study of the leucocyte picture in ten cases of primary infection, cases being selected which showed no signs of deep respiratory infection on admission. The consistency of the blood findings in these cases seem to justify certain conclusions when taken in conjunction with the work of others. They show that uncomplicated influenza has a characteristic blood picture the features of which are an early neutrophile leucocytosis, followed by a sharp drop to a leucopenia, with a marked deficiency of cells of marrow origin and of blood platelets and with a lymphocytosis of varying degree. There is a gradual return toward a normal picture, but a cessation of fever and of symptoms may occur with the presence of a very abnormal blood count. The leucopenia suggests somewhat that of typhoid fever and also somewhat that of measles. It indicates sharply that the infecting organism is not a pyogenic coccus. What the nature of the marrow inhibition or chemotaxis may be is not evident. The great poverty in circulating neutrophilic leucocytes would seem to account for the frequency of pyogenic complications in influenza. These complications in two of the cases observed have followed directly upon a very low neutrophile blood content. There would seem to be a danger limit of neutrophile reduction beyond which we become a prey to coccus infection. This is the basis for the point that in practice influenza patients should not be allowed to get up and resume their ordinary life immediately upon the cessation of fever, but should be kept quiet and isolated until their blood has approached at least the normal leucocyte formula, which apparently requires almost a week from the cessation of fever. The great platelet decrease in the blood in influenza is apparently responsible for the hemorrhagic character of the pneumonic exudate in that complication of the disease. In view of the blood changes there arises an interesting theoretical question as to the nature of the cellular defense (if such there be) against the invading virus.

4. The Relation of the Endocrine System to the Glycemic Reaction following the Injection of Homologous Protein.—G. L. Rohdenburg and O. Krehbiel have observed the variations in the blood-sugar content of normal rats and mice injected with homologous and heterologous protein. With the intention of investigating the hypothesis that the occurrence of tumors is due to some endocrine disturbance, they have also studied the effect of ablation of one or more glands of internal secretion upon the glycemic reaction following the injection of homologous protein. As a result of the experiments they record it appears that the glycemic reaction, which follows the injection of homologous protein, is under the control of the endocrine system and that inhibition of the reaction may be viewed as a disturbance of metabolism due either to hypoactivity or hyperactivity of the endocrines. Whether this disturbance of metabolism is or is not of etiologic significance in neoplasia cannot be stated from the facts available at the present time.

8. An Evaluation of the Allen Treatment of Diabetes Mellitus.—John R. Williams presents a study of 100 patients who had reducing substance in the urine from which he concludes as follows: (1) Statistics as to the prevalence of diabetes, cures obtained and other data, based on former and inaccurate and incomplete methods of study, are untrustworthy. It is quite impossible therefore to compare with fairness results obtained by the use of the Allen method and results obtained by methods formerly in use. (2) In spite of these difficulties an extended clinical experience covering the use of all known forms of diabetes treatment justifies the conclusion that the Allen treatment is a distinct clinical advance. While permanent clinical cures are not attained, nevertheless patients for a considerable time are much benefited. (3) It is difficult to say how much is added to the expectancy of life of the diabetic by this treatment. In young people in whom the disease is most serious it would appear that it is at least doubled. Middle-aged and elderly diabetics who are not too seriously afflicted with complications and when faithful to the treatment can probably survive the life expectancy of the average normal individual. (4) The Allen method is of the greatest service when instituted early in the disease. Most of the failures in its use are due either to serious complicating disease, or more frequently to unfaithfulness on the part of the patient. In the majority of patients its value is in inverse proportion to the seriousness of the failure of metabolism.

10. Some Observations on the Use of Arsphenamin: Its Effect on the Kidneys and Its Therapeutic Results.—Horace B. Anderson has carried out kidney functional tests on 39 cases after they have received thirty doses of arsphenamin, each dose consisting of 4.6 decigrams and distributed over a two-year period. These tests failed to give any evidence of injury to the kidneys. He emphasizes that the efficiency of any method of treatment must ultimately be determined by the Wassermann reaction. It is more trustworthy to use at least two antigens; the acetone soluble antigen is a safe guide to diagnosis and the alcoholic extract reinforced by cholesterin is an excellent guide to treatment. It is impossible to say how much arsphenamin and how many courses of mercury may be necessary to produce a negative Wassermann reaction in any given case. Six injections of arsphenamin and one course of mercury, the amount too often prescribed by certain groups of physicians, may produce one negative Wassermann reaction, but the average case of secondary or tertiary syphilis will require twelve or more doses of arsphenamin and a corresponding amount of treatment with mercury to produce a negative Wassermann reaction, and one which only with further treatment may reasonably be expected to persist.

La Presse Médicale.

July 9, 1921, xxix, 55.

Treatment of Gonorrheal Epididymitis with Plasmotherapy.—Weill means by plasmotherapy autoserotherapy in which the effusion from the inflammatory lesion is reinjected into the patient. The treatment cannot be used in routine as not enough liquid could be procured in the ordinary case. In three of his patients, however, the effusion amounted to a hydrocele, and the author could inject as high as 30 c.c. in one of the three. The operative technic is of the simplest, for it is only necessary to puncture and aspirate, warm the punctate for a moment at a temperature of 45° C., and then inject under the skin of the thigh, outer aspect. The reason for heating is merely that the said temperature is sufficient to destroy any of the gonococci, should they have gained access to the liquor. In summing up his cases the author states that the usual duration of epididymitis was abridged considerably by the treatment; that the rapidity of cure bore a direct relation to the amount injected, and that the injection was attended by no reaction, whether local or general. Finally the punctate if injected into subjects other than the original patient appears to possess the same efficacy.

Book Reviews.

MICROBIOLOGY. A Text-book of Microorganisms General and Applied. Edited by CHARLES E. MARSHALL, Amherst, Mass., Professor of Microbiology and Director of Graduate School Massachusetts Agricultural College. Third Edition, Revised and Enlarged, with 200 Illustrations. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1921.

FOR the benefit of those who are not familiar with this admirable work we may explain that it is a treatise of 1070 pages, containing contributions by twenty-five experts in the various departments of microbiology. The work is divided into three parts, covering, respectively, the Morphology and Culture of Microorganisms, the Physiology of Microorganisms, and Applied Microbiology. Under the latter head are ten divisions dealing with the Microbiology of Air, of Water and Sewage, of Soil, of Milk and Milk Products, of Foods, of Alcoholic Fermentation and Derived Products, of Special Industries, of the Diseases of Man and the Domestic Animals, of the Microbial Diseases of Insects, and the Microbial Diseases of Plants. A brief history of the origin and growth of the science of microbiology forms the opening chapter. The book is well illustrated with 200 pictures in the text and a colored plate of the malarial parasites. We know of no work of recent date that can be compared to this in the amount and authoritativeness of the information therein contained, and can heartily commend it to all seeking knowledge on the subject of microbiology.

THE NEW POCKET FORMULARY. With an Appendix Containing Formulæ and Doses for Hypodermic Medication; Posological Table; Obstetrical Table; Table of Apothecaries' and Metric System of Weights and Measures; Fractures, Dislocations and Sprains; Ligations of Arteries; Hemorrhages and Wounds; Treatment of Asphyxia and Apnea; Poisons and Antibodies; Incompatibilities and Baths; Miscellaneous Emergencies; Tables of Differential Diagnoses, Eruptive Fevers, Diet Lists for Various Diseases, Materials and Drugs Used in Antiseptic Surgery; Formulæ for Fluid Foods, etc. By WILLIAM EDWARD FITCH, M.D., Late Major Medical Reserve Corps, U. S. A., Formerly Lecturer on Surgery, Fordham University School of Medicine; Assistant Attending Gynecologist Presbyterian Hospital Dispensary; Attending Physician to the Vanderbilt Clinic, College of Physicians and Surgeons, New York City; Member of the American Medical Editors' Association, Member of the Medical Association of the Greater City of New York, etc. Third Edition, Revised. Price, $2.50. Philadelphia: F. A. Davis Company, 1921.

WE are not partial to ready made formulæ, being of the opinion that the practitioner who writes his own prescriptions to meet the indications present in the individual case will be more successful in overcoming disease. Yet almost every physician has some "favorite prescriptions" upon which he has learned to rely in the average case, and we may learn something in studying these remedies which others have found useful. Dr. Fitch has collected a large number of these in his little book and has been very wise and conservative in his selection.

STUDIES IN DEFICIENCY DISEASE. By ROBERT MCGARRISON, M.D., D.Sc., Hon. LL.D. (Belf.), Fellow of the Royal College of Physicians, London; Lauréat de l'Académie de Médecine, Paris; Honorary Surgeon to the Viceroy of India; Lieutenant-Colonel, Indian Medical Service. New York: The Oxford University Press, American Branch.

THIS is an interesting and authoritative treatise on one of the most live subjects in medicine today. Even yet we know but little of the composition of vitamines, but Dr. McGarrison has given us a capital definition of the action of these vital substances. "Vitamines," he says, "are as a spark which ignites the fuel mixture of a petrol-driven engine, liberating its energy. The spark is of no use without the fuel, nor the fuel without the spark—nay, more, the efficiency of the spark is dependent in great measure on the composition of the fuel mixture."

The work is divided into four parts, treating respectively of: (1) the nature of vitamines and a description of the experimental study of them; (2) the symptoms of deficiency diseases and the factors influencing the onset of deficiency diseases; (3) the pathogenesis of deficiency diseases; (4) the practical prophylactic and therapeutic application of the knowledge gained by the studies and experiments previously described. The author discusses many interesting points, such as the influence of race, age, and sex, fatigue, faulty hygiene, mental depression, and infectious diseases in modifying the results of a lack of one or another of the already known vitamines.

THE AMERICAN YEAR-BOOK OF ANESTHESIA AND ANALGESIA. 1917-1918. F. H. MCMECHAN, A.M., M.D., Editor. New York: Surgery Publishing Co., 1921.

THE present volume, which is the second of its series, has been delayed by the exigencies and demands of the World War. It comprises about 500 double column pages. The number of separate articles is 87, and the number of individual contributors is as large, for while a few authors cover more than one subject, two or more collaborate in certain articles. The contributors are made up of specialist anesthetists, specialists in various branches of operative surgery, pharmacologists, military men, dentists, etc. An analysis of a work like this is impossible within a small compass. It will no doubt be indispensable to all operating surgeons, obstetricians and dentists, and professed anesthetists. The total omission of any allusion to twilight sleep under "anesthesia in obstetrics" or elsewhere may be regarded as significant.

LE SYMPATHIQUE ET LES SYSTÈMES ASSOCIÉS. Par A. C. GUILLAUME. 2me edition refondue et augmentée. Paris: Masson et cie., 1921.

THE first edition of this volume of nearly 400 pages appeared in 1919. The subtitle is "Clinical Anatomy, Semeiology and General Pathology of the Neuroglandular System of Organo-Vegetative Life." There is a special preface contributed by Professor Pierre Marie, the distinguished neurologist. Among the novel sections is one on the elective pharmacology of the organo-vegetative system, in which the response to drug activities is discussed, which naturally shades into sympathicotonus, para-sympathicotonus, and neurotonus. The entire subject of internal secretions is covered as one of the systems associated with the sympathetic. One has only to compare this volume with the old monograph on the same subject by E. Long Fox, published some thirty-odd years ago, to visualize the radical character of the evolution of our knowledge of the sympathetic nervous system and its influence on the phenomena of disease.

A PHYSICAL INTERPRETATION OF SHOCK, EXHAUSTION and RESTORATION, an Extension of the Kinetic Theory. By GEORGE W. CRILE, M.D., Senior-Consultant in Surgical Research, A.E.F., 1917-1918; Professor of Surgery, School of Medicine Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland, Ohio, U.S.A. Edited by AMY F. ROWLAND, B.S., Lond.: Oxford University Press. New York: American Branch, 1921.

IN this volume Dr. Crile reviews his previous work on the production of fatigue, shock, and exhaustion in the light of new facts and observations derived from his war experience. Those familiar with the author's kinetic theory of shock will here find it elaborated and strengthened with much new material, both clinical and experimental. This theory has been put to the crucial therapeutic test at the Lakeside Clinic, Cleveland, and by its practical application the mortality rate for bad surgical risks has been materially lessened and the range of operability extended. The operative mortality of capital abdominal operations has been reduced to 1.2 per cent., and that of thyroidectomies to 0.88 per cent. "With such evidence of the practical value of biophysical methods of attack upon clinical problems," Dr. Crile says, "it would seem that with the extension of physicochemical investigations, medicine may approach a place among the exact physical sciences, and the physician may attack his problem from the more secure standpoint of the physicist."

Society Reports.

AMERICAN THERAPEUTIC SOCIETY.

Twenty-second Annual Meeting Held in Washington, D. C., June 3 and 4, 1921.

(*Concluded from page* 388.)

A Therapeutic Report.—Dr. JOHN BLAKE WHITE of New York presented this communication.

The Teaching of Medicine and Therapeutics to Undergraduate Students.—Dr. THOMAS F. REILLY of New York read this paper. (See page 447.)

The Aim of Modern Therapeutics.—Dr. L. RADCLIFFE GROTE of the University of Halle presented this paper by invitation; it was read by Dr. JOHN C. HEMMETER. (See page 449.)

Some Remarks on the Cause of Therapeutic Nihilism.—Dr. FRANCIS M. POTTENGER of Monrovia, Cal., presented this communication. (See page 451.)

Dr. OLIVER T. OSBORNE of New Haven expressed his hearty indorsement of the papers by Drs. Reilly and Pottenger and hoped that what had been said would sink into the minds of all.

Dr. JAMES M. ANDERS of Philadelphia said he was in entire agreement with the positions taken by Dr. Reilly and Dr. Pottenger. As Dr. Reilly had said, we had been swinging away from solely didactic instruction toward clinical teaching until the former was too much neglected, and the reason we should turn the pendulum in the reverse direction, for some distance at least, was that there were so many opportunities at the present day for the student to get practical training after leaving school. He himself wished to emphasize the fact that too much stress was being laid upon the specialties in the undergraduate years of study. We had standardized undergraduate teaching and had begun to standardize graduate teaching, and one could foresee the time when much of the training now given to the undergraduate would be transferred to the graduate curriculum. Indeed, this tendency had already been established, and it was to be hoped that it would be carried further along, so that the past tendency toward over-specialization would be corrected. Dr. Pottenger had stated the situation correctly when he said that too much consideration was given to the disease and too little to the patient himself. In the speaker's own work as a consultant he rarely found physicians suggesting for overwrought nervous systems and mental worry repose, calmness, and optimism, things that invigorate rather than depress vital function, that increase rather than decrease resistance to disease. Medical schools had not been training the student to recognize the potent influence of the mind upon the body, and for the reasons stated by Dr. Pottenger little or no attention had been given in the past to the socalled applied psychology which would enable the student, when he went into practice, to meet successfully the almost universally pessimistic attitude of patients There was no doubt that at the present day we were burdened with too many specialties, yet he was impelled to suggest another—namely, "pessimism," with the view of bringing about the cultivation of a cheerful optimism. It was because of a defective education that physicians too often failed to instill optimism into their patients, which was often the best tonic that could be prescribed He had been glad to hear it urged that physiology should not only be taught to the undergraduates but also by the physician to his patients. For a number of years he had been trying to instruct his own patients in personal hygiene, and he was quite willing to add physiology. Physicians should teach not only their patients but the community in which they live all the hygiene and all the physiology possible as one of the best remedies for all the drugless cults to which the public was rushing like mad. The point which he wished to emphasize was that in the undergraduate school the student should be taught to establish and maintain a system of instruction in personal hygiene and physiology to his patients and the public. In his opinion, the society had a very distinct function to perform with regard to the education and training of men in therapeutics; it was time the members should carefully study their job and recognize that it carried with it great opportunities and grave responsibilities. The society should serve as a guide to the profession in all matters pertaining to therapeutics and so counteract the influence of the various drugless cults and pathies—each with a little virtue behind it—now so numerous and so popular that they actually cared for one-third of the population of the United States. The state should be made to recognize the fact that certain fundamental branches, *e. g.* anatomy, physiology, chemistry, and pathology, were necessary, no matter what practical system of the healing art the individual student wished to pursue in the future. It should be quite possible to combine the institutional interests, so far as the instruction of medical students in these basic scientific branches is concerned, and thus in one sweep speedily do away with the various cults. This society should be able to bring about the teaching of therapeutics and of the management of disease in general in our medical schools in a manner so broad and full as to leave little room for the pathies and drugless cults.

Dr. LOUIS F. BISHOP of New York said that a great change had taken place in the profession. In the old school all were taught that disease consisted of pathological anatomy and certain anatomical lesions. That school had more or less passed away and was being replaced by pathologic physiology—that the changes in pathological anatomy were the end result of disturbances in the physiology. That was very hopeful. In his own particular subject of the heart this tendency was very strong. Nothing had done more to abolish therapeutic nihilism than the technical observance of the disturbed heart and the possibility of recording the disorder as it appeared, and then applying the proper treatment. Probably the study of fibrillation had done more to destroy therapeutic nihilism than anything else in the last fifty years, for that so definitely showed the effect of a drug on a disordered condition. With regard to the psychological management of patients, he had adopted the plan of absolute frankness with every patient he came in contact with. Hardly a day passed that some doctor or relative of a patient did not say to him: "If you find anything definite, please don't tell the patient." He would reply that if they wanted anything concealed they must take the patient to someone else. He had found that by a policy of complete frankness he could get the cooperation of the patient. He would always say: "I hope and believe that you will improve under treatment." If one asked: "Am I liable to sudden death?" he would reply: "Yes." It was a curious fact that many hundreds of persons had accepted the fact, discounted it, and had forgotten it—had stopped worrying about it. It was very like life insurance; everyone knew he was subject to death, but he did not believe that it was going to happen to him, and so would not insure. By absolute frankness one could get the cooperation of the patient. If he was told you knew he was in danger, but hoped and believed he would get better, the fear would be discounted. In regard to educating people in regard to physiology and disease, Dr. Bishop said that for thirty-five years he had been active in the Society for Instruction in First Aid to the Injured, but every time he had tried to write some public article he had gotten it in the neck from the profession for trying to advertise his own practice. That was not fair. It was the duty of the profession as far as possible to instruct the public in such matters, and there ought to be some way in which such work could be censored before it got to the public so that that reproach could be avoided. The *Journal of the A. M. A.*, in criticising his last book, said that it was very fine work, but it meant that Dr. Bishop wanted the people to go to him. The American Medical Association was perfectly willing that anyone whom it might designate should take part in public health education, but if anyone else did it, it was self-advertising. It was difficult to examine into a man's motives, but that was no reason why every effort should not be made to disseminate true medical information as far as possible. Everyone in the community should be taught first aid to the injured and the first principles of pathological physiology and prevention of disease.

Dr. CHARLES E. DE M. SAJOUS said that in expressing his admiration for the papers presented by Drs. Keilly and Pottenger he wished to recall that therapeutics was being neglected to a material degree in our medical schools because it was still empirical and unscientific, even though pharmacologists contributed much to our knowledge. In his presidential address last year he had urged the fact, now conclusively established, that many drugs, the iodides and strychnine, for instance, produced their beneficial effects by stimulating certain ductless glands, and that it was through these glands that the curative power of several of our best remedies was exercised. This therapeutic method (see MEDICAL RECORD, Sept. 18, 1920), which Doctor Sajous had termed "pharmacoendocrine therapy," was of capital importance to the practitioner—sufficiently so, in fact, to have caused the London *Lancet* to recommend the study of endocrinology in this connection by the new chair of pharmacology to be founded at St. Mary's Hospital Medical School of London. The University of Pennsylvania had, however, taken the lead in this respect, its Graduate Medical School, at the request of our fellow member, Prof. James M. Anders, and its Medical Faculty, having created a chair of Applied Endocrinology, the first, by the way, in the history of medicine, to which the speaker deemed it a great honor to have been appointed.

Dr. SPENCER L. DAWES of New York said that for many years he, like Dr. Osborne, had been "a voice crying in the wilderness" in regard to teaching therapeutics and physiology. It seemed to him that the main point had been lost sight of. The fact was it was not taught, and he defied anyone to point out more than one out of ten schools that was teaching any therapeutics. They did not teach it. As he had himself said in a paper read at Atlantic City, they taught two things—to make a diagnosis and to make an autopsy to prove the diagnosis, and if they could teach only one thing, they taught them to make the autopsy. They did not care whether they cured disease or relieved the patient. It was well to know pathology and diagnosis, and how to look through a microscope, but the physician ought to know how to help the patient. Until we went back to first principles and taught therapeutics we would not accomplish what we were after. If one went to the medical schools today and asked the student what he was interested in, he would not find one in a thousand interested in the cure of disease, but only in surgery, otology, laryngology, etc. Dr. Dawes said he had taught in the medical schools for twenty years, and there was not one that taught therapeutics as it should be taught. Until we got back to teaching therapeutics, nothing would be accomplished. Another point was valuable. You might have your full-time man, but when you put in your whole lot of full-time men in the medical schools you would be losing sight of the man's personality, of the man who approached disease at the bedside and told the student how to treat disease—not as in the hospital, where directions were written and the nurse was told how to treat disease. The nurse would see that it was done. But how about the physician when he visited a private patient and told him to take something, and the patient would say: "I don't want to take that"; what would he do then? He would substitute something else. The student would not get that knowledge in the hospital, and would not get it until he was taught how to treat disease.

Dr. JACOB DINER said that no more proper subject could be brought before the society than the matter of therapeutics and the teaching thereof. Dr. Dawes found fault that there was no therapeutics taught in the schools. Dr. Diner said he would agree to that and more than that, that whatever therapeutics was taught was taught on a false basis. The main thing was to cover the text-book with every drug mentioned. He had seen valuable time wasted by teachers on some drug that experienced men had never heard of, simply because the literature somewhere mentioned that drug. One thing was rarely taken into consideration, the drug known as common sense and its application to the treatment of disease. That was a question often lost sight of. Another error often found in the teaching of the subject was absolutism of teaching and giving the student formulas which were "sure cures" for this, that, and the other thing. That reminded him of a story of a very good and careful observer who took detailed bedside notes of his patients. He had a case which presented a certain symptom-complex, and from day to day he watched the case and put down the remedial agents employed and what else he did for the patient. The patient did not get better; and finally one day, when calling, the patient's wife said to the doctor: "What do you think August asked for today? He wants pig's knuckles, sauerkraut, and beer." And the doctor said: "Let's make his last days happy and give it to him." The next day he called on the patient, expecting to find crape on the door, but August was sitting up, smoking, reading the paper, and enjoying life as much as ever; and the doctor put down in his notebook beneath the carefully recorded bedside notes: "Pig's knuckles, sauerkraut, and beer, sure cure." A short time after, Pat was taken sick, and the doctor prescribed pig's knuckles, sauerkraut, and beer, telling Bridget that this was bound to cure Pat. But the next morning Pat was dead—and the doctor added to his previous notes, after the words sure cure, "for the Germans, but it's hell on the Irish."

Dr. WILLIAM FITCH CHENEY of San Francisco expressed his agreement with what Dr. Reilly had said in regard to the swinging of the pendulum toward more therapeutic instruction. He had been through that experience himself. The teaching of former years was almost entirely didactic; now it was almost entirely clinical, but the students of today were not so thoroughly conversant with the cure of patients and disease as those of former days. He believed in compromise; they should have both. He was also in agreement with what Dr. Pottenger had said. It did not matter how much the physician knew of diagnosis, pathology, materia medica, the doses and qualities of drugs, his success as a practitioner came down to a question of personality; the man who knew it all might be a dismal failure, and the other a great success. The man with underlying optimism, who was ready to give his patients encouragement, would attain a success which the man who treated his patients overmuch with drugs would never reach. There were two classes of patients—those who had no serious illness and who would get well, and those who could not be cured. We could do an immense amount of good to patients who were not seriously ill; they were inclined to think they were very much worse than they really were; as Mark Twain said, one-fifth is real and the other four-fifths what he thinks. If you were convinced that the patient was not seriously ill, you could take away that four-fifths by reassurance and sympathy and common sense. Those in the other group, who had serious illness that could not be cured with drugs—but might be made worse—could also be helped by common sense and telling them the truth. Death was not the worst that could happen to a man; it was often a relief to one who was suffering, but he could be greatly helped by the exercise of common sense and reassurance, making him feel that the very best possible was being done to make him comfortable and prolong life. Dr. Cheney said he knew from observation that the brilliant student was not always the best prepared for practice, but that was one reason why men who were not well prepared were able to do for the patient what the well-prepared scientific man did not always do.

Dr. WILLIAM F. MILROY of Omaha expressed his commendation of the two papers. He had heard this theme developed to the same extent in an experience meeting. He had taught for thirty-five years, and was delighted to hear this discussion; for quite a long time he had felt almost afraid to suggest anything along this line in the society meetings. One was apt to be counted an old fogey, a "has-been" if he harked back to the methods he had found successful; but it was the duty of the society to promulgate authoritatively the views expressed in these papers and the discussion. He had been convinced that medical education was a lamentable failure in a large degree, owing to this devotion to the specialties and to the excessive stressing of laboratory work at the expense of the practical we had been taught and had found successful.

Dr. REILLY said that he and Dr. Pottenger felt

that they had been sitting for the time being in the criminal dock, but, because of the general approbation expressed by so many teachers of medicine, they were very glad, indeed, that they had been discharged as not guilty.

Dr. POTTENGER said he wished to emphasize the importance of maintaining the psychical as well as the physical side of the patient. It was noted in practice, but not in teaching. Nothing would do more for a chronic invalid than hope. He then cited the case of a doctor who developed tuberculosis and consulted two or three of the best physicians in a large eastern city, who made a diagnosis and told him to go west, which he did; but gave him no hope for recovery. One year later he came to Dr. Pottenger, who examined him and at once told him that he could be restored to health. This doctor then said to him: "That is the first word of hope I have heard for a year." He said that he was giving up his profession, for he would not belong to a profession that could give no hope. The man who neglected that factor was neglecting one of the biggest factors in cure. He himself would rather treat a patient with hope in a closed room than with discouragement in the open air.

Group Medicine.—Dr. GEORGE REESE SATTERLEE of New York presented this paper which dealt with the subject of group medicine in relation to focal infection. He stated that focal infections entered into every branch of medicine, either as etiological or contributory factors in disease. Certain well known diseases were generally recognized as originating in focal infections, mainly syphilis, tuberculosis, erysipelas, protozoal and parasitic infections. There was a large class of less well recognized focal infections caused by the streptococci in their various strains, and also the colon bacilli, which were not yet universally accepted. If one visited a general hospital in a critical way he would find, as the writer had in his own wards in the Fordham Hospital, from 60 to 80 per cent. of the patients showing evident focal infection, principally in the teeth and tonsils. Infected adenoids were quite frequent, and less frequent foci were otitis media, sinusitis, infected prostate and seminal vesicles, stricture of the urethra, and infections of the rectum. In the New Jersey State Hospital infected cervices had been enucleated with good results. It had also been shown that there were a certain number of streptococcic infections of the seminal vesicles which played an important rôle in some cases. The all-important thing was to remove all the foci of infection when that was possible. It could readily be seen from the large amount of work that was necessary in the removal of these focal conditions that cooperation among the internists, surgeons, and specialists was essential. This work could be accomplished in hospitals but it was an extremely difficult thing in private practice without a selective body of physicians, which he had chosen to call "group medicine." Group medicine was the only solution and some day we might see in our hospitals a focal infection ward, with a separate laboratory. It could easily be demonstrated that this sort of work in the hospital was an economical problem as well as a humanitarian one. The essentials of group medicine were as follows: 1. An *internist* who made a provisional diagnosis and outlined the essential examinations. He should follow up the patient before and after operation and take the responsibility. 2. A *surgeon* who had a deep appreciation of the medical needs of the patient as well as operative skill. Both physician and surgeon should be expert in interpreting radiographs, and have a working knowledge of other specialties. 3. A *nose and throat surgeon*, who was in sympathy with the work. 4. A *dental surgeon*, with a similar attitude. 5. A *radiographer*, who studied the patient from the viewpoint of both morphology and function. 6. A *general laboratory*. 7. A *special bacteriologist*, for research work and classification of bacteria. (This was a very important field if we were to make any advancement.) 8. A *technician*, for gastric contents and other secretions. The same person, preferably a woman, could have charge of special therapy, vaccines, etc. 9. A *follow-up system*, with nurse or clerk in charge, who could also do social service work, history taking, etc. 10. A *dental hygienist*, especially for hospitals, where private dentists were not practical, and the work was extensive. 11. *Special consultants*. 12. *Hydrotherapy and massage*. No diagnosis of metabolic disturbance exclusively should be made before focal infections were ruled out. The same might be said of the endocrines. Borderline abdominal cases were often relieved through the removal of foci of infection and many a postoperative failure had thus been turned into success.

The Future of Therapeutics.—Dr. REYNOLD WEBB WILCOX of New York presented this communication. (See page 453.)

Cardiological and Sociological Experiments in the Treatment of Heart Disease.—Dr. LOUIS FAUGERES BISHOP of New York described this experiment, which was conducted at the Good Samaritan Dispensary in New York. He stated that the cardiological end of the experiment consisted in giving to all those who might apply an examination involving a careful record of subjective symptoms, a general physical examination, a fluoroscopic examination of the heart, and orthodiagrams by the *x*-ray method, an electrocardiogram, a polygram with the Mackenzie polygraph, a Wassermann test, a blood examination, and uranalysis. The sociological innovation consisted in making those who enjoyed the benefits of the examination pay for the cost of the service. The equipment cost $5,000, and a charge of $37.50 was determined upon as necessary to cover the running expenses of the clinic, and, if the clinic proved a success, to pay for the equipment. Observations made in this clinic had revealed important and unsuspected facts in people who had previously been under observation for a long time, the most notable being in cases of cardiac discomfort of long standing. These had sometimes proved to be due to specific infection or a bundle branch lesion in people who had been told frequently that their trouble was indigestion. One man, notably, with a bundle branch lesion, had been under treatment in a hospital for many weeks for gastric ulcer. Many practitioners who had had no experience with the complete cardiological examination still believed that it was too expensive and troublesome to be applied in general practice. It was felt that if the service were given for nothing it would be utterly impossible to judge whether the profession or the public put any value on it or not. He felt that it would be an economic crime to give this service to all comers without charge. In addition to providing a complete cardiological service it was intended to make the clinic a place for the productive study of heart and tension conditions. It was decided in the beginning that the cases would be studied *seriatim* because the problems of cardiology which were most important were those which pertained to the average sufferer and not to the extraordinary or socalled interesting cases. Many persons came to the clinic because they felt that something was wrong with the heart and wished the matter confirmed by a definite investigation. A brief report of the first ten cases studied at the clinic was presented from which the writer thought certain conclusions could be drawn as to the character of the work that a clinic of this kind would be called upon to do. The first observation was that these patients all suffered from discomfort referred to the region of the heart. As was well known most heart trouble was without any such discomfort. This raised the question whether persistent discomfort referred to the region of the heart justified the diagnosis of heart trouble. In most of these people a careful study made it evident that there was at least an unhygienic condition of the heart muscle. This was in several instances relieved when the general metabolism of the person was looked after. So, the first function of the clinic seemed to be to afford relief of cardiac pain or of such symptoms as bad breathing or dropsy obviously due to the heart. The second useful function of the clinic, as shown more particularly in the case of the younger sufferers, was the appraisal of the heart condition in such a manner as to establish a fairly safe criterion to determine the amount of immediate and future activity that could safely be enjoyed by the patients.

Human Readjustment or Coordination of Structure and Function in the Organism as a Whole.—Dr. J. MADISON TAYLOR of Philadelphia read this paper. (See page 441.)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held January 13, 1921.

DR. MINER C. HILL IN THE CHAIR.

THE program of the evening was arranged in conjunction with the Babies' Welfare Federation for the New York Nutrition Council.

Care of Preschool Age Children at the Association for Improving the Condition of the Poor Community House.—Mr. JOHN C. GEBHART read this paper, in which he stated that the Association for Improving the Condition of the Poor for the past three years has been concentrating its efforts on three lines of work which they had found were necessary if child welfare work was to grow and develop. These were: (1) Prenatal care for the expectant mother (2) examination and supervision of preschool children, and (3) supervision of the mothers in the home. To ascertain conditions among preschool children a survey was begun in a colored district and then in an Italian district. The district selected was that bounded by Houston and Canal streets and Broadway, with a population of 32,335, of which 92 per cent. were Italians. In this locality there were about 1,400 persons to the block, exclusive of those who were there merely for business. Aliens they were and aliens they remained. Of the men, 75 per cent. were unnaturalized, and of the women 65 per cent. were illiterate. From April, 1919, to October, 1920, Dr. Schroeder examined 2,186 children in this district, 894 of whom were of preschool age. They had been particularly fortunate in being able to present so many children from the same neighborhood, the same racial stock, and often a number in the same family. The attempt was made to make a list of defects that should conform to other examinations of similar groups, but it was found that hardly any two investigators agreed as to what defects should be considered. They finally made a list of the main subdivisions of defects, omitting the insignificant ones. The statistical results were tabulated and showed in a general way that the greatest number of defects were those of the nose and throat; defects in nutrition ranked second; teeth third; orthopedic defects fourth; defects of the glands fifth; and defects of the abdomen sixth. In the group of preschool children 2,231 defects were discovered, or an average of 2½ defects per child; in the group of children from six to twelve years of age the average number of defects also numbered 2½ per child, while in the group from twelve to sixteen years of age the average was 1.8 defects per child. The whole number of defects meant little unless one knew their significance. Defects of the head were much higher in the first group than in the other groups, but these defects were mostly due to rickets and disappeared as the child grew older. There was little difference in the percentage of eye defects in the different groups. Thirty-four per cent. of the entire series had nose or throat defects. Operation for the removal of hypertrophied tonsils was advised less often in the preschool group than in the other groups. Of the preschool children 28 per cent. had defective teeth, while 96 per cent. of the children of school age had defective teeth. Defects of the lungs did not bulk large in this series; when such defects were found the children were referred to the tuberculosis clinics. Cardiac defects differed from some others in that the number of children showing such defect increased as the age of the children advanced. In the first group 4 per cent. had cardiac defects, while in the second and third groups 6 per cent. had such defects. This was a high percentage, as the number of cardiac defects in similar groups was usually about 2 per cent. Among the preschool children 55 per cent. of the cardiac defects were functional. The percentage of undernourished children was about the same for the first two groups. The dental work, and eye, ear, nose, and throat work was cared for by the schools in the usual way. Little could be done for orthopedic defects except to take such children to an orthopedic dispensary. Of the preschool children 24.6 had orthopedic defects. Most orthopedic defects were found to be due to rickets and plans were being made to prevent this kind of defect. Cardiac defects were cared for in the cardiac class at Bellevue. The public health work carried out as one of the activities of the Mulberry Community House had met with a ready response on the part of the people. The question of dealing with undernutrition in the preschool child had been a difficult one. It had been found that a weekly weighing in the presence of the mother was a very effective lesson in driving home the importance of fresh air, proper food, and rest. They were using a portable scales that the visiting nurse could easily carry with her. This statistical study was merely a byproduct of the work; the main object was to carry public health education to these people and to teach the need for supervision of the child of preschool age.

The Preschool Child.—Dr. MARK S. REUBEN read this paper, in which he asserted that the problem of the preschool child deserved more attention than it received at present. Children under five years of age constituted nearly 12 per cent. of the population; in this 12 per cent. of the population occurred 21 per cent. of all deaths in this country. In the registration area of the United States (1918) out of a total of 1,471,367 deaths, 306,143 were children under five years of age. The younger the preschool child the less apt it was to survive the fifth year. In children under five years but over one year of age the most important causes of death were the infectious diseases, respiratory diseases, intestinal disturbances, accidents and injuries, tuberculosis, diseases of the nervous system and of the circulatory system. The predisposing causes of mortality and morbidity at this age were the same as those encountered in the study of infant mortality. They were poverty, ignorance, and neglect. The importance of adequate family income, of domestic economy, and of hygienic surroundings and sanitary homes could not be overemphasized. Education like charity should begin at home. Hereditary diseases should be treated in parents before children were born. There was a higher mortality among illegitimate children. Where the proper indications were present the physician should advise women how to prevent conception. This did not mean that the advice should be given by women of deficient mentality and of doubtful sincerity. The problem which the child under two years presented was somewhat different from that of the preschool child; whereas with the former we were more concerned with reducing the death rate, in the latter our main efforts should be directed to prevent disease. The relation of the preschool age problem to that of the school age was the same as that of prenatal work to the reduction of mortality from congenital causes; to reduce mortality and morbidity of school children we must not neglect those of preschool age. It was most important that minor diseases should receive attention at this age. A summary of the methods which Dr. Reuben suggested for the reduction of mortality and morbidity at this age was as follows: (1) Complete registration of births; accurate statistics as to number and distribution of children. (2) Complete physical and mental examination of all children of preschool age. (3) Constant observation, periodic examination, supervision of diet and home conditions, and correction of all defects. Special health centers and schools. (4) Reliable standards as to height and weight of children of this age must be established. (5) Health education is the fundamental need of the day. Education is the panacea for ignorance. Academic colleges should provide information on health matters to their pupils; school teachers should receive similar instruction. Women should be especially trained for public health work. There should be a differentiation of public health nurses. The nurse should treat the sick; the public health worker should teach how to prevent the development of disease and how to maintain health. All school children should receive elementary instruction in diet and hygiene, and the formation of good health habits be stimulated. All medical students should receive adequate instruction in diet, hygiene, and public health work. (6) Permanent institutional care should be discouraged; all day nurseries and babies boarded out should be under strict medical supervision. (7) Playgrounds and play-centers should be established (7,000

children die every year from accidents and injuries). (8) Adequate wages, sanitary housing, and economical use of incomes are essential requirements. (9) The importance of attending to minor ailments must be emphasized. (10) To reduce morbidity and mortality from infectious diseases precautions must be taken against the spread of these diseases. The younger the child the worse the prognosis and more likely it is to have complications. Our precautions against pertussis are inadequate. The importance of vaccinating against diphtheria (with toxin-antitoxin) those who are not immune as shown by the Schick test and against smallpox should be emphasized. (11) To avoid respiratory diseases, boarding must be avoided; sanitary homes are essential. Rickets, infectious diseases, and adenoids predispose to respiratory disease. Direct contact with those infected must be avoided. Therefore, proper feeding, proper hygienic surroundings, and proper clothing are essential; we must remove adenoids, and avoid all contact with patients who are suffering from any infection. (12) Digestive disturbances are often the result of improper feeding during the first two years of life. Breast feeding should always be encouraged. A quart of milk every day for every child should be insisted upon as the basis of a rational diet. (13) The child of tuberculous parents should be removed from the focus of infection (preventoria). The luetic parent should be treated before the mother conceives, during pregnancy, and, in fact, after the birth of the child. (4) Cardiac diseases can be reduced by greater attention to the infectious diseases and avoidance and removal of all focal infections in tonsils, teeth, and sinuses. (15) The great majority of cases of malnutrition is due to adequate causes such as physical defects, improper food, habits, and overfatigue; and only in a minor degree is it due to poverty, inheritance, and other obscure causes. (16) Proper diet and dental hygiene are the answer to dental caries. The wholesale removal of teeth in children for inadequate causes should be discouraged; filling, when possible, should be preferred to removal. (17) Diseased tonsils and adenoids should be removed. (18) The deformed (physically and mentally) and the delinquent child should receive special care.

Standard and Method of Health Work Among Children of Preschool Age.—Dr. ROBERT D. CURTIS read this paper in which he stated that the need for continued supervision of children beyond the age of infancy had been convincingly presented and he felt that there was no question on this point. The important thing was to devise a workable scheme of putting it into effect. There was no source to which one could go for information as how to establish such work. Small beginnings had been made, it was true, but many links were as yet imperfect. The period of childhood following weaning was a very dangerous one, for at this time one had not only the problems of feeding but new problems having to do with environment came in. As soon as the child began to get about and to derive its food from various sources it was exposed to infection in many ways and was influenced by many conditions in its environment. Anything that affected the family for good or evil had a corresponding effect upon the child. A realization of the need for child welfare work had brought many agencies into the field. The danger of overlapping work by these various organizations had been greatly lessened by the Confidential Exchange, which aimed to correlate different child welfare activities. It seemed too much to expect the domestic mother to realize the need for continued supervision of the child after it had passed beyond the period of infancy. Mothers, as a rule, never felt competent to rely upon their own judgment where an infant was concerned, but when it came to the older child she seemed not to question her ability to assume the responsibility, and seldom asked advice except for some very obvious defect. If conferences for preschool children were to be well attended means must be devised to get the parents to bring the children. Under an ideal system all the children in a preschool conference would come as graduates of the infant welfare station. The infant welfare conference offered the greatest opportunity for educating the mothers. All charitable and social agencies should join hands to educate the parents to the need of supervision for older children. Dr. Curtis said he felt that medical men and social workers would see the need of supervision for the preschool age, but he felt they would not make an appeal to most mothers if they confined themselves purely to dealing with defects such as tonsils and adenoids, and the repair of dental defects, but he thought that if they added vaccination, postural work, and dental hygiene these would make an appeal. Faulty posture was seldom given the attention it deserved and postural work might be considered as preventive medicine. With the establishment of dental hygiene and postural instruction the parents would be given something they would appreciate. After mothers were convinced that this work was desirable it still remained to convince the children as well. If the conference was not made attractive to the child he would not care to come and the mother would yield to his inclination to stay away. In order to make an appeal to the child a story-teller and books were provided and perhaps a sand box. It was necessary to have a separate room for the examinations. It was a rather strange thing that mothers did not object to having the defects of their babies pointed out before others, but disliked to have their older children exposed to view unless they were unusually well formed. The success of these conferences depended almost entirely upon the personality of the physician and other workers. A pleasant relation must be maintained with both children and mothers. For the physician accustomed to think in terms of dieteties, anatomy, and medicine and at the same time to keep himself on the child's mental level was a rather difficult task to perform. By keeping on the child's mental level he did not mean having recourse to buffoonery, but maintaining a sympathetic and approachable attitude. The physical examination was relatively more important than other features. The well child should be examined once in three months; those below normal as often as was necessary. In Boston college students taking household economics and those taking kindergarten courses volunteered as assistants, the latter acting as story-tellers. A doctor, an able nurse, and a dietetician formed an essential part of the staff. After infancy the work of supervising children increased in amount at a surprising rate. Neither a nurse nor a dietetician was exactly fitted to do the work; they should have to find a plan to secure persons who had a broader training than either a dietetician or a nurse. The usual defects found in children of school age were also found in those of preschool age. Tuberculosis at this age, however, was very rare. For those cases that were tuberculous, a tuberculosis expert should be available. The treatment of conditions of the nasopharynx was one of the most important parts of this work. There had been a good deal of criticism on the ground that tonsillectomies were performed. He was sure the number of harmless tonsils removed far exceeded the number of diseased ones left in place. Deformities of bones, spine, and joints in the majority of cases were the results of rickets and malnutrition. These defects did not exist in children who had been under supervision from infancy. Dental caries was by far the most frequent defect in children of all ages. The supervision of children of preschool age would insure proper care of the first teeth and would preserve them in good condition until the second permanent teeth came in. Malnutrition was an expression of disease that disappeared when the conditions producing it were corrected. The preschool care of children should provide for the care of those with tuberculosis, for attention to the ears, nose, and throat; it should provide for orthopedic, dental, and nutritional work. Even with the care of all these departments a child might remain subnormal, and in such children a complete change of environment was important. Every plan of supervision should provide opportunities for education in mental hygiene by directing play, teaching discipline, and preparing the child for beginning work later on. Most communities had arrangements for the care of infectious diseases. Measles, scarlet fever, and diphtheria were cared for in hospitals. Whooping cough, which caused more deaths than any one of the other diseases, was not cared for in hospitals, was spread by child carriers, and was allowed to go untreated. If the reports regarding the value of pertussis vaccine continued to be confirmed, it should be

made available in clinics. The maximum number of children that could be properly supervised by one worker was 175, and she would have 35 new children each year, while 35 would graduate from her care. He would give to each worker a group of children of fairly equal age distribution as the procedure to be followed with older groups of children was different from the established procedure for infants, since, in addition to problems of hygiene, those of environment and gaining the cooperation of the mother and child entered in.

Dr. CHARLES HENDEE SMITH said the papers of the evening had brought out a tremendous number of things in regard to the care and observation of children of preschool age. One might talk indefinitely on any one of them. One thing that had impressed him most of all was the necessity of continuous observation of children from infancy up. This meant that the cases must be classified or grouped first. It had been proven time and again that results obtained in any group were directly in proportion to the effort expanded. This had been shown in malnutrition, cardiac, and feeding classes and was equally true for the preschool children. This fact was so obvious that it needed no reiteration, but the question before them was the way in which to attack it. It meant a tremendous number of preschool clinics. It was not a problem similar to that of malnutrition or cardiac disease in which only a certain percentage of children were involved, but all children from two to six years of age must be observed. This meant, first, that the hospitals and dispensaries must separate preschool children from older children and the child must be automatically graduated from the infant group to the preschool group. If a child did not return for observation he must be followed up, not only by the doctor, but a follow-up of the family must be carried out as far as possible within the limitations of their staffs by social agencies. Such a plan had been in operation at Bellevue for two or three years. At this age the cases of intercurrent illness (cold or sore throat, etc.) occurred so often that the mother came for treatment of each child several times a year without much follow-up work. Vaccination, Dr. Smith said, was a part of medical responsibility and if properly assumed it helped to rivet the affection of the family on the hospital or clinic. It was interesting to see a meeting of this kind and size talking about common diet habits and hygiene, and to realize the large number of people trying to advance the new methods of teaching mothers these matters. A few years ago these would scarcely have been considered medical subjects. It was encouraging to see the change of heart that had come over us in the last ten years.

Dr. HILL said that in the Bowling Green Neighborhood Association the mothers were at first unwilling to bring their children to the health center for examination when they were apparently well. They were anxious, however, to have their children vaccinated and by holding out vaccination as an inducement they were able to draw a large number of children to the health center, where a physical examination was obtained before the child was vaccinated.

Mr. GEORGE R. BEDINGER of the New York Chapter of the American Red Cross said he had been in the field such a short time that he could add but little to the discussion. In the work they had begun they were appealing very strongly for the preschool child, and he hoped that as time passed and their work developed it could be extended into this field. At the present time the Red Cross stations were situated near public schools, settlement houses, or neighborhood centers, and in connection with them there were dental and nutritional clinics, and the needs of the younger children were recognized. From the infant welfare clinic at Greenwich House a child could be passed on to the supervision of their nutritional clinic and dental hygiene clinic and there could be referred to a pediatrician. The problem of the preschool child had been recognized for a number of years and a great deal of praise should be given to the hospitals, the A. I. C. P. Community House, the Bowling Green Association, and others who really had done something in this field.

Dr. HENRY DWIGHT CHAPIN stated that he happened to be a member of the Governor's Reconstruction Commission and chairman of the Health Section and had taken a great deal of interest in trying to find out the mortality and morbidity in different parts of the State, particularly in regard to the child. He had found that the preschool child was the neglected child. He had sent out a questionnaire and the replies showed that in 29 communities with 48 infant welfare stations and 7 prenatal clinics there were only 5 clinics for preschool children. In 34 municipalities there were 6 preschool clinics. In New York City there were 83 welfare stations that did little for the preschool child. There were 116 child welfare stations at 67 points in the up-State area. These might do something for the preschool child. Dr. Chapin said he could not altogether agree with Dr. Smith about going back and beginning from the public schools. He thought we should work forward from the infant welfare stations. This work could be extended. It was already organized and in the field. They had places and the work could be extended to include the preschool age. This seemed a comparatively easy way to enlarge the work of the infant welfare stations already in existence and doing such good work. Dr. Chapin stated that he had recommended to the Governor that health centers be established, since in the up-State sections attention to disease was very often inadequate. If we had health centers it would solve many problems, but particularly the problem of the preschool child.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December 14-17, 1920.

ANATOMY.

1. Describe the fibula—articulations—muscular attachments.
2. What muscles or tendons cross the knee joint? Which of them are extensors.
3. Origin and distribution of ophthalmic nerve.
4. Name all structures severed by cross section at middle of arm.
5. Name structures passing through two of these three foramina: (*a*) Foramen magnum, (*b*) Sphenoidal foramen, (*c*) Optic foramen.
6. Minute anatomy of kidney.
7. Attachments, action, and nerve supply of following muscles: Triceps extensor cubiti, gluteus maximus, serratus magnus, scalenus anticus.
8. Where would you locate lesion in case of pure motor aphasia?
9. What variety of epithelium covers the mucous membrane of the mouth? Of the nose?
10. Name openings into pharynx.

PHYSIOLOGY.

1. Describe the physiology of respiration.
2. Give a general classification of foods and state the functions of each class.
3. Name in order the different divisions of the gastrointestinal tract and state the functions of each.
4. Urine. Reaction, specific gravity, average amount voided in 24 hours, amount of urea in 24 hours. What condition will alter the specific gravity?
5. Describe a method of producing artificial respiration. How long should it be continued?
6. Give the functions of the spinal cord.
7. Blood. Specific gravity, reaction, chief constituents, cause of color, ratio to body weight.
8. What changes take place in the heart at birth? What would be the result if these changes did not take place?
9. Where is bile formed? How does it get into the intestinal canal? What are its functions?
10. Define briefly the tissue and mechanisms of digestion and absorption.

ANSWERS.

ANATOMY.

1. The *Fibula* is a long, slender bone, situated in the leg, to the outer side of the tibia. It consists of a

shaft and two extremities. The upper extremity is called the head, and it articulates with the external tuberosity of the tibia; on the head is the styloid process, to which the tendon of the biceps is attached. The lower part of the fibula forms the external malleolus, the inner surface of which articulates with the astragalus, and the posterior part of which is grooved for the tendons of the peronei muscles. The shaft has three surfaces and three borders; to the external surface are attached two peronei muscles; to the internal surface is attached the interosseous membrane. The fibula *articulates* with two bones, the tibia and the astragalus. *Nine muscles are attached* to the fibula: The biceps, to the styloid process; the extensor longus digitorum, extensor proprius pollicis, and peroneus tertius, to the internal surface; the soleus, tibialis posticus, and flexor longus pollicis, to the posterior surface; and the peroneus longus and brevis, to the external surface.

2. *Muscles and tendons which cross the knee joint*.—Vastus externus, vastus internus, crureus, rectus femoris, popliteus, sartorius, gracilis, biceps, semimembranosus, semitendinosus, popliteus. Of these, the first four named are extensors.

3. *The ophthalmic nerve* is the first branch of the fifth cranial nerve; it supplies sensation to the conjunctiva and skin of the upper eyelid, cornea, skin of forehead and nose, lacrymal glands, and mucous membrane of the nose.

4. *In cross section at the middle of the arm*, the following structures are severed: *Skin; fascia; muscles*, biceps, brachialis anticus, coraco-brachialis triceps; *arteries*, brachial, superior profunda, inferior profunda; *nerves*, median, ulnar, musculo-spiral, internal cutaneous, musculocutaneous; *bone*, the humerus.

5. *Structures passing through the foramen magnum*.—Medulla oblongata and membranes, vertebral arteries, spinal accessory nerves, anterior and posterior spinal arteries, and alar ligaments.

Structures passing through sphenoidal foramen.—Branches of lacrymal and middle meningeal arteries; ophthalmic vein; third, fourth, first division of fifth, and sixth cranial nerves; filaments of sympathetic nerve.

Structures passing through optic foramen.—Ophthalmic artery and optic nerve.

6. *Minute anatomy of kidney*.—"The kidney is a compound, tubular gland composed of microscopic tubules whose function it is to secrete from the blood those waste products which collectively constitute the urine. If the apex of each pyramid be examined with a lens, it will present a number of small orifices, which are the beginning of the uriniferous tubules. From this point the tubules pass outward in a straight but somewhat divergent manner toward the cortex, giving off at acute angles a number of branches. From the apex to the base of the pyramids they are known as the tubules of Bellini. In the cortical portion of the kidney each tubule becomes enlarged and twisted, and after pursuing an extremely convoluted course, turns backward into the medullary portion for some distance, forming the descending limb of Henle's loop; it then turns upon itself, forming the ascending limb of the loop, re-enters the cortex, again expands, and finally terminates in a spheric enlargement known as *Müller's* or *Bowman's capsule*. Within this cansule is contained a small tuft of blood vessels, constituting the *glomerulus*, or *Malpighian corpuscle*. Each tubule consists of a basement membrane lined by epithelium cells throughout its entire extent. The tubule and its contained epithelium vary in shape and size in different parts of its course. The termination of the convoluted tube consists of a little sac or capsule, which is ovoid in shape and measures about 1/200 of an inch. This capsule is lined by a layer of flattened epithelial cells, which is also reflected over the surface of the glomerulus. During the periods of secretory activity the blood vessels of the glomerulus become filled with blood, so that the cavity of the sac is almost obliterated; after secretory activity the blood vessels contract and the sac-cavity becomes enlarged. In that portion of the tubule lying between the cansule and Henle's loop the epithelial cells are cuboid in shape; in Henle's loop they are flattened, while in the remainder of the tubule they are cuboid and columnar." (Brubaker's *Physiology*.)

7. TRICEPS EXTENSOR CUBITI. *Origin*, immediately below glenoid cavity of scapula, posterior surface of shaft of humerus between insertion of teres minor and upper part of musculospiral groove, external border of humerus and external muscular septum, posterior surface of shaft of humerus below the musculospiral groove, and internal border of humerus. *Insertion*, olecranon process of ulna and deep fascia of forearm. *Action*, extensor of forearm and elbow joint. *Nerve supply*, the musculospiral.

GLUTEUS MAXIMUS. *Origin*, from dorsum of ilium, behind the superior curved line, from sacrum and coccyx and from great sacrosciatic ligament. *Insertion*. Fascia lata on outer side of thigh and into a line running from the great trochanter of femur to the linea aspera. *Action*. Extension, abduction, and external rotation of hip joint. *Nerve supply*. Inferior gluteal branch of small sciatic nerve.

SERRATUS MAGNUS. *Origin*, outer surface and upper border of upper eight ribs and from aponeurosis of the corresponding intercostal muscles. *Insertion*, the ventral aspect of the vertebral border of the scapula. *Action*, it carries the scapula forward and raises its vertebral border; it is concerned in the act of pushing; it raises the acromion process and assists in raising the arm. *Nerve supply*, posterior thoracic.

SCALENUS ANTICUS. *Origin*. From tubercle of first rib. *Insertion*. Into anterior tubercles and transverse processes of third to sixth cervical vertebræ. *Action*. To flex head and bend the head to the same side; also to aid in inspiration. *Nerve supply*. Supraclavicular branch of brachial plexus.

8. *In case of pure motor aphasia*, the lesion is in the posterior part of the third frontal convolution of the brain (Broca's convolution), just in front of the center of the muscles governing speech; the lesion is on the left side in right-handed persons.

9. The *mucous membrane of the mouth* is covered by stratified squamous epithelium.

The *mucous membrane of the nose* is covered by columnar epithelium; this is ciliated in the respiratory portion, and non-ciliated in the rest.

10. *Openings into the pharynx* are seven in number: two Eustachian tubes, two posterior nares, mouth, esophagus, and larynx.

PHYSIOLOGY.

1. *Respiration* means the taking in of oxygen and the elimination of carbon dioxide. The respiratory act consists of inpiration and expiration. The origin of the impulses is at the respiratory center in the medulla. The phrenics and intercostals are the chief nerves conveying the impulses; and they are distributed to the diaphragm and intercostal muscles, respectively. External respiration is the interchange that takes place between the blood and the gases in the lungs; internal respiration is the interchange that takes place between the blood and the tissues of the body. Respiration causes changes in the air as follows:

	EXPIRED AIR	INSPIRED AIR
Oxygen	16.6 per cent.	21 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon Dioxide..	4.4 per cent.	0.04 per cent.
Other gases	Often present.	Rare.
Watery vapor ...	Saturated.	Variable.
Temperature	That of the body.	Variable.
Volume	Diminished.	Varies.
Bacteria	None.	Always present.
Dust	None.	Always present.

Chemical changes in the blood in respiration. Venous blood is brought to the lungs for aeration (external respiration); after aeration it is carried to the tissues, where internal respiration occurs.

External respiration. Between the air in the alveoli of the lungs and the blood there exists the endothelium of the capillaries and the epithelium of the walls of the acini. Through these two layers the interchanges between the air and the blood must take place. Inspired air contains 21 per cent. of oxygen; expired air contains 16 per cent. of oxygen; therefore 5 per cent. of oxygen is absorbed. The oxygen tension in venous blood as it reaches the lung is low, and so by diffusion of gases oxygen passes from the air in the alveoli to the blood until an equilibrium of tension is reached.

But it is found that the oxygen tension of arterial blood is above that of air, and this extra amount of oxygen is taken into the blood by the selective power of the epithelium lining the acini of the lungs. The oxygen is then combined loosely with the hemoglobin of the blood, forming oxyhemoglobin. The oxygen is combined with the hematin part of the hemoglobin, and the amount absorbed depends on the amount of iron in the hematin (usually about 0.4 per cent.). The oxyhemoglobin is carried by the blood to the tissues. The amount of carbon dioxide in inspired air is 0.04 per cent.; in expired air it is 4.4 per cent.; so that, roughly, about 4 per cent. of carbon dioxide is expired. The carbon dioxide tension in venous blood is high; in alveolar air it is low; and so by diffusion carbon dioxide leaves the blood and passes into the alveolar air until equilibrium is reached and the carbon dioxide is prevented from returning into arterial blood again by the selective action (or biotic activity) of the epithelium lining the acini. The nitrogen of the air is only a diluent, and does not enter into any chemical action. One hundred volumes of blood yield about sixty volumes of gas:

	VOLS. OF OXYGEN	VOLS. OF CARBON DIOXIDE
100 Vols. of arterial blood	20	40
100 Vols. of venous blood	12	48

Internal respiration. Arterial blood leaves the lungs and is carried to the tissues, where the oxygen from the oxyhemoglobin is absorbed by the molecules of proteins, fats and carbohydrates in the tissues; oxidation does not occur immediately, but eventually it does. Some of the oxygen is used to form water, which passes into the blood and is excreted by the kidneys, skin and lungs; but most of the oxygen goes to form carbon dioxide, and this passes back into the venous capillaries. This oxidation is aided by tissue enzymes called oxidases. The carbon dioxide returns to the lungs by the venous blood, in various ways: absorbed to the protein molecules, as Na_2CO_3 and $NaHCO_3$ and a small amount is free in the blood.

2. *Classification of foods:*

I. Inorganic. { Water. / Salts.

II. Organic. { Non-nitrogenous. { Carbohydrates. / Fats. / Nitrogenous—Proteids.

Functions of water.—It enters into the composition of all the tissues of the body, and helps to maintain their consistency, elasticity and pliability; it distributes heat and regulates the body temperature; it moistens surfaces and prevents friction; it maintains the fluidity of the body fluids and enables them to perform their functions.

Function of salts.—They aid in tissue formation, regulate energy and nutrition, regulate the specific gravity and chemical reaction of the blood and other fluids of the body, control the rate of absorption, and they take part in various chemical reactions in the body (such as the formation of hydrochloric acid in the stomach, from sodium chloride).

Function of carbohydrates.—They supply heat and energy, save tissue waste, and spare the proteids.

Function of fats.—They supply energy and heat, nourish the nervous tissues, serve as a covering and protection in the body.

Function of proteids.—Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes.

3. *The divisions of the alimentary tract* are: Mouth (with tongue, teeth, and salivary glands), pharynx, esophagus, stomach, small intestine (duodenum jejunum, ileum) large intestine (cecum, ascending colon, transverse colon, descending colon, sigmoid flexure, and rectum), with liver and pancreas.

In the *mouth*, the food is masticated and mixed with saliva; salty substances and sugar may be dissolved, boiled starches are converted into maltose by the action of the ptyalin. In the *stomach* the food is mixed with gastric juice, more thoroughly triturated, moved around the stomach, and finally expelled into the duodenum. In the stomach the proteins are split up into proteoses and peptones by the pepsin of the gastric juice, and certain bacteria are killed by the hydrochloric acid; starches are not affected; fats are split up by a gastric lipase.

In the *small intestine*, digestion is continued, the proteins being further digested (by the trypsin of the pancreatic juice) into polypeptides and amino-acids; the fats are split up into fatty acids and glycerin; the starches are converted into maltose; and absorption takes place. In the *large intestine*, water is further absorbed, bacterial changes occur, and the residue is prepared for expulsion.

The *functions of the liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

The *functions of the pancreas* are: (*a*) The secretion of the pancreatic juice, which (1) changes proteids into proteoses and peptones, and afterward decomposes them into polypeptides and amino-acids; (2) converts starch into maltose; (3) emulsifies and saponifies fats, and (4) causes milk to curdle. (*b*) The manufacture of an internal secretion.

4. URINE. *Reaction,* acid. *Specific gravity,* about 1,015 to 1,025. *Average amount voided in 24 hours,* about 45 to 50 ounces. *Amount of urea excreted in 24 hours,* about 500 grains. *The specific gravity may be increased,* in: Fevers, parenchymatous nephritis, diabetes mellitus; *it is low* in: diabetes insipidus, chronic interstitial nephritis, functional nervous disorders. Naturally the specific gravity varies with the quantity of urine voided.

5. *Schafer's method of artificial respiration.*—"The subject is laid on the ground in the prone position, with a thick folded garment under his chest. The operator kneels by his side or athwart him facing his head, and places his hands on each side over the lower ribs. He slowly throws the weight of his body forward, and thus presses upon the thorax of the subject, and forces air out of the lungs; he then gradually relaxes the pressure by bringing his body up again, but without removing his hands. This is repeated regularly at the rate of twelve to fifteen times a minute until normal respiration begins, or until all hope of restoration is given up." (Halliburton's *Physiology.*)

6. The *functions of the spinal cord* are: (1) The conduction of nerve impulses; (2) reflex action; (3) coordination; it also contains special centers which preside over definite functions.

In the spinal cord: (*a*) The white substance simply conducts nerve impulses; (*b*) the gray substance contains groups of cells which act as centers for and distributors of nerve impulses, and are also concerned in reflexes; (*c*) the anterior cornua have a motor and trophic function; (*d*) the posterior cornua are sensory.

The *special centers in the spinal cord* are: (1) Cilio spinal center and centers, (2) for sphincter of bladder, (3) for sphincter of rectum, (4) for erection, (5) for contraction of uterus, (6) for maintaining tonus of muscles.

7. BLOOD. *Specific gravity,* about 1,055 to 1,062. *Reaction,* alkaline. *Chief constituents* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteins, fat, and inorganic salts). The *white corpuscles* consist of water and solids (protein, leuconuclein, lecithin, histon, etc.). *Cause of color,* the presence of hemoglobin and its derivatives. *Ratio to body weight,* about one-twentieth of the weight of the body.

8. *The changes that take place in the heart at birth* are: (1) The Eustachian valve atrophies; and (2) the foramen ovale closes. If these changes do not take place, the blood does not become sufficiently oxidized, and the infant suffers from cyanosis. If the ductus arteriosus also fails to close, the infant dies.

9. *Bile* is formed in the liver cells. From the liver, the bile is conveyed to the gall-bladder, and then by way of the cystic duct and common bile duct to the duodenum. *Function of bile* is: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the

intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

10. DIGESTION. (1) *In the mouth* the food is crushed, mixed with saliva, and reduced to a pulp; a certain amount of starch is converted into maltose and rendered slightly alkaline. Fats and proteids are unaltered. (2) *In the stomach*, the contents are rendered acid, conversion of starch into sugar ceases, connective tissue of fats is dissolved, and fats are set free. Proteids are dissolved and proteoses and peptones formed. The albuminous foods are dissolved for the most part, and a grumous mixture of peptones, liquid fats, and starches is formed, which is termed chyme, and is gradually passed through the pylorus into the intestine. (3) In the *small intestine* the chyme is mixed with the bile and the pancreatic juice; the reactions become alkaline. Proteids are split up into proteoses and peptones, and these are further split into polypeptides and amino-acids; starches are converted into maltose; fats are emulsified and saponified; and the products of digestion are now ready for absorption.

The process of digestion is carried on mainly by various enzymes:

DIGESTIVE SECRETION.	ENZYMES.	ACTION.
Saliva	Pytalin.	Changes starch into dextrin and sugar.
Gastric juice...	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic juice.	Trypsin.	Changes proteids into proteoses and peptones, and afterward decomposes them into polypeptides and amino-acids; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.

Absorption is the process by which the products of digestion are taken up into the general circulation. It occurs with greatest activity in the villi of the small intestine.

The products of digestion find their way into the blood by two routes: (1) By the blood vessels of the gastrointestinal tract, which unite to form the portal vein; and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids and sugar go by way of the portal vein to the ascending vena cava; and the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

The process by which absorption is accomplished is partly physical (osmosis and filtration), and is also due in part to selective action. To be absorbed by the blood vessels or lacteals the substances must be in a fluid state, and the more dilute the solution the more rapid the absorption. The absorbed matter must be rapidly removed and fresh blood supplied to the capillaries.

(To be continued.)

Placental Transmission of Epidemic Encephalitis.—Mercier and two others report a case of myoclonic encephalitis in a gravida near term; although the child exhibited the picture of myoclonic encephalitis it nevertheless survived. The disease of the mother did not in the least hasten labor which was clearly full term.—*Gazette des Hôpitaux.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

SOCIAL ASPECTS OF THE TREATMENT OF THE INSANE. By JACOB A. GOLDBERG, M.D. 247 pages. Published by Longmans, Green & Co., New York.

TWENTIETH ANNUAL REPORT MORTALITY STATISTICS 1919. 616 pages. Published at the Government Printing Office, Washington.

DIABETES MELLITUS. By H. O. MOSENTHAL. 29 page book and set of pads in case. Price, $6.50. Published by Paul B. Hoeber, New York City.

GENERAL PATHOLOGY. By HORST OERTEL. 357 pages. Price, $5. Published by Paul B. Hoeber, New York City.

THE ASSESSMENT OF PHYSICAL FITNESS. By GEORGES DREYER and G. F. HANSON 127 pages. Price, $3.50. Published by Paul B. Hoeber, New York City.

ANXIETY HYSTERIA. By C. H. L. RIXON and D. MATTHEW. 124 pages, with frontispiece. Price, $1.50. Published by Paul B. Hoeber, New York City.

DIE LUNGENTUBERKULOSE IM RÖNTGENBILDE. By Dr. MAX COHN. 48 pages, with 10 illustrations and 3 plates. Published by Johann A. Barth, Leipzig.

ASILO COLONIA DE MAGDALENA (Memoria correspondiente al ano de 1920). 114 pages, with tables. Published by the Sociedad de Beneficencia Publica de Lima.

OPERATIVE SURGERY. By Dr. J. SHELTON HORSLEY. 721 pages, with 613 illustrations. Price, $10. Published by C. V. Mosby Company, St. Louis.

MEDICAL EDUCATION IN EARLY NEW YORK. By Dr. SAMUEL BARD. 28 pages, with frontispiece. Published by Columbia Univ. Press, New York.

THE CLINICAL EXAMINATION OF DISEASES OF THE LUNGS. By E. M. BROCKBANK and ALBERT RAMSBOTTOM. 88 pages, with illustrations. Price, $1.50. Published by Paul B. Hoeber, New York City.

THE MANAGEMENT OF MEN. By EDWARD L. MUNSON. 801 pages, with illustrations. Published by Henry Holt & Company, New York City.

CHIRURGISCHE OPERATIONSLEHRE. By Prof. Dr. FRIEDRICH PELS LEUSDEN. 800 pages, with 778 illustrations. Price, 200 marks. Published by Urban & Schwarzenberg, Berlin.

MANUAL OF MIDWIFERY. By Drs. JELLETT and MADILL. 1199 pages with 20 plates and 570 illustrations. Price $10. Published by William Wood & Company, New York.

THE UNCONSCIOUS. By Dr. MORTON PRINCE. 654 pages. Price $3. Published by the MacMillan Company, New York.

THE OXFORD MEDICINE. Edited by HENRY A. CHRISTIAN, M.D., and Sir JAMES MACKENZIE, M.D. Volume IV. 938 pages. Illustrated. Published by the Oxford University Press, American Branch, New York.

MENTAL HOSPITAL MANUAL. By JOHN MACARTHUR. 215 pages. Published by the Oxford University Press, American Branch, New York.

THE SURGICAL CLINICS OF NORTH AMERICA. June, 1921. Vol. 1; No. 3. Published by W. B. Saunders Company, Philadelphia.

THE MEDICAL CLINICS OF NORTH AMERICA. May, 1921. Index number. Published by W. B. Saunders Company, Philadelphia.

PATHOLOGIE UND THERAPIE DES HÄMOLYTISCHEN IKTERUS. By Prof. Dr. M. MOSSE. 50 pages. Published by Carl Marhold.

REPORT OF THE HEALTH DEPARTMENT OF THE PANAMA CANAL FOR THE CALENDAR YEAR 1920. By Col. H. C. FISHER. Published by the Panama Canal Press, Mount Hope, C. Z.

PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING OF THE MEDICAL SECTION OF THE AMERICAN LIFE CONVENTION.

THIRTY-SIXTH ANNUAL REPORT MONTEFIORE HOSPITAL FOR CHRONIC DISEASES.

ETUDES D'HYDROLOGIE CLINIQUE. Published by L'Expansion Scientifique Française, Paris.

Miscellany.

NEW BOOKS AND OLD.

XIII. SOME BOOKS ABOUT PARACELSUS.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

It has always been a matter of surprise to me that no one has ever written a play using Paracelsus as the central figure. Whatever one's opinions are concerning him, there is no question that he is one of the outstanding figures of the beginning of the Renaissance. His teachings and his strenuous life had much to do with the breaking of the shackles of scholasticism, much more indeed than his contemporaries or his critics for a couple hundred years after his death were willing to admit. It is true that the brilliant Viennese playwright, Arthur Schnitzler, has written a little curtain raiser in one act which does not place Paracelsus in a very enviable light. There is also a dramatic dream play in five acts by Arthur Müller called "Paracelsus und der Träumer", which was published about 1912 in Vienna. Browning's poem is familiar at least by name to most of my readers but the story of the man has yet to be presented in play form. If Sacha Guitry could make a play with Pasteur as its central figure, I wonder what the result would be if a man like Sudermann or Wedekind should turn his attention to this brilliant erratic pioneer of medical and chemical thought?

The bibliography of Theophrastus Bombastus Von Hohenheim is considerable, most of it in German, but other writers of other nationalities have written his life and essays on his books and opinions. The chief students in German have been Friederich Mook, who wrote a critical study in 1876; Karl Aberle, who opened Paracelsus' grave and made a study of his skull and skeleton and of the various paintings and drawings that had been made of him during life; Karl Sudhoff, who published extensive studies both alone and in connection with Eduard Schubert and Franz Strunz. The writings of Paracelsus have been translated and edited by Arthur Edward Waite and published in two volumes in London in 1894, and it is to this monumental work that most students unfamiliar with the German language turn.

In addition to the other publications there is the life of Paracelsus and his teachings by Franz Hartmann, the second edition of which was published in 1896. This book which I can recommend as a soporific, for I have had it on my bedside table for a year and have not yet succeeded in finishing it, deals largely with the magical and mystical opinions of Paracelsus and to what Hartmann calls his spiritual truths. As Hartmann says in his preface:

> Paracelsus threw pearls before the swine, and was scoffed at by the ignorant, his reputation was torn by the dogs of envy and hate, and he was treacherously killed by his enemies. But although his physical body returned to the elements out of which it was formed, his genius still lives; and as the eyes of the world become better opened to an understanding of spiritual truths, he appears to illuminate the world of occult science, and to penetrate deep into the hearts of the coming generation, to warm the soil out of which the science of the coming century will grow.

A very readable though somewhat imaginative life was written by Anna M. Stoddart in 1911. This book contains a number of illustrations showing the various portraits that have come down to us. The first is the handsome portrait of the self-satisfied man at twenty-four which was painted by Scorel in 1517 and is now in the Louvre gallery, and the last is one after an engraving from a portrait made at Laibach or Vienna when he was forty-seven years old, showing the baldheaded, disappointed, sad student, marked by the trials through which he had been.

The most recent contribution is by John Maxson Stillman, Emeritus Professor of Chemistry, Stanford University. This, as the title page says, is about the personality and influence of Paracelsus as physician, chemist, and reformer. This little book gives a very delightful account, containing numerous quotations newly translated from the text as originally printed. Both Stoddart and Stillman recognize the great service that Paracelsus did for medical and chemical learning and so for humanity.

Paracelsus was born at Einsiedeln in Switzerland, December 17, 1493. In spite of the fact that he speaks frequently of his common origin he came of a good family, bearing a crest and his father was a physician before him. When the boy was about nine years old his father changed his residence to Villach in Carinthia. In this town there was a mining school founded by the Fuggers, of Augsburg, who were the Rockefellers and Carnegies of that day. It is highly probable that Paracelsus got his early training in this school and so had his attention turned to chemistry and metallurgy. At twenty-two he spent nearly a year in the mines and laboratories at Schwatz in the Tyrol. From this time until his death he was a great traveller, moving from place to place, almost always poor, but with his wonderful personality almost always successful in one way or another. His wanderings have been studied and more or less accurately outlined by R. J. Hartmann. After he left the mines he seems to have served as an army surgeon in Denmark and Sweden. He also travelled in England, France, and Belgium. It is not known whether he ever received a degree of Doctor of Medicine or not during his life.

His opponents said that he had not, but he disdainfully refused to make any comment. He was appointed City Physician at Basle, which position carried with it the duties of a Professor of Medicine. It is said that he owed this appointment to Johann Froben, the book publisher of Basle, who suffering from a painful illness sent for Paracelsus and on receiving speedy relief, the friends of Froben living with him prevailed on the city authorities to fill the position which was vacant at the time. Paracelsus had studied, travelled, and thought, and as he was a man of unusual self-assurance he entered into his new duties with a zeal which, while commendable, was far from politic.

It must be remembered, to understand Paracelsus or any of the other men of his period, that at the time he lived medical practice had fallen to a very low ebb owing to the fact that for a thousand

years or more there had been very little in the way of research and all that was done was to consult the masters, usually Hippocrates, Galen, or one of the commentators. Perhaps Galen in some bastard edition was most used. To dissent from any of the opinions expressed in this work was the rankest kind of heresy. The situation was like that of the family in which the father said to the child, "Whatever your mother says is right whether it is or not," and so it was with Galen. Observation and original thinking were simply not done. The career of Roger Bacon and the fate of Servetus were the things offered to the few who were equipped to further the progress of the medical sciences. Latin was the language of science and any attempt to teach in any other language was regarded with the greatest suspicion. Various attempts were made to break the scholastic shackles. Luther translated the Bible into German in 1521 and other translations followed in rapid succession. Bearing these facts in mind, it is not difficult to see what a furor Paracelsus caused when he advocated a return to the study of the phenomena of diseases, to the use of German instead of Latin in his lectures, and when he cast the works of Avicenna into the flames of a student's bonfire, on the Feast Day of St. John, to show that he was done with authority, Basle was startled beyond measure. His career as a teacher in this town did not last long. He might have remained much longer, in spite of the persecution of his antagonists, but for the fact that a wealthy citizen suffering from a painful illness, offered a hundred guldens for any cure. Paracelsus relieved him but with the recovery of his health the patient declined to pay more than six guldens, whereupon Paracelsus brought suit and the court decided against him. What he said about the action of the judges was couched in terms calculated to lead to severe punishment, so taking the advice of his friends he left by night and so ended his career as a university teacher. But in the short space of time he sowed seeds which were later to reap a bountiful harvest. From now on he wandered from place to place. Space prevents following these perigrinations. He stopped here and there to set up an office as a physician or a laboratory for the pursuit of his studies, and while he was successful in practising and must have had a certain amount of financial success, he was, nevertheless, almost always poor.

Toward the end of his life a trip to Vienna placed him in more or less comfortable circumstances and while there he was much honored. He finally retired to Salzburg where he died in September, 1541. Though less than fifty years of age, his struggles and disappointments and long hours of exhausting labor, had given him the appearance of a very old man. He was buried in the church yard of St. Sebastian. Some fifty years later his bones were put in a place against the wall of the church and a couple of centuries afterwards they were moved a second time. The remains of his skeleton were studied by Von Sömmerring, who gave rise to the myth that he had been assassinated, but this was controverted by Aberle who made a number of examinations of the bones, the results of which were published in the work alluded to above. The translation of the Latin inscription in St. Sebastian's church is given by Stoddart as follows:

Here lies buried
PHILIP THEOPHRASTUS
The Famous Doctor of Medicine
Who Cured Wounds, Leprosy, Gout, Dropsy
And Other Incurable Maladies of the Body, with
Wonderful Knowledge and Gave His Goods to be
Divided and Distributed to the Poor.
In the Year 1541 on the 24th Day of September
He exchanged Life for Death.

Paracelsus was a prolific writer and many of his works were printed during his lifetime, but more after his death. He wrote on all manner of topics, theorizing on the nature of things, on chemistry and metallurgy, on philosophy, on life and death, theology, in fact almost the whole range of the knowledge of his time. He did not spare his enemies but speaks of them in no uncertain language. In fact, he may be regarded as a master in vituperation. Along with so many of the men of his time, he believed in astrology. He rejected the old Aristotelian elements, the fire, air, earth, and water; the hot, dry, moist, and cold; and substituted for them mercury, the principle of liquidity and volatility; sulphur, the principle of combustibility; and salt, that principle which is permanent and resists the action of fire. He divided the macrocosm or external universe into three worlds, the visible tangible; the astral or world of heavenly bodies; and the celestial, or the divine and spiritual. The miscrocosm or man, he divides into three corresponding divisions, the visible and tangible; the bones and muscles and so on; the astral, the sensations; and the celestial, the soul.

Stillman gives a short but clear account of the prevalent medical beliefs of the sixteenth century as regards the causes and cures of diseases, using as a basis the work of Troels-Lund. Paracelsus described five active principles which influence the health of man—the stars, poisons, influences in the nature of the individual himself, influences acting through the spirit, and lastly, the will of God acting directly to produce illness as a warning or punishment. All of these were in vogue at the time in which he lived and Paracelsus wrote extensively explaining the various bases of his belief. A quotation or two from Paracelsus will give some idea of his style:

> That you may understand what it is that heals wounds, for without that knowledge you may not readily recognize the remedy, you must know that the nature of the flesh, of the body, the veins, the bones, has in it an innate force (mumia) which heals wounds, thrusts, and such like things. That is to say, the force lying in the bone heals the fracture, the force naturally contained in the flesh heals the flesh. So with every member, it must be understood, each has its healing in itself and thus nature has in every member that which heals the wounded part. Therefore the surgeon should know that it is not he that heals, but the force in the body. If the physician thinks it is he that heals he deceives himself and does not understand his art. But that you may know for what purpose you, the surgeon, exist, learn that it is to provide a shield and protection to nature in the injured part against enemies, so that these external foes may not retard, poison, nor spoil the force of nature, but that it may remain in its vital power and influence by the maintenance of such protection. Therefore he who can protect and take good care of wounds is a good surgeon.
>
> In nature's battle against disease the physician is but the helper, who furnishes nature with weapons, the apothecary is but the smith who forges them. The business of the physician is therefore to give to nature what she needs for her battle. . . . Nature is the physician.

Paracelsus was usually antagonistic to the rest of the profession, and if anyone is interested in this side of him, they will find in the introduction and also in the body of his work entitled "Paragranum," some interesting examples of writing.

Paracelsus did much to further the development of chemistry and the use of chemical drugs in medicine, so much indeed that the advocates of the latter were frequently called by his name. He was the first to describe zinc and he made a number of contributions to chemical and metallurgical processes. Of his work in chemistry, Stillman says:

> The great service of Paracelsus to chemistry was not in any epoch-making discovery nor in any development of theory of permanent value, but in opening a new and great field for chemical activity in the application of chemistry to the preparation of mineral and vegetable remedies. He not only put into use many known chemical substances in his practice, but he advocated insistently and forcefully the necessity of the knowledge of chemistry to the physician, and emphasized the value of experiment as against dependency upon the records of the ancients.

In medicine he did much. His work, "The Greater Surgery," *Grosse Wundartzney*, went through some nineteen editions and was translated into several languages. He gave a good description of hospital gangrene, made numerous observations on syphilis, and is credited with being the first to call attention to the connection between cretinism of the offspring and goiter of the parents. Some of the students of medical history believe that he was the first to recognize hereditary syphilis.

I have not space to go into the many interesting sides of Paracelsus. If the reader is interested he should read Stoddart or Stillman and if possible take a peep into Waite's translation.

Paracelsus was quite a theological writer, but it would take us too far afield to go into this side of his activities. His orthodoxy was questioned after he died, but he apparently always remained in the church and was buried with the faithful.

Ophthalmology in France in 1920.—Writing in *La Médecine*, Cantonnet states that French ophthalmology has now quite caught up with the war interruption, and gives a brief résumé of last year's progress. Under traumatisms he refers to a paper by Frenkel which shows that disinsertion of the iris is always accompanied by subluxation of the lens. In the article by Castelain and Lafargue on tetanus from eye lesions, it is shown that the onset soon follows the injury, while the death rate has been high—17 in 22 cases. When a foreign body soiled with dirt has entered the eye preventive serotherapy must be practised. In the extraction of magnetizable foreign bodies Rollet makes use of an electromagnet, the attractive force of which may reach 1200 kilos under 25 amperes. The current is begun with a minimum and gradually increased. A sensation of pain is felt if the body is magnetizable, so that this resource is partly diagnostic. With additional current-strength the body is seen to lift the iris in its attempts to reach the magnet, and at times there is hemorrhage into the anterior chamber, from which the body may be extracted by corneal incision. The operator cannot make use of magnetizable instruments. Dor prefers a sclerotic to a corneal incision. Naturally there have been many cases of shell fragments in the eye from the effects of warfare. Under operative techniques Kalt, among others, has returned to corneal suture after cataract operations, as less likely to produce notable astigmatism. Barraquer, instead of compressing the globus to assist in the expulsion of cataracts, would use the suction produced by dry cups. The method possesses several distinct advantages. Eperon enucleates the lens in myopia of over 20 dioptrics, selecting the material carefully and operating on one eye only, in subjects under 25.

Lagrange still advocates his method of increasing intraocular tension, especially in hypotensive myopia and retinal detachment. Van Lint takes up an old idea of trephining the ungual bone in order to drain the lacrymal sac into the nasal passages in chronic lacrymation. Others prefer a resection of part of the bone, followed by suture of the nasal mucosa to the lacrymal sac. Several cases of traumatic exophthalmus have been reported cured by tying one, two, or all three carotid arteries of the affected side.

In experimental work it has been possible to cure gonorrheal ophthalmia by injection of an antiserum into the anterior chamber. Roemer has used autoserotherapy with good results (blister fluid) in corneal ulcers and hypopyon. The eye symptoms of botulism have, of course, been published, and this is still more the case with those of epidemic encephalitis. It rarely happens that ocular symptoms are lacking in the latter.

The contents of the Ophthalmological number of the above-mentioned periodical comprise many short articles of interest. Lagrange gives his technique for the operation of fistulation of the bulbus for chronic glaucoma. In Rollet's paper on diagnosis of phlegmon of the orbit it is emphasized that the mischief may have originated in the frontal sinus, which may be subjected to diagnostic puncture. There need be no symptom which points directly to involvement of this sinus. Frenkel describes the so-called anterior traumatic syndrome of the eye which comprises subluxation of the lens with traumatic cataract, disinsertion or laceration of the iris, traumatic mydriasis, etc.

Chevallereau states, under causes of myopia, that no one is ever born myopic and that the affection comes from working with too close a focus, with resulting compression of the media and lengthening of the eyeball. Jeandelize inserts a retention catheter in the lacrymal duct in all wounds involving that portion of the eye. Cantonnet states, of strabismus, that nearly all sufferers from these deviations can be cured by reeducation, provided the affliction is of recent date and slight degree and the victim has equality of vision and refraction in both eyes. Gonin, in his article on ocular headaches, lays special emphasis on the type due to strabismus. Cantonnet discriminates between the eye lesions in the hypertensive and those of the arteriorenal subject. The former are limited to mechanical rupture of blood vessels, while in the latter there may also be retinitis. In regard to post-bellum trachoma, Aubaret of Marseilles states that the influx of subjects from the Orient has increased the number of cases in his locality. Vacher and Denis would always feel the tension of the eyeball before instilling atropine, for the latter is known to precipitate glaucoma in the predisposed.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 12. Whole No. 2654. | NEW YORK, SEPTEMBER 17, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

THE PATHOGENESIS OF DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA.

BY WILLIAM H. BYFORD, M.D.,

CHICAGO, ILL.

ASSISTANT SURGEON, ST. LUKE'S HOSPITAL.

DUPUYTREN'S contraction was first demonstrated and described by G. Dupuytren in 1831. Since that time the many contributions on the subject have covered most of the aspects of the condition very fully, but the etiology has remained obscure. In the literature, reports of 705 cases have been recorded and an analysis of these, in addition to the 38 cases seen personally, are given in this paper. Unfortunately, most of the data have been given only in a consolidated form and the records of the individual cases are rarely available. Consequently, while these data are valuable in the compilation of statistics, they are of very little value in the investigation of any new theory on the subject.

The palmar fascia, the seat of Dupuytren's contraction, is well described by Keen, who, in his System of Surgery, states that it "is divided into three parts. One lateral part covers the thenar eminence and the other lateral part the hypothenar; these are comparatively thin and extending around the borders of the hand become continuous with the dorsal fascia. The middle and important part of the fascia is thicker, and in part originates from the palmaris longus muscle and in part from the anterior annular ligament. It spreads out like a fan from the wrist downward and divides into four slips, one for each finger. These slips pass down in the median line of each finger and divide at the base of the finger into three smaller processes. The median one of these passes along the palmar surface of the finger, to be inserted into the skin as far down as the pulp of the last phalanx; the two lateral processes surround the tendon sheath and are inserted into the dorsal surface of the first and second phalanges. The anterior surface of the fascia throughout is attached to the skin by small fibrous prolongations. The skin is thus closely adherent throughout." The middle portion may be divided into two layers, the lower of which is composed of transverse fibers and blends with the anterior annular ligament. The upper layer is composed of longitudinal fibers. These longitudinal fibers compose the digital prolongations and are the seat of most of the pathology.

Three varieties of the contraction may be distinguished in which (1) The contraction is limited to the palmar portion of the fascia; (2) the contraction is limited to the digital prolongations of the fascia; (3) both the palmar portion and the digital prolongations are involved. Of these about 35 per cent. are in the first class, about 5 per cent. in the second, and about 60 per cent. in the third.

The appearance of the hand is quite characteristic. Extending from the interthenar concavity to the fingers and often along their palmar surface as far as the first and sometimes the second interphalangeal articulation are raised bands, taut, hard, and closely adherent to the overlying skin. These may extend to as many as all five of the fingers. In the fingers the bands usually lie in the middle of the palmar surface, although in the little finger they may lie to one side. Ordinarily each band is distinct from the others, but that of the ring finger may be connected to either of the adjacent fingers by a narrow fasciculus. The palmar skin is indurated and frequently drawn into dimples or folds running transversely across the palm. Nodules, small shot-like collections of very dense tissue, are frequently present, their usual location being superficial to the bands. At the metacarpophalangeal articulation the skin is puckered into deep furrows by the contraction of the cutaneous attachment of the fascia. In severe cases in which there is marked finger contraction, the skin between the bands is softer than normal from disuse. The contraction results in a flattening of the palmar concavity, the greater flattening being in the longitudinal direction.

The contraction of the fingers varies in degree. In mild cases hyperextension is limited, while in severe the finger is flexed until the tip rests on the palm. The motion in the distal interphalangeal articulation is not often limited, and although the other joints of the fingers may be completely fixed, it is usually quite movable. It may be even hyperextended if the attachment of the fascia passes, as sometimes happens, to the posterior aspect of the last phalanx. The degree of involvement of one finger has no bearing on the involvement of the others. At times one finger, especially the ring, is severely contracted, while the others are not involved at all. Again, there will be a moderate contraction of several of the fingers.

Generally the onset and development of the condition are slow and steady, the first symptom noticed being the increased induration of the palm. Usually the maximum contraction is reached in about a year, although it may come on with comparative suddenness and extreme flexion be

reached in a few weeks. On the other hand, several years may be covered before the maximum is reached. At times a nodule appearing on the palm is the first sign, and this is followed by the development of the band. Rarely do both hands develop together, one precedes the other by a few weeks or months, and the one first affected is the more severe. At times the contraction is intermittent, the hand remaining stationary in the intervals, but this is the exception rather than the rule. Cases have been operated upon before the maximum has been attained and a second contraction followed.

Subjective symptoms are not the rule. When present they are usually a tingling or stinging in the palm. Occasionally they are described as a "drawing" in the palm, extending well up the fingers. One man stated that every few hours he felt a tingling along the bands. Few complain of actual pain.

The diagnosis is not usually difficult. The distinguishing points of Dupuytren's contraction are the cutaneous phenomena and the bands. Paralytic contractions, tendon contractions, and cicatrices are distinguishable by the history and the different physical aspects. The indurated hands of the old show an atrophy rather than an hypertrophy of the fascia. Hammer finger is congenital, due to an abnormal shortness of the lateral ligaments of the affected joints. Cases of congenital Dupuytren's contraction have been reported, but these have not been definitely proven to be true cases. In acquired hammer finger it may not be possible to differentiate the two, although in this condition there is generally the history of an injury and no marked induration of the skin.

Upon dissection these bands are seen to consist of dense fibrous tissue, apparently an hypertrophy of limited portions of the palmar fascia. The fat normally between the fascia and the skin is diminished or gone, and an increase of the fibers connecting the skin to the fascia is present. The bands are distinct, elevated, and tough, and are seen to have origin at the attachment of the palmar fascia to the tendon of the palmaris longus. Their termination may be either at the metacarpophalangeal articulation or well up on the finger, even as far as the distal joint. The tendon sheaths are not involved and the joints are normal. In some of the long-standing cases in which the contraction is very marked there may be some absorption, due probably to disuse.

Microscopically there are variations in the findings of different observers. All agree that there is an increased amount of fibrous tissue and a decreased amount of fat. Chevrot reported a thickened layer of fascia under the skin, sclerotic and fibrous, containing no elastic fibers or connective tissue cells, with a merging of the fascia and the dermis. Anderson found in the progressive cases that "the fibrous strands are intermingled with nuclear proliferation." It is probable that in the progressing cases connective tissue is in the process of formation, while after the arrest of the condition the connective tissue cells disappear and the tissue resumes the characteristics of the palmar fascia.

Statistics vary with regard to the incidence. Anderson in 2,600 adults found it to occur in 1.27 per cent., while in 800 children under 16 years old no cases were found. In 700 examinations Noble Smith found it in 10 per cent., a far higher percentage than the average. Nichols in 1,000 examinations found it in 4 per cent. In a careful examination of 1,000 men at the Cook County Poor Farm, I found 34 cases, or 3.4 per cent. In 106 women there were 3 cases. Averaging these cases, it is present in 3.3 per cent. These statistics are taken in great part from institutions in which the aged predominate. In my own cases the oldest patient was 90, the youngest 31, and the average 70.8 years old. The greatest age at which the condition was acquired was 68, the youngest 25, and the average 47.7 years. There were 5 subjects who did not know the time of onset, either having forgotten or never noticing the condition until their attention was called to it at the time of examination. All of these were very mild.

Men are affected five times as frequently as women. Despite the general opinion to the contrary, men engaged in manual labor are less frequently affected than those who do not engage in manual labor. Keen in 123 cases found 49 performing manual labor and 74 not performing it. Black in 131 cases found 63 laborers and 68 nonlaborers. In the 292 in which this point is taken up, 136, or 46.5 per cent., were laborers and 156, or 53.5 per cent., were not. In the 38 cases personally examined, 24 were laborers and 14 were not. This discrepancy may be attributed to the fact that by far the greater number of inmates of the poor farm are at an age when their physical usefulness is past, while their mentality is but slightly changed. As a consequence the exlaborers predominate. No insane or feeble-minded person was examined, in order that the histories might be as intelligent and truthful as possible.

Of 592 cases, 294 were bilateral and 336 unilateral. My series showed 25 bilateral and 13 unilateral cases. This may be due to the fact that the condition had been present for such a long time; 20.3 years was the average length of time the contraction had been present. In 336 unilateral cases, 225, or 69.9 per cent., the disability was of the right hand, and in 111, or 30.1 per cent., of the left. Of my 13 unilateral cases, 9 were of the right and 4 of the left. Of the 25 bilateral cases, 10 had the right hand involved first, 8 the left, 5 both together, and 2 did not know which hand was first. The average length of priority of the right hand was 5.9 years, of the left hand 4.2 years. The average of one hand before the other, including the 5 cases that came on simultaneously, was 3.8 years.

Of the 38 cases, 10 were palmar, 2 digital, and 26 both digital and palmar. In all, 63 hands were affected, 43, or 69 per cent., involving both palms and fingers; 18, or 28 per cent., being palmar only, and 2, or 3 per cent., digital only; 61 palms and 68 fingers were affected.

Of the 68 fingers: The ring finger was involved 35 times, or in 51.4 per cent.; the little finger was involved 18 times, or in 26.5 per cent.; the middle finger was involved 10 times, or in 14.8 per cent.; the index finger was involved 4 times, or in 1.4 per cent.

Of the 61 hands involved: The ring finger was involved in 57.3 per cent.; the little finger was involved in 29.5 per cent.; the middle finger was involved in 16.4 per cent.; the thumb was involved in 6.5 per cent.; the index finger was involved in 1.7 per cent.

The average number of fingers affected in each hand was 1.14. The most fingers affected in any hand was 5 (1 case).

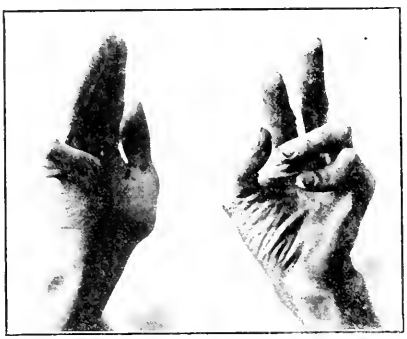
Case Number	Bilateral	Unilateral		Palmar		Digital		Palmar and Digital		Injury to Hand	Constitutional Disease	Rheumatism	Pyorrhea	Abscessed and Carious Teeth	Right Hand First	Left Hand First	Both Hands Together	Laborer	Non-Laborer	Age of Onset
		R	L	R	L	R	L	R	L											
1	+							+	+			+	+	+			—	+		25
2	+							+	+	—		+	+	+	+			+		54
3		+						+	+			+		+				+		29
4	+							+	+			+		+	+			+		61
5	+							+	+			+		+				+	+	56
6	+			—	+															
7	+			—	+												+			59
8	+							+												
9	+			—	+					—			+						+	50
10	+							+												47
11	+							+	+			+	+	+		+		+		20
12			+						+			+		+					+	37
13			+						+											37
14		+																		
15		+					+	+					+	+						25
16	+							+	+			+		+					+	
17	+							+	+		+	+	+	+	+				+	60
18	+							+	+			+	+	+		+			+	46
19		+																		
20	+							+	+			+	+	+				+		64
21	+				+			+												
22		+									+	+	+	+		+			+	63
23			+		+							+		+					+	51
24	+			+	+						+	+		+				+		30
25	+			+	+															32
26		+		+								+		+		+			+	38
27	+									+										20
28	+							+	+			+	+	+	+			+		54
29	+							+	+			+	+	+		+	+		+	51
30	+	+						+	+	+		+		+				+		68
31	+							+	+	+										45
32			+		+							+		+						48
33	+							+	+											58
34	+							+	+			+	+	+	+			+		59
35	+							+	+			+		+		+		+	+	55
36	+							+	+			+		+						33
37		+		+														+		36
38		+				+						+	+	+				+		47

Many theories have been advanced to explain the etiology of Dupuytren's contraction. In 1888 Abbe advanced a neuropathic theory in which a primary injury of the palm, often slight, causes a reflex contraction of the fascia, which in turn sets up another reflex, affecting the other palm sympathetically. Kingsley reported a case cured by two hypnotic seances. It has been attributed to a contraction of the palmaris longus muscle, and to an active low-grade infection. However, no contraction of the palmaris longus has been demonstrated, and neither organisms nor inflammatory tissue have been found. At the present time two theories are in vogue, the first of which is that external agencies are the causative factors. Irritation and trauma from the use of tools, golf sticks, ropes, strains from turning handles, injuries of all kinds and infections of all grades are included in this list. To this theory are several pertinent objections. The larger proportion of people affected are those in whose lives manual labor plays but a small part. Most people are right-handed and so have the right hand exposed to more trauma and stress, yet about 30 per cent. of unilateral cases are found in the left hand. In the bilateral cases about 40 per cent. start in the left hand. The thumb, index and middle fingers are most used and exposed to trauma, yet the affection is least common in these fingers. In the 50 described by Nichols, "In 30 cases there was no history of local irritation, recent or remote." In the 38 cases examined by me, 5 showed a possible etiological factor in a local condition; 4 cases had an injury or strain of one hand from six months to two years before the onset of the contraction. Two of these were bilateral cases, the second hand being affected within two years of the first without sustaining an injury. Of these, the second hand in one instance showed a more severe contraction than the first. The fifth case had had the little finger amputated for "blood poisoning," and nine months later the contraction developed in the ring finger of the same hand. A sixth case was hit on the knuckle by a baseball, but no relationship could be established between the injury and the contraction. Undoubtedly many other minor injuries had been sustained, but of so mild a character as to leave no impression on the patient. The injured cases were 13.4 per cent., too small a percentage for a probable etiology.

The other theory and the one held by most extensive investigators, among them Keen and Black, is that the contraction is due to a constitutional condition. Except for 23 cases associated with rheumatism, which will be discussed later, only 7 cases had constitutional disease. Of these one was associated with diabetes, one with syphilis, one with myocarditis, one with endocarditis, and one with attacks of recurring tonsillitis. One had had a cholecystectomy 10 years before and the other had had an amputation of the right foot and one-half the right leg 8 years previously for a tuberculous osteomyelitis of the tibia of several

years' standing. An eighth case had been blind since early youth. Teschemacher found 33 cases in 213 diabetics. Excepting rheumatism, this is the only condition found with any frequency.

Unfortunately, most of the literature gives no complete tabulation of the previous or concurrent diseases, and very few histories are set down at length. Nichols, however, gives a complete tabulation. A very illuminating statement is that, "In 42 of the cases (total 50) there was a history of rheumatism, in at least half of which the rheumatic symptoms were only slight and occasional, the other half had rheumatic attacks of all degrees of severity." A few lines quoted from one of his histories are interesting. "About the middle of January, 1896, he was seized with a severe attack of acute rheumatism, during which various joints were affected and a stiffening of his neck developed. During this attack a marked fascia contraction developed in both hands, the left preceding the right by two or three weeks." Again, to quote from one of his histories, "Concurrently with the appearance of this rheumatoid attack a marked contraction of the fascia of the right palm



Case No. 8, showing marked contraction of palms and three lesser fingers of both hands with hyperextension of the distal phalanx of the left little finger.

developed, reaching its maximum in the course of about two months." Of the 23 cases of my own associated with rheumatism, 20 cases knew the time of onset of the contraction. In 8 the rheumatism came on nine months to 28 years, with an average of 11.3 years after the contraction. Twelve cases had rheumatism before the contraction, from 1 to 55 years, with an average of 14.8 years. Of the latter, 3 developed the contraction during an attack of rheumatism; in 1 case the contraction increased during each attack, remaining stationary in the intervals. Of the 3 cases that did not know the time of onset of the contraction, one had had rheumatism for 3 years, one for 5 years and one for 20 years. No cases were considered in the above tabulation who had not had a definite and clear-cut attack. Many of the cases who are considered to have had their attacks after the development of the contraction had had vague attacks before. In Nichols' cases the two conditions were associated in 84 per cent. and in mine in 60 per cent. An interesting observation was made by Girdwood.

"The patient, a man of about 40 years of age had had asthma and bronchitis for over 15 years to my knowledge . . . on account of the expiratory dyspnea, and he has to bring all his external muscles of respiration into play. In order to do this he requires a fixed point to work from, which he gets by pressing his hands firmly on the bed. This pressure on the hands has caused the absorption of the palmar fat and the subsequent adhesion of the skin to the fascia."

In this two possible sources of the contraction are revealed, a local and a constitutional.

A patient from my private practice first seen about a year ago, had a severe contraction of both palms, ring and little fingers and a beginning contraction of both middle fingers. The condition had been progressing steadily for about two years. Subjective symptoms were present, consisting of tingling and drawing in the palms and affected fingers, lasting for a few seconds and occurring every 4-5 hours. Physical examination showed the above contraction of the hands and a similar condition of both feet. He also had a postoperative hernia following a cholecystectomy, and an almost useless set of teeth. He had marked pyorrhea and several sinuses from alveolar abscesses. He was advised to have the abcessed teeth removed, their sockets opened up and curetted out, and the other teeth thoroughly cleaned. He complied with the above advice except that he had the abscessed teeth extracted instead of surgically removed. Within two weeks the subjective symptoms disappeared and the contraction remained stationary for six months, at the expiration of which time he returned, complaining that the tingling and drawing had reappeared and that he had noticed an increase of the contraction. A second examination showed a return of the pus and tartar on his teeth. X-ray films showed two more teeth abscessed and a suspicious spot at the site of one of his teeth that had been previously extracted. The two teeth were surgically removed, the granuloma curetted out, the left antrum of Highmore drained through one of the tooth cavities that opened into it, and since that time he has been free from symptoms.

The physical examination of the cases here reported showed them to have about the same physical defects as other people of their age and occupation. However, one very marked condition was noted, the almost universal disease of their teeth. In 5 instances all teeth were gone, in one spontaneously starting as a child, in one all teeth having been extracted for toothache between the ages of 12 and 62, and 2 having had all extracted for toothache when middle-aged. Eleven showed 8 or less teeth, in every instance being markedly decayed. Three cases showed active alveolar abscesses with sinuses. Twenty-one showed pyorrhea, in each instance severe. Twenty had teeth fall out spontaneously, the greatest number being 32 and the least 2. Thirty-six had had teeth extracted for toothache, the most being 32 and the least 1. Twenty-nine showed markedly decayed teeth, 19 had decayed teeth and pyorrhea together. Twelve complained of having had severe toothache for ten years or more before the onset of the contraction. Five showed teeth in fair condition, of these 4 had had rheumatism, 1 with recurrent attacks of sore throat, 3 with no etiological factor determinable. In 2 of the latter the contraction came on during an attack of rheumatism.

Rheumatism is now quite generally considered to be due to a focal infection. The association of rheumatism with Dupuytren's contraction in from 60-84 per cent. of cases makes it evident that a focal infection is at least quite commonly present in the latter condition. In 34 cases dis-

eased teeth were demonstrated. In 1 recurrent tonsillitis with rheumatism, and in 2 rheumatism without demonstrable etiology, in which, however, the rheumatism and the onset of the contraction were concurrent, were present. A source of infection was thus present in 97.3 per cent. It is evident that Dupuytren's contraction is frequently associated with rheumatism, and probably, like rheumatism, is the result of bacterial action at some remote part of the body. The most common location of this focal infection is in the teeth. In only one case was there opportunity to put this theory into practice. That case, described above, responded very well.

The treatment is purely surgical. X-ray, fibrolysin, ionization, and the iodides have all been tried without result. Dupuytren dissected out the fascia and involved skin, allowing the wound to heal by granulation. Adams was an exponent of subcutaneous division of the bands, followed by splinting, for a long period of time. Aseptic surgery has caused this method to be abandoned, and the open operation with dissection of the palmar fascia from the skin and from the underlying structures is generally performed. This is usually followed by splints, constantly in application for one month, intermittently for another month, and at night for from six to eight months.

Hutchinson in his Hunterian address in 1917 offered a somewhat more complicated but better treatment. He believes that the long-continued splinting results in frequent stiff joints and recurrence of the contraction. He makes a palmar incision and dissects out the fascia. If the case is recent, no further surgical procedure is necessary, and the fingers after a few days, a week at the most, are moved passively and soon actively. Except during the first few days, no splints are used. Many times, especially in long-standing cases, the joints (particularly the proximal interphalangeal) have become fixed from a contraction of the lateral ligaments, and, after the fascia has been removed, the finger still cannot be extended. He makes an incision over the dorsal surface of the proximal phalanx, divides the extensor tendon, exposes the head of the proximal phalanx, cuts through the neck and dissects out the head. The extensor tendon is then shortened, sutured, and the wound closed. If there is difficulty in closing the wound on the palmar surface of the finger, he uses a flap from the side of the finger. The aftertreatment is the same as in the recent cases.

He works through a palmar incision parallel to the bands. The Y-shaped and V-shaped incisions give a good exposure, but leave an extensive scar of the palms that is often a source of great inconvenience. Gill, in 1919, used a transverse incision conforming to the distal fold of the palm. The scar from this gives very little trouble.

In operating on these hands the surgeon must be sure that the contraction is stationary. That long splinting would cause a stiffness of the joints is not improbable, but that it would cause a recurrence of the contraction does not seem reasonable. To insure against a second hypertrophy and contraction of the fascia, a thorough examination should be made and all sources of infection removed. A careful measurement of the contraction compared with a second measurement six months later will indicate whether or not the condition has become stationary. If it has been stationary for six months after the removal of all infected tissues, the probability of a second contraction is small.

Conclusions:

1. Dupuytren's contraction is frequently associated with and closely allied to rheumatism.
2. It is probably due to bacterial action at some point other than the palmar fascia.
3. The most common site of this infection is in the teeth.
4. All foci of infection should be removed to prevent progression of the contraction.
5. A period of six months should elapse between the removal of these foci and the treatment of the contraction itself.

REFERENCES.

Gill, A. B.: *Annals of Surgery*, vol. lxx, 1919, p. 221.
Hutchinson, J.: *Lancet*, London, 1917, vol. i, p. 285.
Girdwood, R.: *British Medical Journal*, 1916, vol. ii, p. 650.
Tubby, A. H.: Tr. Int. Cong. Med. Lond., 1914, Sect. Orthop., ii, 371.
Levi, Leopold: Bulletin de l'Académie de Médecine, January 14, 1913.
Toschmacher: *Deut. med. Woch.*, 1904, No. 14.
Anderson, Wm.: Deformities of the Fingers and Toes, London, 1897.
Anderson, Wm.: *British Medical Journal*, January 10, 1891.
Kingsbury, G. C.: *British Medical Journal*, January 10, 1891.
Abbe, Robert: MEDICAL RECORD, March 3, 1888, p. 236.
Lockwood, C. B.: Trans. Path. Soc. of Lond., 1885-6, vol. xxxvii, p. 499.
Smith, Noble: *British Medical Journal*, March, 1884, p. 603.
Keen: *Philadelphia Medical Times*, 1881-2, vol. xii, p. 370.
Richter, P.: Bulletin de la Société de Paris, 1877, p. 124.

480 MAPLE AVENUE.
BLUE ISLAND, ILL.

POST-SOMATIC PSYCHOSIS.*

BY B. LEMCHEN, M.D.,
CHICAGO, ILL.
PHYSICIAN TO THE CHICAGO STATE HOSPITAL

UNDER this heading I would include those psychoses that develop after a physical ailment from which ailment the patient has recovered, such as infectious disease, confinement, trauma, in discharged soldiers, or in chronic alcoholics after they have stopped using alcohol. The influenza epidemic, the war, and prohibition have given a good opportunity to study those psychoses more closely.

I will first describe a few of the cases that were received at the Chicago State Hospital during the last few years and will discuss them afterwards.

CASE I.—Margaret G., American, 21 years old, single, admitted Nov. 2, 1918. Family and personal history negative. On Sept. 23, 1918, she was taken with influenza, was sick for two and one-half weeks, when she commenced to improve and in a few days was up and about. Five days after she recovered mental symptoms developed. She began to talk irrationally, would laugh and cry, imagined she was talking to different kinds of people, that she was in France; thought she heard

*Read before the Irving Park branch, Chicago Medical Society, February 21, 1921.

her parents who were dead and her brother who was killed in France. When admitted she was entirely clouded in mind and restless. Five days after she was admitted she gave her name correctly, thought that she was in Cook County Hospital, that it was May 26, but couldn't give the year. She was asked why she came here. She answered to be born. She was asked if she ever heard of Dunning (the previous name of the Chicago State Hospital). She replied, "Why should I be in Dunning? It is a nice place to be in when there is nothing wrong with my mind and I have no goiter." She told the examiner that she was born in France on May 26, that she was 16 years old. Her father was 29 and her mother 19 years old. Her general knowledge was tested. (Patient had been two years in college.) She could name the President and the Mayor of Chicago but not the Governor of Illinois. She couldn't name any of the large cities in the United States nor could she give the boundaries of the United States. She was asked about the war and she said it began in Ireland and is now in France. Then she talked in a rambling manner that couldn't be followed. She wouldn't state whether she was hallucinating or not. Her stream resembled those of a dementia precox subject. Her physical examination was negative. From the beginning she became worse, her stream became more rambling; then she commenced to improve, and finally recovered. On Nov. 25 she told the examiner after asking her name, "Let me see my lost whiskey. What else do I have to know? Can you fix my tooth? Are you a dentist? I was sick with childbirth pain. I have a goiter, the church is Rom, seven sons." She was singing and restless but not violent. She admitted hearing voices and was disoriented in all spheres. On Nov. 27 she recognized the place as the Chicago State Hospital, otherwise her stream was still so rambling that it couldn't be followed. On Jan. 6, 1919, she gave the name of the place and told the examiner she came to the hospital because she was sick; then she began to ramble about glass and teeth, and could not give the date. However, she knew that the examiner examined her before. She told him that voices told her she had seventeen brothers, etc. Her behavior varied; some days she would behave well, while on others she would be restless, tear her clothes, break dishes, and use profane language. On March 19, 1919, she commenced to improve gradually and on March 29 she was oriented in all spheres, was quiet, self-possessed. However, she was shy and it was hard to get answers from her, but when she did answer it was to the point. She also gained in weight. The improvement was constant and on April 7 she was paroled in the care of her brother and apparently has recovered.

Case II.—Laura B., colored, American, 29 years old. Admitted Nov. 21, 1918. Family and personal history negative, except she was a moderate user of alcohol. She had influenza, from which she recovered, and was well for four weeks when mental symptoms developed. A week before she was admitted at the Chicago State Hospital she ran away from home, and went to the police station, and asked the police where she was. The police, recognizing that there was something wrong with her mind, took her to the Psychopathic Hospital. The reports from the Psychopathic Hospital stated that while there she was disoriented in all spheres. Had visual and auditory hallucinosis, ideas of poisoning, and threatened the psysician. When admitted to the Chicago State Hospital she could give her name but not the name of the place. However, she knew it was a hospital and said she came on account of influenza. The date she gave as Monday, April 26 (it was Saturday, Nov. 23). She was asked if she had heard of Dunning. She replied: "Is this Dunning? Do you think I will ever go home?" She began to cry and when asked why she cried said it was because she was in an asylum. She stated she had been in the hospital a week (two days was correct). Her personal identification she gave as follows: She was born in 1878 and is 29 years old; she married three times in two years, had three children, one died at 20, one at 16, and one at 15 years. She couldn't correct any of the discrepancies. Her general knowledge was also poor. Physically, she was well nourished. Examination of chest and abdomen was negative. Neurological examination. Pupils reacted sluggishly to light, speech defective, deep reflexes exaggerated, there were fine tremors of the tongue and outstretched hands. Her mental and physical findings were suggestive of paresis. However, the spinal fluid was entirely negative—no cells, no globulin and the Wassermann was also negative both in the fluid and blood. The patient remained in about the same condition until the middle of December, when she commenced to improve, and in the first part of January she became oriented in all spheres. She also knew the length of time she was in the hospital, how she came out to the hospital, and what was done for her when she arrived at the hospital. She denied all forms of hallucinosis, knew that she was sick, had good insight. Her general knowledge was also as good as could be expected from a woman of her station. The physical findings also disappeared and she was paroled in care of her husband on January 8, 1919, apparently recovered.

Case III.—Luey T., Armenian, age 21, married three years, had two children. Admitted January 16, 1919. Family and personal history negative. Four weeks before she was admitted she had influenza and was sick for a week. After she recovered her child took sick with influenza and died. A week after her child died mental symptoms developed. The husband stated she commenced to talk queerly, changed from subject to subject, ran about the house, and seemed to be afraid. However, she knew everyone. When admitted to the Chicago State Hospital she gave her name correctly. Told the examiner she knew where she was and that she could speak English. However, she spoke mostly Armenian, which the examiner did not understand and so could not follow her stream. She was very restless, running around the ward; her mood was changeable, would laugh, then cry. At times she showed considerable fear, at other times was playful. She would look at the physician, smile, shake her head, wink with her eyes, then suddenly without any reason would cry. When first admitted she refused food and the physician had to spoon feed her; then she commenced to take water from the nurses, and later milk, then also solid food. She talked mostly in Armenian and the physician couldn't follow her stream. However, the second day after she was admitted her husband, who is also an Armenian, visited her and he told the examiner that at first she knew him but later she talked so that he himself could not understand what she was saying. She remained in about the same condition until February 3, when she commenced to improve, and would answer questions intelligently for a few minutes at a time. She told the examiner that she could not talk English well, that she was hearing voices telling her that she was no good, was restless and at times would cry at the top of her voice. She also improved physically. On March 7 she was happy, laughed, ran around the ward, always doing something, was talkative but spoke only Armenian. On March 12 she was restless, noisy, and at times violent, would not keep her clothes on. April 28 she could give her name and the name of her husband but she didn't know where she was nor how she came to the hospital. She told the examiner that she had the influenza before she came to the hospital and that she did not like the hospital but wanted to go home to her baby; apparently she did not remember that her baby was dead. She heard no more voices, but was still restless; happy, but destructive to her clothing. From that day on she continuously improved and on May 25 her husband, who was visiting her quite often and talked to her in Armenian, said she spoke normally, and as she had acted normally for several weeks, she was paroled in her husband's care apparently recovered.

Case IV.—Elsie H., American, age 31 years. Mother of a child 10 years old. Admitted March 6, 1919. Family and personal history negative. On January 10, 1919, she gave birth to a child, and was all right until five weeks after delivery, when suddenly, after she had had supper, she complained of being tired Then she cried and thought she was going to die and according to her husband, who gave the history, she raved all night. She got better the next day, but got worse the same afternoon, when she raved, sang, cried, laughed, etc. When admitted to the Chicago State

Hospital she was very restless, resistant, and apparently mentally clouded. It took several nurses to give her a bath. She pounded with her fist on the wall. No sensible information could be gotten from her. She only gave her first name correctly, and occasionally would say "one cent," "orange" but would not explain what she meant. On March 10, when the examiner asked her her name, she answered: "Take me home; this is a hospital, and I suppose I am sick." Then she asked the examiner where her clothes were. She told the examiner that she heard voices but they told her nothing. She asked the examiner whether he was Herman L. (which was afterward found to be her father's name, and the examiner bears no resemblance to him). She asked the examiner whether he died and came to life again; asked if uncle was living. She told the examiner she liked it here, but was not going to stay; was going to 2113 G Street, and gave her name correctly. In her behavior she was violent and restless; would run around the ward, and was still confused, but recognized that she was at a hospital and not at her home. On March 3 she told the examiner that she was tired of this place: the people here were mean to her, and she had nothing to eat the whole day. She cried and said she wanted to go to her children. She was sick and getting sicker; insisted that the physician was Herman L. On March 27 she refused to talk to the physician. When the examiner tried to speak to her she turned her head away from him. On the same day she attacked her husband, who was visiting her, broke a window at the hospital, and cut her forearm. She remained in the same condition till June 27, when she commenced to clear up. She told the physician that she remembered coming out to the hospital in a trolley, but couldn't remember on what date; thought she was at the hospital about three months. She remembered some of the things that had happened during her stay there. She had a nervous breakdown, and it seemed to her like a dream. She remembered seeing and hearing many different things. Saw soldiers and camels marching; thought she went through a tunnel in an airplane; thought she was dead and buried; the physician looked to her like her father-in-law. At first she thought what she saw and heard were real, but now she knew that it was all an imagination. She had good insight in her condition. She could give no reason why she should have had a nervous breakdown as she lived a happy life. Her improvement was steady, and she was finally paroled in her husband's care on June 30, 1919. She was seen several times afterward and had made a complete recovery.

CASE V.—Mary B., female, American; colored; aged 30 years. Was married twice. Has one child 12 years old. Her father was drowned accidentally, otherwise her family and personal history was negative. Admitted February 6, 1919. The patient was well till three months ago, when she pricked her hand with a safety pin. It became infected, and the whole arm became swollen. She was in bed, and a physician treated her every day until the hand got well. Then she became delirious. The physician told her husband that she must stay in bed, but she would not stay in bed, and became unmanageable. She refused food at times. She would say they were giving her poison. She would talk all day and night, but no one could understand what she was saying. Finally the physician advised them to send her to the Psychopathic Hospital. The Psychopathic Hospital records state that after her admission over there she developed a myo- and endocarditis, and her condition was very grave. When admitted to the Chicago State Hospital she was in a confused state. She was asked her name and answered: "Yesterday I was so frightened that I told you my name was B., but it is not, as I married the other fellow. Just call me Mary, and you will make no mistake." Then she pointed toward the door, and said: "Did you see the accident of my mother, father, and grandmother? It happened right outside here. They got killed." She cried, and said: "Papa was afraid of the fish." When asked for an explanation of her statement, she said fish that swim in water. She pointed toward the wall, and asked: "Who does the shooting?" Then she looked toward the ceiling, smiled, and said she saw so many lights. (The electric lights were on that day.) She looked around, and said: "This place is nice and clean; is this a hospital?" She was asked whether she was sick and she answered, "My mind feels funny." She was asked whether she thought that she was insane and she answered, "I should say not." She turned her head backward and showed considerable fear. When asked what frightened her, she answered that there were so many women in white sheets coming up, and they frightened her. She could tell how long she had been at the hospital, but could not give the date. She was asked if she knew what month it was, and replied, "Christmas I came in, and this is May or March." She told the physician that she was first in the county hospital, on account of an infection of her left hand which spread to her arm. While at the county hospital she saw lots of spooks walking around in white sheets and heard cutting of wires and big bombs that were thrown there at night. Sometimes she could not remember everything that happened to her while there. She said that this morning, when ready to go on the boat, some one walked with her. She looked about the ward and said, "This doesn't look like the place they took me in yesterday." She suddenly became frightened and said she could hear different voices. "Mrs. Williams says she will shoot me and Mr. Kelly asserts that I did not respect the German flag." She gave her personal identification as follows: She was born in Arkansas; is 27 years old; reached the seventeenth grade at 15 years of age; married at 16 years. Her husband is in the lake, down here (pointing toward the pond on the hospital grounds). She has a girl, 14 years old. She had more, but only one came to time. She is a Methodist. Her father, mother, and grandmother got drowned. (Only her father was drowned.) Her general knowledge was tested. She could name the President, but not the Governor of Illinois, or the Mayor of Chicago. She could name two of the large cities in the United States and two of the great lakes. She was asked about the recent war, and she stated the Germans and Americans were fighting, and most all the other countries. "They say the Germans lost, but they are still fighting." She was asked of the previous wars this country had, and she answered, "We were fighting Spain and a dozen other wars. Abraham Lincoln freed the slaves. George Washington was a general, and he fought against the North." She was very poor in figuring. Physical examination revealed: Head negative. Heart rapid, 120 per minute; sounds weak, but no murmurs. Lungs negative. Abdomen negative. Neurological examination: Pupils did not react to light; there was considerable tremor of the tongue and outstretched hands; gait was ataxic, and knee jerks exaggerated. Spinal fluid was negative; no cells; negative chemical tests, and a negative Wassermann. Patient remained partially clouded for a long time. On March 25, 1919, she had an epileptic seizure, and after the seizure she became still more clouded, lying in bed for three days in a stuporous condition. On the fourth day she commenced to talk, and asked why people were saying things about her, and why they hacked when she was eating her food. She gradually improved physically, but not mentally, except she became somewhat clearer. She tried to get out of the ward, watching the door; would strike the other patients without apparent cause; became restive and negativistic. She thought she was pregnant. As an example of her stream, on June 17, 1919, she said: "My mind is sick; not strong. Sometimes I feel all right, while at others I do not. It seems that something is moving in my abdomen. I came here about Christmas. Two children; a girl 12 years. This is the middle of June, 1919, and something. I was feeble when I was on 19 (the name of the receiving ward). I cry when I remember the baths. Do you know what I know?" etc. She continued in about the same condition until the beginning of the year 1920, when she commenced to improve mentally, and on February 23, 1920, she was paroled in care of her husband, when she was clear, oriented, with good insight, and on May 22, 1920, she was discharged as recovered.

CASE VI.—Emma S., Norwegian, 43 years old; married three years; no children. Admitted March 26, 1920. Family and personal history negative. Her husband stated that the patient was well up to a

couple of months before she was admitted, when she commenced to repeat sentences over and over again; would talk about moving pictures; would dress in men's clothing, and walk on the streets; would get out of the house in the middle of the night, and walk on the snow for hours at a time. Would pull down the shades and hang newspapers over the windows; would hang a sheet over the door, saying she was doing it because she was watched and spied upon. At times she would rave, saying she was going on the stage to become an actress and marry a prominent man. The records from the Psychopathic Hospital state that while there her orientation and memory were good; general information and calculation fair; was restless and indifferent; had many mannerisms and speech disturbances. She said she was brought there by her husband. Admitted auditory hallucinosis. When examined here she was found to be clear and oriented; gave her personal identification correctly. Told the examiner that before her marriage she worked as a domestic and led a promiscuous sexual life. However, she never had any venereal disease. She was nervous since 1913; could not sleep, and for that reason contracted the drinking habit. She has been drunk on many occasions; would consume as much as a pint of whiskey a day. However, she stopped drinking about a year ago, and has not drunk any since. She married three years ago, and her married life was a happy one. Since last winter she has been hearing voices in Swedish and English. She never was able to identify whose voices they were. The voices told her that she was a bad woman; she was foul, immoral, a German spy, and her nephew who was in the army would have to die to atone for all this; that people would be killed on account of her, etc., which made life miserable for her. However, with all this she was not depressed emotionally, but rather indifferent. Her consciousness was clear and was well oriented. Her general knowledge was as good as could be expected from a women of her station. Physically her knee jerks were exaggerated. No evidence of peripheral neuritis. Her pupils were unequal, the left smaller than the right, and fixed; she had had an injury to her left eye when she was 18 years old. Spinal fluid was entirely negative; no cells; chemical and Wassermann tests were negative. She gradually improved, the voices became less frequent, and finally disappeared by May 6, at which time she was given a ground parole. She developed insight, and was paroled in care of her husband on August 2, 1920, as recovered.

CASE VII.—John W., American, 39 years old; single. Admitted June 8, 1920. Family and personal history negative. Patient reached the eighth grade in school, was a stove repairer. He was drinking heavily for eight or ten years. His sister, who gave his history, had often seen him intoxicated, but for the last two years only occasionally. This was the first attack of mental trouble the patient had ever had, the records from the Psychopathic Hospital stated. While there orientation, memory, general knowledge and information were good. He was restless and happy. Stated he heard ringing in his ears; felt a paralytic stroke through his whole body; thought something was wrong with his blood; thought the people next door to him were after him, and threatened to get him on account of his money. While here the patient stated he was drinking heavily up to two years ago, when he stopped. Dated back his present trouble to three weeks before his admission, when he rented a room and told the landlady that he had a baseball lottery ticket and he had a good chance of winning, and he thinks now that a woman that had a room next to his must have heard it. The next evening he noticed two men and two women sitting in that woman's room with the light turned off. As he passed the room he heard them talking, and thought he heard his name called. As he returned to his room he heard one of those women ask him why he did not spend some of his money, and why he did not ask them into his room, and made indecent remarks about him. He thought he had better get out of such a place, so he dressed, went out on the street, took a car, and rode a while. Then he went to one of the parks and remained until the next morning. The next day he told the landlady that he would move by the end of the week. He went down town, rented a room in a hotel, went back to his room to get his belongings, and told the landlady why he was moving, and he thinks the other woman must have overheard it, as he heard her say she would get him yet, even if she had to follow him all over the world, and that he would have no more rest. He believes now that the woman must have been connected with a bunch of crooks or crooked policemen. He worked during the day, and would go fishing in the evening. One evening, while sitting on the pier, two men sat down on one side of him and three men on the other side, and a short distance away was an automobile in which he recognized the same woman sitting with two other men. The two men came over and talked with the two men that were sitting near him, and it seemed they were talking about him, as they were looking in his direction. He became frightened, got up to get a street car; then those men got in their automobile, and when he arrived near a car they were only a short distance from him, and two of the men got out of the automobile. He took the first car he could get and rode toward town, transferring several times, when he left the car and went to look for a policeman. When he met one he told him his troubles, and the policeman advised him to go to the station and swear out a warrant against those men. After arriving at the station he was afraid of leaving the place, and asked the police to let him stay there over night, which they did. The next morning the police would not let him out, telling him they would have to find that woman; that it would be too dangerous for him to be outside, and he was taken to the Psychopathic Hospital, and from there he was sent out here. Now he thinks that the police were in league with that woman, and were carrying out her instructions. Mentally he was clear, oriented; his general knowledge was good. He was well behaved, and took good care of his person and dress. Physical examination was negative, so were the laboratory tests—no cells. Chemical and Wassermann tests negative. From the time of his examination he gradually improved, taking an interest in the activities of the institution, and was paroled in care of his brother-in-law on September 9, 1920. He was seen several times after his parole, and apparently has recovered with good insight.

CASE VIII.—William S., American, 49 years, married. Admitted June 3, 1920. Family and personal history negative. Present trouble as given by his wife: Patient was well up till April 1, 1920, at which time he was hurt and taken to the County Hospital where he was unconscious for six days. Was operated upon at the County Hospital for a skull fracture. Two weeks later his right eye became inflamed. He was taken home but was going to the hospital for dressings. Then he developed expansive ideas. He thought he was a United States marshal, a police officer, said he was in an airplane, etc., and was taken to the Psychopathic Hospital. The records from the County Hospital state that he was admitted there April 1, 1920, suffering from a skull fracture, otitis media, and mastoiditis. The cause of the injury was unknown. He left the County Hospital May 21, 1920, in apparently good condition. The records from the Psychopathic Hospital state: Physical, right side facial paralysis, recent mastoid operation and panophthalmitis of right eye. Mental, orientation and memory good. Retention and calculation fair. General information and judgment good. Stream of talk. Patient is attentive, cooperative, and talkative. States he received a head injury two weeks ago and was taken to the County Hospital where he remained seven weeks in Ward 21. Left there last Friday, and he was also in Ward 4. When he was admitted to the Chicago State Hospital he was quiet, clear, showed no confusion. The only thing peculiar about him was his circumstantiality. He told the examiner that he left a store at 4:20 and got on a street car and rode to Thirty-fifth and Iron Streets; he was waiting there for another car on the north side of the street. The sidewalk was crowded so he walked across the tracks by the southbound street car. He was standing with his back to the car on the sidewalk; an automobile came along, turned around; the car skidded into the sidewalk. The door of the automobile opened, and struck the patient, knocking him across the walk, against a building, and he was knocked unconscious.

That is what people told him, for he was hurt so bad that he couldn't remember anything. When he came to himself he was in the County Hospital. He told the examiner, when he came to himself, he felt elegant, he recovered the sight in his right eye which became totally blind. (He was blind in the right eye.) He also told the examiner that he was a United States Marshall, a special policeman. Four months ago he went to Grand Park, where he met a friend who took him in an airplane, etc. He could give his personal identification correctly, his general knowledge was good, and he denied hallucinosis. He gradually improved, developed insight, and was paroled in his wife's care on July 20, 1920, in fairly good condition. He visited the hospital a few weeks after his parole and seemed to be in good condition. On September 20, 1920, he was returned to the hospital from his home in an apprehensive state; he was afraid something might happen to him, and was agitated; however, he was clear and well behaved. On October 10 he had a convulsion involving one-half of his body and died the same day. An autopsy was performed by the coroner's physician, who found that he had an old hemorrhage on the right cortex with a septic meningitis.

CASE IX.—Abraham L., Russian Hebrew, aged 29 years, in United States four years. Was admitted to the Elgin State Hospital November 2, 1917. Their records state that his family and personal history were negative. According to his aunt, who gave the information, in July, 1917, he was riding a bicycle to work when he was struck by an automobile, receiving a head injury, and was taken to a hospital, where he remained three weeks. For two weeks he did not recognize anyone and since then he had not been in a normal mental state. He worked very little, everything got mixed up in his head, and they would not keep him in any place. Recently he imagined that his wife, who is in the old country, is here. When he saw a woman with a baby carriage passing he imagined it was his wife and wanted to go to her. Talked about a man wanting to kill him because he worked so fast and accomplished so much in the shop. Thought he knew every one he saw. Was talking and walking around the house all the time. Cleanly in habits. Not violent. Memory good. Stated many people are watching him. An investigation by the Bureau of Personal Service brought out the following facts: He was injured on July 13, 1916, was taken to the St. Luke's Hospital, where he stayed three weeks. After leaving the hospital he was at his aunt's home for two months and was able to work the following six months. A letter from St. Luke's Hospital says he was received there on July 13 and remained until August 5. He had a basal skull fracture and was discharged as improved. From notes taken in the Elgin State Hospital we learn that when he was admitted there he was dull and uninterested, frequently declining to answer, telling the examiner that he (the examiner) knew better than the patient. Showed a letter in Yiddish that he had written to his wife and when the examiner asked him what it contained he stated he wrote his wife that he was crazy. He was clear and oriented and the examiner could not demonstrate hallucinosis nor delusions. A note on February 6, 1918, states that he was transferred to the male infirmary very untidy and destructive. On February 12 his mind seemed to have so deteriorated that he was unable to answer any questions. He seemed completely demented. He would sit around the ward as if in a stupor, but at times was very destructive of his clothing. There was no organic physical defect, but the physician believed he was failing physically. On February 26 the Wassermann test was positive. He was having convulsions. On March 22 he was very restless and noisy, and threw a tray of dishes at another patient. On March 25 he had a hemorrhage from his bowels. By April 3 he had quieted down considerably. A large abscess on the buttocks which contained a large amount of yellow pus was opened. On April 30 there was no change. He usually lies in bed with his bedclothes over his head and is either quiet or groaning. Occasionally, especially at night, he gets up and does impulsive acts such as breaking windows or flower pots. He also destroys his bedclothes. His physical condition is steadily getting worse. On August 31 a note of the Chicago State Hospital states that the patient was a transfer case from Elgin State Hospital, being in very poor physical condition; he had been restless and untidy. Had a marked diarrhea and was greatly emaciated. He was sent to the hospital ward, where he gradually improved mentally and physically, beginning to take an interest in his surroundings. Worked first on the wards, then at the employees' dining-room, and was finally paroled to his wife who came to this country, on August 15, 1920, greatly improved, and as far as we have heard he is getting along well.

CASE X.—Samuel H., American, colored, 30 years old, married. Admitted to the Chicago State Hospital on February 11, 1920. Family and personal history negative. Present trouble, as given by his wife: He was drafted in the United States Army on August 1, 1918. He went to France but never was in a battle. Was mustered out July 25, 1919. After leaving the army he was getting along all right until two weeks before his commitment, when he complained of backache; then he stopped working and talked at random. Said someone had put a spell on him six years ago and it was to take effect this year. Said he was losing his mind. He went to a doctor, who prescribed for him. He took one dose of the medicine, then refused to take any more, saying the next dose would kill him. He thought they wanted to kill him so they could take his wife and wealth from him. Tuesday night before he was committed he could not sleep and was continuously getting up looking out the window. He said someone was trying to get into the house. The next morning when the door bell rang he went to the door with his revolver in his hand. Then he went into an epileptic status and four or five fits. The wife stated that this was the first time he ever had fits. The next Thursday he had fits all day. He took the ironing board, put it on two chairs, and laid himself on it as he were dead. Said if anyone talked to him he would lose his soul. Sprinkled salt over the floor, saying this was to keep out the man that wanted to kill him. The records from the Psychopathic Hospital state that the physical examination was negative. Orientation was fair. Memory for past and present events good. Retention good. General information, calculation, and judgment poor. Emotional attitude apprehensive. Stream of talk. Patient talks continuously about hallucinations and prays to be saved. When admitted to the Chicago State Hospital he was oriented and clear, except for a short period of syncope. When an attempt was made to puncture him he became apprehensive, unclear, and almost fainted. He became depressed and said, "A heap of time I feel I have no friends and everybody is against me, then again I feel like I have plenty of friends and can get along all right." He said a fortune-teller frightened him by foretelling that he would lose his mind and would work so hard that his heart would fail. Then he said when he left here he would seek an easier job, and he has no longer that sad feeling. When the examiner mentioned to him some of the facts given in the history, he said he must have been crazy but he was not crazy now. He had a partial amnesia for things that happened to him prior to his commitment. His physical examination and laboratory tests were all negative. During the time he was in the Chicago State Hospital he was not observed in any epileptic attack. He gradually improved during his stay there; he lost his anxiety state, became clear again, took an interest in his surroundings, and was paroled to his wife on July 20, 1920. We learned since that that patient is working, getting along well, and apparently has recovered.

CASE XI.—Roy M., American, colored, single, 20 years old. Family and personal history negative. Present trouble: According to his aunt, who gave the history, the patient went to the army a year and a half ago. Was sent to France, where he spent several months. Returned to this country April 13 and as far as his aunt observed him he was well but rather restless. Shortly after she noticed he was not sleeping well. He would be up at night walking about the room. When she asked him what was the trouble he said he was on guard duty. One time he went out, taking fifty or sixty dollars with him, returning in a few hours telling his aunt he gave all his money away. Everyone he met seemed in need. He seemed happy.

He would start to do some work but would never finish it, starting on something else. He was not irritable nor did he fight. He would go into other roomers' rooms and help himself to their ties, collars, or other articles, which he would wear in the house in the presence of the owners. When spoken to about it he would return the articles without any argument. The records from the Psychopathic Hospital state: Physical examination negative. Oriented as to time and place. States he went to the Red Cross to look for some work and because he was nervous they sent him here. He often hears voices of women asking him when he is coming home. Some of his friends want to kill him because they are jealous of him for taking away their girls. When admitted to the Chicago State Hospital he was active, happy, and showed an elevated mood. Talked and joked about the things which happened to him before he came here. Was not resentful toward his aunt for committing him. Took everything as a joke. Denied hallucinosis. Told of some of the battles he was in while in France, stated he was a year and a half in France. He was at the front at Château-Thierry and at other places. Landed in the United States February 10 and was discharged February 14. He was feeling fine at that time. He went out and was celebrating for about three days and nights, drinking most of the time, but was intoxicated only once. Following this he became nervous and could not sleep. He remembered getting up and walking around at night. He felt fine even if he did not rest. He remembered telling his aunt he was doing guard duty but was only joking. Physical and laboratory tests were negative. This patient gradually improved, became less restless, took an interest in his surroundings, and was paroled July 25, 1919, as improved. He was returned on September 2, as he again had become restless, etc. He remained the second time until November 26, during which time he improved considerably, and then was again paroled and discharged February 25, 1920, as recovered.

Case XII.—Herman B., American Hebrew, 24 years old, single. Admitted to the Chicago State Hospital December 11, 1919. Family and personal history negative. Present trouble, as given by his mother: Patient was drafted June 1, 1917, but was not sent overseas. He was discharged February 22, 1918. He seemed normal and returned to work. Seven weeks before he was committed he became restless, did not sleep well, and had a very poor appetite. For three or four days he walked the floor day and night. A brother of the patient went to the bad and the police were searching for him, and the patient worried about his brother's actions. He then developed the idea that he himself would be mistaken for his brother and be locked up, as he looked like his brother. He thought that the police and detectives were following him. While he was in the Psychopathic Hospital he thought that his mother's head was cut off and that his sister had been killed. However, after he had been there two or three days he forgot about it. One day when his sister visited him at the Psychopathic Hospital he would not let her come into his room, saying he had an infectious disease and she might take it. While at home he took iodine, saying he wanted to die. One day he took scissors and a knife, saying he would kill himself. He turned on the gas but he turned it off again, saying he was afraid he might injure the children on the floor. Said he would jump into the lake. Cried all the time, saying he was innocent and why should everyone look on him in this strange manner. Said he was going crazy. The records from the Psychopathic Hospital Stated: Patient is oriented. Memory and retention good. Calculation and judgment good. Stream of talk. Patient entered hospital voluntarily for depression and insomnia and since his entrance has developed hallucinations and paranoid delusions. Feels electricity and smells bad odors; thinks his food is being poisoned, that people are after him, and that we have murdered his mother and sister. Emotional attitude depressed. When admitted to the Chicago State Hospital he was agitated and anxious, would pace the floor and wring his hands. Talked and moaned to himself. He developed ideas of references and unworthiness; said people watched him and talked about him; had auditory hallucinosis of a depressed nature. A week later he told the physician he was hearing voices in both ears. They asked him if he killed his mother and if he did, why? He was to figure out whether he was dead or not. He was very religious. He kept muttering to himself, many of his phrases coming impulsively without external stimuli. He spoke a great deal about his experience in the army, about God, about his business. Complained of stomach trouble and pain in the eyes, that his head was turning around and that he could not sleep. Talked back to the voices, saying he was not a dope fiend nor a murderer, he was not crazy, nor a bad man. He was apprehensive that he was going to die, to be shot or hung with a chain around his neck. He was oriented and clear with no psychomotor retardation. His general knowledge and memory were good, but showed some blocking. He would say: "I am twisted again. Electricity or something else; since in the other hospital, where they had electric baths and stuck me with pins and needles, I can't think straight." His physical and laboratory tests were entirely negative. A note dated February 25 states: Patient is depressed and cries a good deal. At times he asks to be killed. Has active hallucinosis and thinks his pepole are being murdered. A note dated March 1 states: Patient is receiving hydrotherapy. In conduct he is more quiet; in mood he is still depressed. He is more inaccessible now than before, but realizes he is not acting as restlessly as he did when admitted. A note on September 6, 1920, states: It is found that the patient, while still in the hospital, has improved considerably. He is not so agitated, but is quiet and well behaved. He is well oriented and has insight. He can give his name and the name of the hospital correctly; he knows how long he has been at the hospital, and gives the date correctly. When asked why he came here, he says that Dr. Meyer sent him to the Psychopathic Hospital, as he was nervous and could not sleep at night. Half of the time he would not eat or take care of himself. The reason he did not eat was because he had no appetite and he was discouraged. However, there was nothing wrong with his mind except that he was melancholic. At present, when he sleeps, he hears people talking to him, but he does not hear them while awake. He is better now than he was when he first came here, but does not think he will ever get his health back. He has no enemies. No one bothers him, nor is there any one after him now. States it was an imagination at the time he thought that people were after him. He realizes now that it was foolish for him to imagine such things. He is getting better in his head, but sometimes he gets pains in his stomach, possibly because he eats so much. The past six weeks he has felt better than at any time since he went to the Psychopathic Hospital. He wishes to go home now. He is clear. His personal identification is well given and his general knowledge is as good as can be expected from a man of his station, and he gives well the incidence of his commitment. When asked about the recent war, he states he was in the army ten months and he likes the army. He is sorry now that he did not stay in the army, as that is a great life; he learned there how to take care of himself, and he never was sick while in the army. His improvement was steady and he was paroled September 27, 1920, improved.

I could give the histories of many more of those cases. The Chicago State Hospital has admitted several hundreds of such cases, not all of them, however, running such a favorable course. The great majority are still here and run a course resembling that of the dementia precox group. However a close observer will easily distinguish them from the dementia precox group. The symptoms of postsomatic psychosis are: Sudden onset; fear; confusion, from a mild degree in which the patient is unable to tell time to a deep one in which he is even unable to find his way about the ward; slight amnesia; hallucinosis mostly of the auditory type. Physical findings of exhaustion; in some cases the physical findings may even simulate paresis in the

Argyl-Robertson pupil, speech defects, ataxia, etc. Right here I may state that the very fact that we find physical and mental symptoms resembling general paralysis in post-somatic and exhaustion neuroses and in veronal, bromide, and chloral poisoning goes to prove that the symptoms of general paralysis are not due to the location of the spirochetes in the brain nor to their destruction of neurons, but it is due to toxins which the spirochetes liberate. The prognosis of post-somatic psychosis is better than that of dementia precox and general paralysis. From 40 to 50 per cent. recover under proper treatment.

Etiology.—No more is known of the etiology of post-somatic psychosis than is that of any other psychosis. However, the mind is a biological force due to reactions of cells or a biological reaction, and cells will react to the kind of nourishment they receive and their environment. By modifying the culture media and temperature we can convert virulent bacteria into comparatively harmless ones and the reverse. By changing the food and environment we can change some vicious animals into harmless ones and some of our domestic animals into vicious ones. In all infectious diseases the circulating serum is changed owing to the formation of antibodies which are more or less of the nature of a globulin. However, they differ in their composition and reactions and we are inclined to call them now the albumins. We find them sometimes in the cerebrospinal fluid. Some will be precipitated by butyric acid but not by ammonium sulphate; while others will be precipitated by ammonium sulphate but not by butyric acid. Others again will be precipitated by phenol but not by either ammonium sulphate or butyric acid, others again will be precipitated by colloidal gold in various dilutions. So far the antibodies have been studied on the side of the good they do to the organism but not on that of the damage they do. In one disease, syphilis, where we can measure to some extent the antibodies by the Wassermann reaction, we actually find that the improvement in the patient goes hand in hand with the disappearance of the antibodies. The mental symptoms in patients recovering from an infectious disease may be due to the alteration in the serum which causes the neurons to react differently. What is true of infectious diseases is also true of pregnancy. In pregnancy antibodies are formed in the mother to counteract the destructive tendencies of the ovum toward the mother's tissues. The same is true in alcoholics. In alcoholics there is also something formed to neutralize the injurious effects of excessive indulgence in alcohol. In trauma, during repair the serum must surely be altered. In soldiers, especially during the war, the fact that the hardships and fear that influence so much digestion and the organs of internal secretion may also alter the serum in the blood should surprise no one. We may conceive that, in the majority of people after returning to normal, the altered albumins will be reconstructed by some of the organs of the body of which the liver, thyroid, and suprarenals seem to play the chief role. While in others those organs for some reason or other do not reconstruct the altered albumins in the serum and a psychosis will result. More research along these lines is very desirable.

Treatment.—Prophylaxis. Great care must be exercised by the physician in the case of patients who are recovering from bodily ailments or from confinement. Many patients are allowed to get up and take upon themselves the responsibilities of life too soon. We must assure ourselves that the patient has recovered sufficiently before he is allowed to take up his previous vocation, and then he or she should take up this previous vocation gradually. As post-somatic psychosis is apparently due to an exhaustion of the neurons or to an albuminous body circulating and irritating the neurons, our aim must be to strengthen the neurons and to destroy that albuminous body. The best nerve tonics we have are nuxvomica, continuous baths at a temperature between 90 and 94° F., massage, salt rubs, moderate exercise, easily digested and wholesome food, such as fresh eggs, chopped meat well stewed, plenty of milk, fruit, and fresh vegetables, and cheerful surroundings. So far as the destruction of the albuminous body is concerned, we know that the liver, thyroid, and suprarenals are the principal organs whose function it is to do that work. We must see to it that those organs functionate properly, or if they do not we must help them by supplying thyroid extracts and adrenalin as indicated. Unfortunately we have not as yet isolated anything that will take the place of the function of the liver cells. However, ox-gall is known to stimulate the liver cells to greater activity and it should be tried in cases where we suspect that these do not functionate properly. The symptomatic treatment by means of laxatives, sedatives, etc., when needed, must be left to the discrimination of the attending physician.

OBSERVATIONS ON B. ACIDOPHILUS:*

ITS BACTERIOLOGICAL CHARACTERISTICS AND POSSIBLE THERAPEUTIC SIGNIFICANCE.

BY LOUIS M. GOMPERTZ, M.D.,

NEW HAVEN, CONN.

ASSISTANT CLINICAL PROFESSOR OF GASTROINTESTINAL DISEASES, DEPARTMENT OF MEDICINE, YALE UNIVERSITY.

AND

MARTIN G. VORHAUS, M.D.,

NEW YORK

BACTERIOLOGIST, HARLEM HOSPITAL.

THE interest of the medical profession in intestinal microorganisms was first aroused in 1880 by the discovery and isolation of the *B. typhosus* by Klebs, Eberth, and Koch. Nothing was known at that time of those organisms which have since been called the typhoid-colon group, so that when Escherich announced the discovery of the *B. coli* a distinct and important step was taken towards a lucid classification of fecal bacteria. Yet it remained for Tissier to prove that Escherich had included the *B. bifidus* with the *B. coli*, and in his publication definitely differentiated these two groups of fecal bacilli. With this announcement, the Gram positive bacilli became the subject for investigations and finally in 1900, Moro described the *B. acidophilus*, giving its distinctive characteristics.

It is with this organism that our study has been carried on. Before setting forth some of the results of this work, let us briefly consider the bacterial

*Read before the American Gastro-Enterological Association, June 6, 1921, at Boston, Mass.

changes in the human intestine from birth to adult life.

The meconium is sterile, but immediately after birth becomes invaded by microorganisms. Their number, however, is never large, as meconium is a poor culture medium. Nevertheless, *B. coli* has been recovered from meconium passed ten hours after birth. The intestinal flora of the breast-fed infant is predominately Gram positive and consists chiefly of *B. bifidus* and *B. acidophilus; B. coli* and other bacteria are present, but in insignificant amounts. The flora of a bottle-fed infant, however, shows a goodly number of *B. coli, Streptococcus lacticus*, and staphylococci, although *B. bifidus* and *B. acidophilus* still predominate. As soon as milk ceases to be the main constituent of the child's diet, the Gram positive element of the intestinal flora rapidly diminishes and *B. bifidus* and *B. acidophilus* exist only in small amounts.

In the adult, the character of the intestinal microorganisms is dependent largely upon the nature of the individual's diet. With the normal mixed diet, the *B. coli* and allied bacteria are found in high predominance, completely overshadowing the *B. acidophilus* which is often found only after a prolonged search. The adult on a milk diet, however, has a considerable number of Gram positive *B. acidophilus* in his feces, and at times, on an exclusive milk diet, these organisms even predominate the intestinal flora.

However, the great majority of adults ingest large, if not excessive, amounts of protein and the average fecal flora is composed of from 80 to 95 per cent. of *B. coli* and allied bacteria. It is in these individuals that we so often find extensive intestinal putrefaction.

For years, the large intestine has been regarded as furnishing the etiological factor responsible for many diseased states, and it was the trend of medical thought that in whole or in part, the absorption of bacterially split protein derivatives was causing the premature onset of senile changes in the arteries, heart, kidney, and so forth. So that when Metchnikoff in 1906 offered his Bulgarian bacillus as a means of destroying the *B. coli* and thus eliminating or minimizing intestinal protein putrefaction, it was hailed with considerable enthusiasm. We know now, however, that the administration of large doses of live *B. bulgaricus* cultures does not decrease the number of *B. coli* present in the intestines of animals or man; and furthermore it has been conclusively demonstrated that *B. bulgaricus* cannot be implanted in the human intestine in spite of radical changes in the diet. But Metchnikoff's work has not been in vain and his ingenious theory has inspired others to find a means of holding in check the *B. coli* in vivo.

For some time Rettger of Yale and his coworkers have experimented with *B. acidophilus* on animals and man. They have shown definitely that this organism can be implanted in the intestinal tract and that coincident with this implantation there is a gradual decrease in the number of *B. coli* to a point where they represent 10 per cent. or less of all the fecal bacteria. Their experiments with rats have also shown that this same effect may be produced by the ingestion of large amounts of lactose or dextrin.

Rettger's important bacteriological findings suggested to us a clinical study of this organism and we began administering *B. acidophilus* cultures to a number of human subjects suffering from marked chronic constipation with its typical and well-known symptoms. Encouraged by the markedly beneficial results reported to us by these patients, we then turned our attention to that large variety of intestinal disorders known as the chronic diarrheas, the results of which will be mentioned later. We will now discuss the method of administering the *B. acidophilus* cultures.

At first fermented milk was given. This was prepared by inoculating sterile milk with *B. acidophilus* and allowing it to incubate at 37.5° C. for from forty to fifty hours. Either whole or skim milk may be used. The dose is from a pint to a quart daily given preferably before meals in amounts ranging from one-half to one tumblerful. This method, however, proved to be inconvenient from a practical standpoint, thereby necessitating a different means of administration. A broth culture in which this bacillus grows luxuriantly, giving the optimum concentration, was finally used.

The broth is so prepared that each c.c. contains one hundred million *B. acidophilus* organisms and the dose is from 10 to twenty c.c., two, three, or four times a day, before meals, depending entirely upon the response of the individual.

The technique of preparation of the broth is simple and is as follows:

1. To 1000 c.c of distilled water add
   4 gms. Liebig's meat extract
   10 gms. Merck's peptone and
   5 gms. sodium chloride.
2. Heat over free flame until thoroughly dissolved, stirring constantly.
3. Titrate and adjust to required reaction; *Ph.* 6.9—7.0 *neutral.*
4. Sterilize in 1 liter flasks for 1 hour in Arnold sterilizer.
5. Filter bouillon *cold* the next day through filter paper, until clear.
6. Add to clear bouillon, to 1000 c.c. 50 gms. of lactose (5 per cent); shake well, until sugar is dissolved.
7. Pour media in flasks (300 c.c. in each ½ liter flask).
8. Place the flasks, stoppered with cotton, in the autoclave for 25 *minutes* and sterilize at 15 *pounds pressure.*

These flasks are then inoculated and incubated at 37.5° C. for about sixty hours. They are then removed and the clear supernatant fluid is decanted. This simple procedure gives approximately a concentration of one hundred million bacilli to each c.c. The culture is then distributed in sterile eight-ounce bottles and kept cool until used.

In this medium *B. acidophilus* grows luxuriantly, although growth is not perceptible until the end of forty-eight hours. This fact is of considerable practical importance for it affords a simple and yet accurate means of determining the purity of the growth. The usual laboratory contaminants, which are the *Bacillus subtilis* and *Staphylococcus albus*, show a luxuriant growth in this medium at the end of twenty-four hours. Furthermore, these contaminants are more or less evenly distributed and the

contaminated flasks show a uniform density. The growth of *B. acidophilus*, however, is a thick, heavy, slimy growth which settles quickly to the bottom and leaves a clear supernatant layer of bouillon above. Thus the contaminated flasks are easily detected and thrown aside.

The *Bacillus acidophilus* is Gram-positive, varying in shape from short to long rods. On lactose agar it forms small whitish-gray colonies with wavy margins. It grows slowly, being hardly perceptible at the end of twenty-four hours. This organism ferments milk, producing acid slowly so that the milk does not usually begin to sour until incubated for about thirty to thirty-five hours.

Recently, in the preparation of this broth, sodium phosphate instead of sodium chloride has been used. This salt acts as a buffer, and by neutralizing the acid formed, will, we believe, increase the length of time of viability of the culture. This work, however, is still incomplete.

In carrying on this clinical study, *B. acidophilus* cultures were first administered to individuals whose only obvious ailment was chronic constipation. These patients have been under constant observation for a period covering five months or less. Only cases of the severest type were chosen, and particularly those of many years' standing. In a short time these subjects experienced considerable relief and maintained, while on the treatment, a state of excellent health. The following is an illustrative case:

The patient, a male, fifty-two years of age, a professor in Yale University, had been constipated since boyhood. For twenty years he had never had an action of the bowels except by means of cathartics, which were taken daily. He has been troubled with repeated attacks of erythema multiforme and at one time had a persistent eruption which was finally found to be due to phenophthalein. Has worked hard, but latterly felt his ambition waning without being actually ill. His urine was loaded with indican and the stools were dark, very foul, and filled with colon bacilli. January 18, 1921, he was put on *B. acidophilus* culture in two-teaspoonful doses, four times daily and all cathartics were stopped. For three days he had no action of the bowels; then there was a copious stool, and since then there has been a normal daily movement. The stools are yellow, formed, and inoffensive. Indican has disappeared from the urine. This man states that he feels better than he has for a long time.

Of fifty cases of chronic constipation, forty-two gave satisfactory results. Of the chronic diarrheas, again only the severest cases were tested, and to date ten cases out of twelve have shown marked improvement. These individuals have been under constant observation ranging from three to five months.

The following is an illustrative case of mucous colitis of six years duration:

A woman forty-three years of age has had painful intestinal contractions with the evacuation of large quantities of mucus, which at times has been blood streaked and diarrheal in character. This patient was distinctly neurotic and had gone the rounds of osteopathic, chiropractic, and allopathic practitioners. She was given the numerous treatments recommended without much relief, and finally was placed upon *B. acidophilus* treatment early in February of this year. At first there was an increase of her bowel movements but the treatment was persisted in and after the first week, regular formed bowel movements began and have continued up to this time, accompanied by relief of her pain. The blood has entirely disappeared from her stool. During the treatment no restrictions whatever were placed on the diet in either type of cases.

Bacteriological and microscopical studies of the feces have been made on patients and show the same changes as Rettger demonstrated. Before treatment, the fecal flora showed Gram negative bacilli (the *B. coli* group) in high predominance, often representing ninety to ninety-five per cent. of all fecal organisms. From two to three days after the beginning of the administration of B. acidophilus cultures by mouth, they are first demonstrated in the stool. From that time on they increase in number until on the fifth or sixth day they represent about ninety per cent. of the fecal microorganisms. At the same time there occurs a proportionate decrease in the number of *B. coli* until they are present as less than ten per cent. of all the intestinal bacteria. From the sixth day on, while the culture is being taken, the fecal flora consists predominantly of Gram positive rods, regardless of the character of the individual's diet.

When the administration of the culture ceases, the *B. coli* begin to increase, slowly at first, until the fifth or sixth day, at which time they again are present as the predominant type of bacteria. If, however, lactose or dextrin is included in the diet, this transition may be retarded considerably.

As the change from Gram negative to Gram positive flora takes place, there occurs a change in the physical characteristics of the feces. The fecal masses become larger, softer, lighter in color, and comparatively odorless, while evacuation is unattended by griping pains. The stool, moreover, is usually formed, regardless of the amount of the culture ingested.

The work of Rettger mentioned above, has opened up a large field for investigation. In this paper we are reporting the results of a small clinical study. The results are highly satisfactory and we hope to continue work along similar lines. The therapeutic properties of *B. acidophilus* are still in the experimental stage, but it is safe to say that the value of this form of treatment promises much hope for the future. Serious consideration should also be given as to the best methods to be employed for its administration.

However, as a result of this study we feel justified in drawing the following conclusions:

1. *B. acidophilus* when given by the mouth can and does implant itself in the intestinal tract.

2. The administration of *B. acidophilus* is accompanied by a marked decrease in the number of *B. coli* in the feces and the supplanting of these by the *B. acidophilus*.

3. In chronic constipation there was marked improvement from the so-called toxic symptoms and relief from the constipation which coexisted.

4. In the chronic diarrheas there was an abatement of the symptoms.

REFERENCES.

Cheplin, H. H., and Rettger, L. F.: Studies on the Transformation of the Intestinal Flora. Abstr. Bacteriol., Balt., 1920, iv, 8.

Coleman, W.: The Influence of the High Calory Diet on the Course of Typhoid Fever. *J. Am. M. Ass'n*, Chicago, 1917, lxix, 329-334.

Herter, C. A., and Kendall, A. L.: The Influence of Dietary Alterations on the Types of Intestinal Flora. *J. Biol. Chem.*, Balt., 1910, vii, 203-236, 3 pl.

Herter: Experimental Variations of Intestinal Flora by Change in Diet. *Internat. Beitr. z. Path. u. Ther. d. Ernährungstörungen*, Berlin, 1910, i, 275-281.

Hull, T. G., and Rettger, L. F. (1914): The Influence of Milk and Carbohydrate Feeding on the Intestinal Flora of White Rats. *Contralbl. f. Bakt.*, Abt. 1, Orig. 15, 219-29.

Hull, T. G., and Rettger, L. F.: The Influence of Milk and Carbohydrate Feeding on the Character of the Intestinal Flora. *Jour. Bact.*, vol. xi, No. 1, Jan., 1917, 47-72.

Kendall, A. L.: Some Observations on the Study of the Intestinal Bacteria. *J. Biol. Chem.*, Balt., 1909, lv, 499-507; Observations on Aciduric (acidophilic) Bacteria, *J. Med. Research*, Boston, 1910, xxii, 153-167; Lactic Acid Bacilli; What They Are and What They Are Supposed to Do, *Arch. Pediat.*, N. Y., 1910, xxvii, 613-621; Lactic Acid Bacteria; What They Are and What They Are Supposed to Do, *Boston Med. and Surg. Journal*.

Rotch, T. M., and Kendall, A. L.: A Preparatory Study of the *B. Acidophilus* and Regard to Its Possible Therapeutic Use. Tr. Am. Pediat. Soc., Chicago, 1911, xxvi, 253; *A. J. Dis. Child.*, Chicago, 1911, iii, 30-38.

Rettger, L. F. (1915): The Influence of Milk Feeding on Mortality and Growth on the Character of the Intestinal Flora. *Jour. Exp. Med.*, 21, 365-88.

Rettger, L. F., and Horton, G. D. (1914): A Comparative Study of the Intestinal Flora of White Rats Kept on Experimental and Ordinary Mixed Diet. *Centralbl. f. Bakt.*, Abt. 1, Orig. 73, 362-72.

Torrey, J. C. (1915): The Fecal Flora of Typhoid Fever and Its Reaction to Various Diets. *Jour. Inf. Dis.*, xv, 72-108.

WHAT THE STATE DEMANDS OF ITS SENTINELS OF MENTAL HEALTH.

BY DONALD A. LAIRD,

IOWA CITY.

RECENTLY LECTURER FOR THE INTERNATIONAL CHAUTAUQUAS; RESEARCH ASSISTANT, UNIVERSITY OF IOWA; FORMERLY EXAMINER, PSYCHIATRIC UNIT, GREAT LAKES NAVAL TRAINING STATION.

WE may take as our point of departure the self-evident proposition that results most beneficial to the mental health of the community are to be accomplished, not in the wards of the State hospitals, but in the community itself. It would be erroneous to infer from the above platitude that one can be blinded to the vast sway of influence over the mental welfare of a community which is exerted by these hospitals the States have provided for the rehabilitation and care of its maladjusts of behavior. Certainly I would be the last to berate the potency of the State hospital as a factor in the mental health of the community. But as a point of departure for the short survey we have before us we will consider a very significant factor external and to some degree foreign to these bulwarks of mental hygiene.

Perhaps what we are to consider is the most significant factor in mental hygiene. Of course no one can definitely decide such a point, but at times—very frequent and recurrent—I am inclined to throw discretion to the winds and emphasize it as *the most*.

Before divulging the identity of my *the most* it may profit us to box the compass, as it were. Certainly an orientation and general view over the whole glorious and growing field of general public (and individual for that matter) hygiene or health is not amiss on any occasion. And mental hygiene, either community or individual, is essentially a part of general hygiene and as such needs to be approached as a part of the field of preventive medicine. True, it may be that mental health problems are more complex, apparently more obscure, and in many instances more difficult of approach than problems in general physical well-being, but this very fact should be a challenge to the mental hygienist to sit himself down occasionally and take stock of things in the general province of health welfare. It is advisable for the mental hygienist to do this that he may keep in touch with reality and not deteriorate into a species of ex-cathedra oracle, maintaining a secluded existence and attempting to accomplish his great work alone, unaided, and outside the usual channels of hygienic activities.

Mental welfare itself will progress most and be of most serviceable value when it is substantially incorporated into the aggregate comprising general hygiene. And hygiene itself will not be measuring up to the demands and possibilities of its work until the general hygienist is also qualified to a certain extent as a mental hygienist. Until this desideratum is achieved and *mens sana in corpore sano* receives, not less emphasis upon corpore, but *more* emphasis upon mens, hygiene will still remain a microcephalic monster, unable to meet in an adequate manner a large portion of the problems in hygiene which loom dark and ominous on the horizon.

Now back to our opening platitude. In modern health work we find the predominant tendency is to carry the most intensive work from the hospital, clinic, dispensary, or what not, directly to the doorstep and into the lives and daily routine of the people of the community. The hospital with its specialized services and facilities is an indispensable feature of all the hygienic agencies at present. However, in that hygienic Utopia which it is always well to keep in mind, one will find no hospitals as we now think of them and know them. If there were hospitals as we now know them they would have nothing to do, the community being so effectively barricaded against ill-health through the labors of the hygienists, that even such surgical emergencies as accidents would not put a single patient into our already deserted hospitals. In this ideal, and at present extremely nebulous community, hospitals would become extinct by the action of natural selection. They would be eliminated by a more fit and vigorous institution known as hygiene.

The picture has been overdrawn? Well, perhaps it has but ever so slightly, and one cannot fail to appreciate its full representative value as indicating the potentialities and trend of hygiene. This hygienic Utopia represents, also, an inspirational working hypothesis for all those engaged in any phase of the stimulating and ever pressing and increasing work of public health. The sum and substance of all adequate theories and facts which are pertinent in this connection is that preventive and prophylactic sciences can largely accomplish the end results which have been pictured in our Utopia. Solemn social, scientific, moral, and medical obligations unswervingly demand that in hygiene the practical results should no longer fall so far behind the potential possibilities which lie close at hand.

In mental hygiene one finds this Utopia more distant than perhaps in all the other branches of hygienic endeavor. In the realm of mental hygiene, especially, it is not quixotic to hope and maintain that this Utopia of psychic salubrity is possible of achievement. Mental hygiene should, like all the other preventative sciences and arts, focus its attention upon causes rather than irrevocable effects. The mental hygienist should concentrate his prophylactic efforts upon the everyday activities of the personality in the household, in the street, in the factory, or in the forum.

Social expediency—which in this case, as usually, means social ignorance and bias—may deem it more essential to retain the emphasis upon the hospitalization of the maladjusted personality. As a hygienic science and art, however, it is the first duty of mental hygiene, in point of time, to clean up the *beau idéal* of social and political expediency. This has in part been largely accomplished. The first duty, in point of emphasis and permanent hygienic value, is for mental hygiene to reach the personality long before it becomes persistently headed toward the institutions of social convenience. To accomplish this—and it is capable of accomplishment—would demand an adequate mental hygiene from birth if not before the formation of the first blastomere that is later to become that indefinite, yet meaningful thing we choose to call the personality and with which mental hygiene is chiefly and vitally concerned.

One occasionally finds some sort of a distinction attempted between normal mental hygiene and abnormal mental hygiene. At this point we may fittingly question if so-called abnormal mental hygiene is hygiene in the intrinsic meaning of the term or if it is a spurious sort of hygiene, necessary enough and valuable enough in itself as a deserving field of endeavor, but aside from the direct delimitation of the term hygiene and that which is for greatest permanent progress in mental welfare. Strictly, yet broadly, defined at present hygiene, is "that department of knowledge or practice which relates to the maintenance of health" (New Oxford Dictionary), or "the science that treats of the laws of health and the methods of their observance" (Gould's Practitioners' Medical Dictionary). And plainly enough, beyond all controversy, the maintenance of health and the observation of the laws of health are far more than merely the absence of disease. Evaluated in terms of the accepted present-day designations of hygiene in fields other than mental we find that so-called abnormal mental hygiene is an impostor. We do find, however, in the 1811 edition of Hooper's Medical Dictionary "some modern [1811] physicians have applied this term [hygiene] to that division of *therapia* which treats of the diet of the sick." This abnormal mental hygiene is essentially little more than a "division of therapia" and as such reverts to the hygiene of over a century ago. At the present day it is indeed *abnormal* hygiene!

There is a place for abnormal mental health work in the field of public health, but this is a *sanitary* science and not hygiene. Those psychiatrists who concentrate their efforts and attention upon institutional cases and overt maladjusts may be furthering knowledge and rehabilitating their patients, but they are not, *ipso facto*, hygienists. Not until psychology, psychopathology, medical psychology, and medicine use their hygienic tourniquets to dam the flow of personality into the State hospitals and sanitaria will the term mental hygiene be more than flim-flam and mockery.

The foregoing should not in any wise be construed to discredit the significant and epoch-making work in mental hygiene already accomplished by any of the existing central agencies organized for that purpose. Theirs has been a difficult and unwavering struggle in blazing the trail and naught but plaudits and encouragement should be bestowed upon them in recognition of the meritorious advances which they have fostered and won. The time is now at hand, however, when probably the largest portion of the active work in mental health activities as well as the most palmary work in this field resolves itself upon those who are the local and intimate custodians of the mental health and welfare of the community.

It is these local mental hygienists who have their fingers continuously on the pulse of the community and the personalities of that community ever under observation who will render greatest aid in lessening the flow of these personalities toward the colossal monuments to mental as well as physical and social maladjustment—the State hospitals. As in the case of typhoid fever, for example, where sources of infection must be guarded against and carriers identified and freed from their potential danger to the body politic and where it is essential that the patient be given early treatment and not simply care, so in mental adjustments the possibilities for undesirable and pernicious adaptations must be guarded against individually and collectively and the early prodromal signs of maladjustments observed that readaptations and regulations may be effected. Those to whom this duty falls are the outposts, the sentinels of mental health. Theirs is the most imperative and constructive work in the conservation of mental health, happiness, and social and economic values.

And now one might ask who are these sentinels on guard over the mental welfare of the community? Is it the priest? Is it the teacher? The parents? Is it the social service worker? Is it the medical man? Is it the lawyer? It is all these and many more, for mental hygiene involves the entire individual, since all of his components are concerned in a rather intimate way with the personality and all the above are to a considerable extent in a position of vantage for sentry duty in mental hygiene. There is one, however, who should be signaled out above all others as the sentinel supreme—the family physician or the general practitioner.

It is the general practitioner who is in a position to accomplish the greatest results in constructive mental hygiene for the community as well as for his clients. Moreover, it is in his line of duty to do this. From the approach of real, not spurious, mental hygiene the family physician is undoubtedly in a far more strategic position

than the highly trained and specialized neuropsychiatrist. The general practitioner who is alive to his opportunities can largely bring about the realization of our hygienic Utopia in the mental sphere on a much larger scale and in a more natural and advantageous manner than the mental specialist who comes into contact chiefly with those cases in which the family physician either has neglected or failed to measure up to his hygienic functions.

There is another who, next to the family physician, should be mentioned in passing as also being in a position of supreme vantage for this type of sentry duty. I have in mind the clergy; not the newer variety of "religious executive" who is working principally in group terms and concepts, but the older and persisting priesthood that is interested, perhaps solely, in the parishioners of the church. It is this type of hierophant who not only leads and instructs his laity in the faith but also holds a crucial, priestly relation with each of his individual parishioners who is in a position to stand guard over the mental health of a rather large and already segregated communty in a manner unexcelled even by the family physician. Except in rare and encouraging instances one does not find the background of training and the points of view among the clergy that will enable them to approximate in any appreciable extent the positive results in mental welfare which should be a part of their ministrations.

This crucial position of the clergy is reflected somewhat and indirectly in the development of the institutional care of overt cases of maladaptation due largely to addled mental functioning. The early custodial institutions of social convenience were largely under the supervision of ecclesiastical workers whose motives were in the main humanitarian. By the early nineteenth century it had come to be generally realized that the *non mentis compos* was more than an object needing gentle and firm ministrations. It was about this time that medical and scientifically minded men seriously began to turn their attention intensively toward these mental, biological, and social maladjusts. Hard-headed law makers and law diviners soon came to see that here was a need for care directed by the head as well as by the heart. Obviously such custodial work demanded as a preparation medical, psychological, and scientific training rather than simply theology and high motives, although these are by no means to be neglected or despised.

At the present day we find every progressive State using medical opinion largely and almost solely in the selection of those who need the care provided by the State hospitals. In practically every State the legal machinations demand that cases for commitment be passed upon by physicians duly qualified under the State Laws. This is the rôle of the general practitioner in mental health supervision, as has been defined by the States.

Beyond the peradventure of a doubt this is not constructive, well-rounded, or economic mental hygiene if it is hygiene at all. It is little more than social expediency with an admixture of a grain of individual rights. The State is apparently unconcerned with the personality of its citizens before deterioration is so far advanced or so badly disordered in its functioning that the commitment stage is reached. It becomes the responsibility of the family physician, however, as a scientist to some extent and as a guide in the observation of the laws of health to keep a vigilant watch over the mental welfare of his clients fully as much as their organic welfare is closely guarded. I rather doubt if there is a family physician who would feel that he justified his medical training and his fees if his duties were limited to stand passively by his patients until the time came when he could say: "After thorough, detailed, scientific and unbiased examination I pronounce this individual dead." But is not this about what the State expects of its physicians as mental hygienists (save the term!)? After thorough, detailed, scientific, and unbiased examination the family physician pronounces the personality fit for commitment!

As we now proceed with our subject we are going to investigate the consistency of the State in even this narrow responsibility in mental health work which it legally thrusts upon those who by the nature of their work and their obligations to their clients should be the mental hygienists par excellence. More specifically we will inquire into the qualifications which the State demands of its sentinels of mental health as it now conceives of them in order that it may be assured of their competency in duty.

Legal walls in the form of the State medical licensing and examining boards have been erected by the various States to protect their citizenry against charlatans and medical frauds. It is the chief function of these boards to inquire into the fitness of those who would practise medicine within the respective States and issue certificates or licenses to those who measure up to certain prescribed standards. These standards are, in a large measure, legally established and detailed in "legislation by reference" in the statute books. Such standards as set forth in the State statutes usually prescribe graduation from a "recognized" medical college, a certain moral fitness, a few educational requirements, and an examination of the candidates by the State board.

As a rule, a great latitude is given the State board; most of the medical practice acts, for example, permit the boards to decide what schools shall be accepted as "recognized" medical schools. Especially in the matter of the examinations have the law makers judiciously given the medical boards free reign. One might therefore be led to expect great individuality in these boards, but such is not the case. Of course there are varying degrees of exactness in the requirements but, by and large, approximate uniformity is the rule among these boards.

It is these boards that pass upon the fitness of those whom we have found to be the sentinels, par excellence, of mental hygiene. The States themselves have also found that those licensed by these boards are mental hygienists, but, as we have already indicated, the official duties as such hygienists are very narrow and unproductive. The fact remains, however, that in almost every in-

stance it is the licensed practitioner who is called upon by the State in cases of maladjustment involving commitment to State care.

In view of the significance and urgency of all hygienic work, and especially work in mental hygiene, one is led to wonder just how rigorous are the requirements established by the States and interpreted by the licensing boards to insure proficiency on the part of the practitioner in this respect. As near-sighted citizens and taxpayers we want to be satisfied that the men officially recognized in the commitment process do not fill our State institutions with unnecessary charges. As far-sighted citizens and taxpayers we want to see what qualifications are demanded of those who should early recognize inimical mental conditions and ameliorate those in so far as is possible before commitment becomes imperative.

The most that the State boards can expect from their candidates at present, aside from a special interneship or other special training after graduation, is a diploma from a class A medical college. And what specific preparation for work in mental hygiene, either in a broad or a narrow sense, can be universally relied upon from graduates of these class A medical schools?

In defining the standards to be met by acceptable medical colleges the Council on Education of the American Medical Association wisely permits of a short range of eclecticism in the clinical years of instruction. Certain clinical requirements are definitely stipulated, however. Such is the case in obstetrical experience. But nothing is set up as a goal for nervous and mental diseases or psychiatry or mental health training. It is stipulated that hospital facilities shall be available for children's diseases, contagious diseases, and nervous and mental diseases. No definite experience is particularized, however, and definite instruction in psychiatry is not mentioned. None of the premedical educational requirements specified for these acceptable schools includes psychology as a *sine qua non* for preparation, so one cannot expect the final product of the class A school to be invariably or usually equipped with the background essential for a comprehension of the "normal" mental hygiene which we have found is the real hygiene.

Only a limited number of the acceptable schools have a separate department of psychiatry or a distinct professor of psychiatry. What instruction is given in this field is usually by "bicycling" or by calling upon a state hospital physician for a few lectures. Instruction is usually of the manikin type and the clinical experience is incidental and vicarious. Many schools are frankly reluctant to include psychiatry in their curriculum which is "already crowded with more necessary subjects."

What preparation in this direction can the State boards expect from the graduates of the upper level of medical schools? A dozen or two lectures giving clinical epitomes, and observation of a few scattering, curious, and incidental "mental cases" is about all the training the medical graduate has received. Many admittedly receive no training at all.

We have now briefly reviewed what the State boards may expect by way of training in this branch of medicine from the average run of candidates for licensure. We will now turn our inquisitive attention to another aspect of the State requirements for licensure—the State board examinations. It is in these examinations that the State board is sovereign in determining, as the ultimate criterion, the candidate's fitness.

And just what do the State boards exact from their examinees as a demonstration of capability in mental hygiene? We will find an answer to this in the complete questions which are at hand for one State board examination in each of twelve States in 1920. A total of 1,051 questions are in these examinations. There are seven questions out of this number which can definitely be considered as directly testing the candidate's fitness as a sentinel of mental health. These seven crucial questions were distributed among four States only. The remaining eight States made no effort during the year in question to probe their candidates' fitness in this respect.

Of the four States that did consider their practitioners' capability as mental hygienists of sufficient importance to examine into this phase of their information, we find one State asking four questions (out of 120) on this topic. This State was Texas. Three of these questions were included under jurisprudence and one under pathology. Two other States included one pertinent question under the quiz on practice of medicine, while another State had one under obstetrics.

Thus we find that the States demand meager, if any, definite training and knowledge of psychiatry or mental hygiene as qualifications of its sentinels of mental health. Consistency, thou art a jewel—and rare! The States have designated as "experts" and certified as such those who have not been formally tested and in most cases not even schooled in their field of "expertness." It cannot be securely contended that a general medical education devoid of all direct contact with mental hygiene problems still prepares the practitioner for this sanitary service which is inseparable from his daily calls. But this is apparently the attitude taken by the State in licensing its physicians and designating its commitment experts.

Obviously the general practitioner is rarely qualified for even giving the advice in commitment cases requested from him by the State. And as sentinels of mental health one can rationally expect but little from this group. Somewhat limited but very pertinent data are available on these points.* This condition is also generally recognized, as witness the recent appearance of a paper giving a textbook summary of the prominent symptoms of mental disease as a leading article in a nationally recognized and circulated medical journal.

Statistics which are freely available and perhaps overworked, prove conclusively that there is a genuine and pressing need for sentinels over the mental health of the communities. It is more than a theory or a hobby or a passing fad. It is

*"Does there exist a need for a program of education in mental hygiene?" *Mental Hygiene*, iv, 2, pp. 393-403, April, 1920.

recognized by hard-headed men of business and cautious scientists as being a very practical problem and not simply sentimental twaddle. That even moderately trained sentinels can really bring almost miraculous results to pass has been demonstrated beyond question. What, then, is to be done?

Well, something is being done. For instance, the Board of Registration in Medicine of the Commonwealth of Massachusetts is considering demanding a medical course in psychiatry or nervous and mental diseases from its candidates. It is also probable that at a future date this progressive board will notify the medical schools that all applicants will be examined in neurology, including psychiatry. It may be that other States are considering similar action. Surely it is the only economic policy for the citizenry to be assured of the fitness of their family physicians as mental hygienists in phases of personal efficiency as well as commitment.

There are a few States which have the facilities available for training in mental hygiene as a State project. The licentiates could be given training at these centers before being permitted to practise and with bounteous remuneration to the State as well as to the embryo practitioners. To take New York State as an example. This State has a splendid psychiatric institute on Ward's Island which is used largely for training of the physicians in the service of the State hospitals. If it has been found necessary to provide special post-graduate training for those in charge of the overt and total maladjusts, there is certainly greater need for training those whose duty it is to nip in the bud, so to speak, the potential and the beginning maladjusts. And in the case of New York State one finds an established institution which is admirably fitted for giving that training.

One might say in paraphrase that the State wants but little nor expects that little well done from its sentinels of mental health. This policy of *laissez faire* is costing the citizenry millions of dollars annually and is casting up an ever-increasing number of wrecked personalities on the sands of our high tide of civilization. It is decidedly uneconomic as well as unhygienic to permit conditions to remain as they now are; and it is entirely within the powers of the States to change conditions for the better. Until the States and their practitioners awake to the realization of their duties as sentinels of mental health we will continue to witness the passing of 60,000 personalities annually into the State hospitals for mental diseases. And are the States going to allow these floodgates of waste to remain wide open?

Is the family physician going to remain content to stand by in ignorance while one out of each hundred of his clients becomes so badly adjusted that an efficient, normal life is no longer possible? And, since health is more than the absence of disease, what is the family physician going to offer his clientèle in the way of promoting sound mental health, efficiency, and happiness? As a sentinel of mental health, the family physician is the keystone in the arch of hygienic progress, and not until the States demand adequate qualifications for this sentry duty will the ebb and flow of human personality between disease and inefficiency be lessened.

SIXTY-FIVE CASES OF CERVICAL RIBS.

By I. S. TROSTLER, M.D., F.A.C.P.,

CHICAGO, ILL.

CONSULTING ROENTGENOLOGIST TO ST. JOSEPH'S, AMERICAN, ST. FRANCIS, NORWEGIAN-AMERICAN AND WEST END HOSPITALS.

In making this report of an intensive study of 65 cases of cervical ribs, I do not expect to present anything new and startling regarding diagnosis; but I will endeavor by the tabulation of the radiographic findings with the symptoms, clinical findings and a very brief history in each case, to present such items as will make it of interest to all who meet these cases, and possibly of some value as a general aid in the diagnosis.

Cervical ribs are much more common than is generally supposed, and the diagnosis is so very easy when one has the condition in mind, that the writer has frequently surprised the referring physicians by the ease and certainty that a diagnosis was made before the *x*-ray examination, which verified the diagnosis.

The diagnosis was correctly made by the referring physician in only 17 cases (26 per cent.) of the 65 cases under discussion. Neuritis from unknown cause was diagnosed in 28 cases, progressive muscular atrophy in 9 cases and no diagnosis attempted in one case. Nine of the examinations were made for other purposes and the finding of cervical ribs was only incidental.

The number of cases in males was 21 (32 per cent.) and in females 44 (68 per cent.).

The number who had cervical ribs on the right side only, was 3, on the left side only, was 4, and on both sides 58.

The number presenting symptoms and clinical findings on the right side only, was 28, on the left side only, was 20, and on both sides, was 9. Seven presented no symptoms.

The number with double cervical ribs who presented symptoms on the right side only, was 25; on the left side only, was 19, and on both sides 9. Seven cases presented no symptoms.

The age of the 65 patients was as follows:

20 years or less.....	5 cases	41 to 50 years.....	14 cases
21 to 30 years.....	9 cases	51 to 60 years.....	6 cases
31 to 40 years.....	26 cases	Over 60 years.....	5 cases

The youngest patient was 4½ years, oldest 65 years. Average age of the 65 cases was 39 years.

The duration of the symptoms in 58 cases was as follows:

Less than 1 year....	18 cases	5 to 6 years.....	2 cases
1 to 2 years.....	13 cases	6 to 8 years.....	4 cases
2 to 3 years.....	6 cases	8 to 10 years.....	2 cases
3 to 4 years.....	3 cases	10 to 15 years.....	3 cases
4 to 5 years.....	5 cases	Over 15 years.....	2 cases

Average duration of symptoms in 58 cases, 45 months.

Number of cases operated for cervical ribs from this series was 13. Of these 13 were improved or cured by the operation (100 per cent.).

The data in these cervical rib cases are presented in the accompanying table.

25 E. WASHINGTON STREET.

TABULATION OF SIXTY-FIVE CASES OF CERVICAL RIBS.

Case No.	Sex	Age	Duration of Symptoms	Clinical Diagnosis by Attending Physician	Roentgen Findings	Pain					Atrophy				Weakness				Paresthesia	Anesthesia	Circulatory Disturbance	Operated	Remarks
						Neck	Shoulder	Arm	Forearm	Hand	Shoulder	Arm	Forearm	Hand	Shoulder	Arm	Forearm	Hand					
1	M	40	7 years	Progr. Muscular Atrophy	Double Cervical Ribs		R	R	R	R	R	R	R	R	R	R	R	R			Venous	Yes	Improved in 6 months. Cured in 1 year.
2	M	45	3 years	Progr. Muscular Atrophy	Double Cervical Ribs	R	R						R	R		R	R	R	R				
3	M	32	6 Weeks	Tumor	Double Cervical Rib	L	L	L	L	L	L	L	L	L	L	L	L	L	L		Venous	Yes	Sarcoma of Left Cervical Rib.
4	M	44	5 Years	Progr. Musc. Atrophy	Right Cervical Rib	R		R	R	R		R	R	R		R	R	R				Yes	Much improved in 6 months. Cured in 10 months.
5	M	50	8 Months	Cervical Rib	Double Cervical Ribs	L	L	L								L	L	L	L				
6	M	35	3 Years	Progr. Musc. Atrophy	Double Cervical Ribs						R	R	R	R					R				
7	F	63	2 Years	Progr. Muscular Atrophy	Double Cervical Ribs	2	2	2	2	2	2	2	2	2	2	2	2	2					Symptoms on both sides.
8	F	27	6 Years	Cervical Rib	Double Cervical Ribs	R	R						R	R				R	R		Yes		Much improved in 6 months. Cured in 1 year.
9	F	42	10 Years	Progr. Muscular Atrophy	Double Cervical Ribs		R	R	R	R	R	R	R	R	R	R	R	R			Yes		Much improved in 8 months. Cured in $1\frac{1}{2}$ years.
10	F	50	1 Year	Neuritis	Double Cervical Ribs	2	2	2	2	2	2	2	2	2		2	2	2	2		Yes 2		Improved under As. but had relapse. Symptoms bilateral.
11	M	39	3 Years	R. Shoulder Neuritis	Double Cervical Rib	R	R	R	R				R	R	R	R	R	R			Yes		Left rib longest.
12	F	33	8 Months	Progr. Muscular Atrophy	Left Cervical Rib	L	L	L	L	L	L	L	L	L	L	L	L	L				Yes	Deltoid atrophy marked. Improvement prompt.
13	F	30	1 Year	Progr. Muscular Atrophy	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L	L		Yes		
14	F	45	5 Years	R. Cervical Rib	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R			Yes	Yes	Relieved in 2 months. Cured in 8 months.
15	F	54	11 Months	Neuritis, Rheumatism, etc.	Double Cervical Ribs			R	R	R				R				R					
16	F	36	2 Years	Pain	Double Cervical Ribs	R						R				R							Palpable rib in neck on R side.
17	F	53	$1\frac{1}{2}$ Years	Progr. Muscular Atrophy	Double Cervical Ribs	L					L	L	L	L	L	L	L	L					
18	M	29	2 Years	Neuritis	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R					
19	F	47	12 Years	Neuritis	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R					B. P. 200+. Marked arterio sclerosis.
20	M	33	4 Years	R. Cervical Rib	Double Cervical Ribs	R	R	R	R	R	R	R	R	R			R	R	R				
21	F	$6\frac{1}{2}$			Double Cervical Ribs																		No symptoms or physical signs.
22	F	27	3 Months	Neuritis	Double Cervical Ribs	R	R				R	R						R					
23	F	28	2 Months	Neuritis	Double Cervical Ribs	R	R				R	R						R					
24	F	48	1 Year	Neuritis	Double Cervical Ribs	R	R	R	R		R	R			R	R							
25	F	22	5 Years	Neuritis	Double Cervical Ribs		R	R				R											Small short ribs.
26	F	56	1 Month	Neuritis	Double Cervical Ribs					L				L		L	L	L	L				
27	F	36	10 Years	Syringomyelia	Double Cervical Ribs	2	2	2	2	2	2	2	2	2	2	2	2	2	L		Yes		Symptoms on both sides. Syringomyelia also present
28	F	30	$2\frac{1}{2}$ Years	Neuritis	Double Cervical Ribs	R	R	R			R	R				R							
29	F	39	3 Years	Neuritis	Double Cervical Ribs	R	R																Small short ribs
30	F	37	15 Years	Neuritis	Double Cervical Ribs	R	R												R				Small short ribs.
31	F	35	9 Months	Neuritis	Double Cervical Ribs	L	L												L				Small short ribs.
32	M	65	4 Months	Carcinoma of Larynx	Double Cervical Ribs																		Patient died a few days later of Carcinoma.
33	M	52	1 Year	Cervical Neuritis	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R	R		Yes	Yes	Relief in six months. Cured in 1 year.
34	F	35		Injury	Double Cervical Ribs																		No symptoms.
35	F	46	3 Weeks	L. Cervical Rib	Double Cervical Ribs			L	L	L		L	L	L		L	L	L	L		Yes		
36	F	50	10 Years	L. Cervical Rib	Double Cervical Ribs	L		L	L	L		L	L	L		L	L	L				Yes	Complete cure in 10 months.
37	M	35	1 Year	L. Cervical Rib	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L				Yes	Relieved in 3 months. R. rib longest.
38	F	50	4 Years	Neuritis	Double Cervical Ribs	R			R	R			R	R			R	R	R				
39	F	40	5 Years	R. Cervical Rib	Right Cervical Rib				R	R			R	R			R	R	R			Yes	Relieved in 6 months. Cured in 18 months.
40	M	35	3 Years	Neuritis	Double Cervical Rib	2					2	2	2	2									
41	F	55	8 Years	L. Cervical Rib	Left Cervical Rib	L	L	L	L	L	L	L	L	L	L	L	L	L	I			Yes	Relieved in 2 months. Cured in 1 year.
42	M	36	2 Weeks	Traumatic Neuritis	Double Cervical Ribs		L	L	L	L													
43	M	32	$1\frac{1}{2}$ Year	Neuritis	Right Cervical Rib								R	R			R	R					Small short rib
44	M	$4\frac{1}{2}$			Double Cervical Ribs																		No symptoms
45	M	8			Double Cervical Ribs																		No symptoms
46	F	46	2 Years	Cervical Rib	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Yes		
47	M	36	2 Years	Neuritis	Double Cervical Ribs		R	R	R	R	R	R	R	R			R	R					
48	M	33	5 Years	Cervical Rib	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L				Yes	Improved in 4 months. Cured in 8 months
49	F	36	6 Years	Cervical Rib	Double Cervical Ribs	2	2	2	2	L	2	2	2	L	2	2	2	L	L	L			Symptoms most marked on L side but were bilateral
50	F	18	1 Year	L. Cervical Rib	Double Cervical Ribs			L	L	L		L	L	L		L	L	L	L			Yes	Relief in 3 months.
51	F	28	3 Months	Neuritis	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R					Cervical rib on R side longest
52	F	20			Double Cervical Ribs																		No symptoms
53	F	40	11 Years	R. Cervical Rib	Double Cervical Ribs	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Yes	Yes	R. side operated. Circulation in hand improved in 1 month. Parasthesia gone in 1 month. Marked relief in 8 months.
54	F	61	15 Years	L. Cervical Rib	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L					Left rib longest
55	F	64	8 Years	L. Cervical Rib	Double Cervical Ribs								L	L			L	L					Left rib longest
56	F	50	9 Months	L. Neuritis	Double Cervical Ribs	L	L	L	L	L	2	2	2	2	2	2	2	2	2	L			Left rib longest. Atrophy and weakness bilateral.
57	F	34			Double Cervical Ribs																		No symptoms.
58	F	26	2 Months	R. Neuritis	Double Cervical Ribs	R	R	R			R						R						
59	M	45	2 Years	L. Cervical Rib	Double Cervical Ribs	L	L	L	L	L		L	L	L		L	L	L	L		Venous		Left rib longest
60	F	40	1 Year	Neuritis	Double Cervical Ribs	L	L	L	L	L	L	L	L	L	L	L	L	L	L				Left rib longest
61	F	38	6 Months	Neuritis	Left Cervical Rib	L	L	L	L		L	L	L	L									
62	F	59	5 Years	Neuritis	Double Cervical Ribs	2	2	2	2	2	2	2	2	2	2	2	2	2					Symptoms on both sides.
63	M	63	1 Year	Neuritis	Double Cervical Ribs		R	R			R	R			R	R							Right rib longest.
64	F	32			Left Cervical Rib																		Over 3 inches long. No symptoms.
65	F	31	1 Year	Neuritis	Double Cervical Ribs	2	2	2			2	2			2	2							Symptoms on both sides

Note.—The figure 2 in above tabulation is used to indicate bilateral findings.

LACERATIONS OF THE CERVIX.

By ISADOR W. KAHN, M.D.,

NEW YORK,

INSTRUCTOR IN GYNECOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

It is an established fact that every woman who faces the ordeal of maternity subjects herself to various traumata, either accidental or instrumental. Of these, lacerations of the cervix are by far the most frequent, in fact occurring so often as to be called universal. How rare indeed it is in routine postpartem examinations to find a cervix that has not undergone some degree of laceration. When we stop to consider the measures instituted to prevent such lacerations we find that they are practically nil. However, the degree of laceration depends upon well-established predisposing and concomitant exciting causes. I consider such conditions as rigid cervix or a previously diseased cervix, be it gonorrheal or otherwise, important predisposing causes. In addition I might mention faulty presentation of the presenting part; disproportion of the fetus and cervix; premature rupture of the membranes and faulty condition of the fetus.

Of the exciting causes there are several, each one a decided factor in producing a lacerated cervix. They are precipitate, or rapid second stage of labor; manual dilatation of the cervix to hasten labor; tedious labors; instrumentation. In a precipitate labor by energetic contractions of the uterus the fetal head is forced through the os before the cervix has had time to become softened and dilated and a lacerated cervix is the result. The injudicious use of pituitrin may be placed in this class. When cervical laceration follows a tedious labor it is due to the fact that the overlying portion of the cervix is incarcerated between the pelvis and the fetal head until it becomes edematous and thickened and finally gives way. Where instruments are employed, laceration of the cervix will usually result when forceps are applied with a cervix not fully dilated. When the cervix is dilated manually or instrumentally, it must be dilatable if we wish to avoid laceration.

Lacerations of the cervix may be classified as anterior and posterior; unilateral or bilateral; single, multiple, or stellate. They may be partial or complete. In the former the tear includes the cervical mucous membrane but does not reach the vaginal surface, while in the latter it does. When the laceration is unilateral it is most liable to occur in the line of the right oblique diameter of the pelvis and, due to the predominance of the left occipito-anterior position, the left lateral laceration is more frequent than the right. However bilateral lacerations are more frequent than unilateral and are by far more dangerous than anterior or posterior lacerations, as they open up the cellular tissues of the broad ligaments to infection. Stellate lacerations are more apt to be superficial and therefore less dangerous. In rare instances the tear may be in the median line and sometimes even circular, resulting in complete separation of the vaginal portion of the cervix from the uterus. Stellate lacerations are usually the result of repeated labors and are therefore found generally in multipara. They may be explained thus: Nature has tried to repair injuries to the cervix in previous labors by scar tissue, and in subsequent labor the previous sites of laceration are the strongest and so the tear occurs in a new area. When this is repeated several times we get a stellate laceration.

Symptoms and Signs.—These may be divided into early and late. The earliest manifestation of a lacerated cervix is hemorrhage occurring immediately after birth of the child. This hemorrhage may be profuse and dangerous where the laceration is extensive. Symptoms of shock may be evident. I therefore believe that a digital vaginal examination should be made under the strictest aseptic precautions directly after the expulsion or expression of the placenta in all cases of excessive bleeding, as very often this bleeding is said to be due to insufficient uterine contraction when really it is due to a lacerated cervix. The majority of these cases of cervical laceration are usually discovered in the course of a bimanual examination for some other pelvic complaint. These patients do not present any symptom or sign pathognomic or characteristic of a cervical laceration. The signs and symptoms are produced by the complications, or sequelæ, of these lacerations. Endometritis and subinvolution are frequent sequelæ, and from these occur disorders of menstruation, increased vaginal discharge, discomfort during walking and standing, sensation of weight and bearing down, and pain in the sacrum and iliac regions. These patients will complain of bleeding following coitus or following the introduction of a douche nozzle, evidence usually of a granulating cervix. Various nervous phenomena arise due to the fact that nerves are caught in cicatricial tissue formed in the angle of the tear. Reflex and general symptoms have often been overcome by proper treatment of a lacerated cervix. I place a lacerated cervix in the same category as the teeth, tonsil and appendix, for it is certainly a focus of infection with its rich supply of lymphatics. Finally we must not forget the rôle a lacerated cervix plays in the development of malignancy at some later date.

Diagnosis.—The finger and speculum afford the best means of diagnosis. I believe that a lacerated cervix, even though sometimes slight, is the beginning of many future pelvic disorders, and the sooner the diagnosis is made and proper remedial measures instituted the better will be our postpartem results. I believe that it should be a routine procedure to bring down the cervix and inspect it after the delivery of the placenta just as we do for perineal lacerations. I also believe that another speculum examination should be made during the puerperium. Such an examination would keep us informed as to the progress of a laceration and permit us to decide if surgical intervention be necessary. Having decided that a cervix requires surgical repair, it is my policy to permit the patient to reach a well advanced stage of uterine involution before attempting to repair the tear. During every subsequent speculum examination one should ascertain the amount of repair that has taken place if any; the extent of cicatrization; the condition of the cervix itself; the amount of cervical discharge; its color, odor, and other physical properties; and finally the extent, location and character of such laceration.

Treatment.—This may be divided into preventive and operative. By avoiding all measures instituted to unduly hasten the normal progress of labor much will have been done to avoid cervical lacerations. This includes meddlesome manipulations by manual or instrumental interference. The injudicious use of pituitrin should be discouraged. Precipitate labors should be retarded if possible. However, cases such as relative disproportion between the child and the cervix may render useless any precautions we may take.

Having decided that the cervix has been lacerated and badly enough to be repaired, what should be the proper method of procedure. Some obstetricians urge immediate closure of a torn cervix because it lessens the danger of infection from exposed surfaces, relieves the dread of future operation and prevents any ill effects due to delay. However, I am inclined to postpone repair of the cervix in the early puerperium. If the hemorrhage is troublesome it can be easily and safely controlled by the insertion of a tampon in the lateral vault of the vagina, using sterile gauze, as there is danger of absorption if iodoform gauze is used. This procedure is usually sufficient and rarely ever fails. Some, however, advocate the insertion of continuous catgut sutures where bleeding is profuse. I am against the insertion of ligatures to control postpartum cervical bleeding. Sutures inserted into a torn cervix to control bleeding increase the danger of puerperal infection and their insertion is always difficult. I am inclined to favor the intermediate operation, which is usually done about the ninth day pastpartum. Following labor the cervix is thinned out and so it is difficult to determine the extent of the lesion; sutures placed in a relaxed cervix will not be tight enough at the end of 36 to 48 hours to close the wound; to place these sutures properly it is necessary to drag the cervix into view by bullet forceps; the woman very often is in an exhausted state after a difficult labor, and it would be folly to subject her to a surgical operation.

Where a cervix is badly lacerated it is usually accompanied by a laceration of the perineum of varying degree, and here especially I believe in delaying operation, as it permits the structures to regain to some degree their normal outlines. If there has been any doubt about our asepsis it will have manifested itself before the torn tissues have been closed. Our operation so postponed will promote normal involution and lessen the dangers of endometritis. I do not believe in repairing small tears as they usually heal spontaneously. Sutures placed in small tears impair uterine and cervical drainage and increase the dangers of sequelæ. Strict asepsis in obstetric practice promotes the repair of these small injuries without operation.

Unfortunately most cases of laceration of the cervix are not recognized or brought to the attention of the gynecologist until pathological changes in the female pelvic organs have impaired the health of the patient. An imperative requirement of those practicing obstetrics should be a routine examination of the pelvic organs in the second or third week postpartum to determine the existence of any pathological condition requiring attention. This would avoid instituting measures for the relief of sequelæ arising from such lacerations. The secondary operation should be done about the third month postpartum, for by that time the cervix will have regained its normal form as far as the injury will permit. In any case the secondary operation will have to be preceded by local treatment for the relief of such conditions as the engorgement of cervix or fundus; obstruction of cervical glands, and reduction of infection. Every secondary operation should be preceded by a thorough and systematic curretage for the relief of the accompanying endometritis. The dilatation of the cervix permits of the escape of the products of endometrial infection and very often affords a cure for the accompanying pelvic inflammation. Thickening or adhesions in the pelvis of the chronic nonpurulent variety may be due to extension from the uterine endometrium, which in turn is due to a lacerated cervix.

Conclusions.—It should be the duty of every physician doing obstetrics to employ every precaution to prevent lacerations of the cervix as he does the perineum. We stand ready to guard the exposed perineum in a tedious or difficult labor but forget about the hidden cervix. Where a laceration has occurred remedial measures should be instituted as soon as possible. Every lacerated cervix starts the owner on the road to chronic invalidism due to complications and sequelæ. Routine vaginal examinations should be made after delivery of the placenta to determine the degree of laceration, if any, and weekly thereafter to determine the progress of such condition.

241 WEST 112TH STREET.

Medicolegal Notes.

Workmen's Compensation Acts and Physician's Rights of Action Against Employers.—The Minnesota Workmen's Compensation Act, in force in 1917, did not, it is held, give to a physician or surgeon who furnished medical treatment to an injured employee a right of action for the value thereof against an employer who had not requested or consented to the furnishing of the treatment by such physician or surgeon. The law, as regards an injury occurring in 1917, "afforded a remedy only in one proceeding and that to be instituted by the injured employee alone, if alive, or by his dependents if death resulted. Some compensation statutes like those of California and New York make provisions for liens to physicians upon the compensation adjudged, and specify how to secure them. Pacific Coast Casualty Co. v. Pillsbury, 171 Cal. 319; Bossert & Sons v. Piel Bros., 182 N. Y. Supp. 620. In other States the law prescribes different ways in which the one furnishing the injured employee with medical necessities may assert his claim against the employer. Under the Pennsylvania law, which imposes the duty upon the employer to furnish medical treatment at whatever cost for the first fourteen days after the accident, the court held that where the injured employee had been taken to the plaintiff for treatment with the defendant's consent the plaintiff had a cause of action against the latter upon an implied contract. Trustees of State Hospital v. Lehigh Valley Coal Co., 267 Pa. 474, 110 Atl. 255. Here there is no finding that Finch went to plaintiff for treatment with defendant's knowledge or consent, and hence there is no cause of action upon implied contract." Nor in any event can an employer be held liable for such treatment if he neither consented thereto nor refused or was unable to furnish needed treatment. Even were liability to suit conceded, it could not be maintained if brought after the time specified in the act. The court did not say what effect, if any, the amendment of 1921 to the Minnesota act would have.—Beach v. Bender, Minnesota Supreme Court, 182 N. W. 607.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, September 17, 1921.

EXTRACARDIAC MURMURS.

EXTRACARDIAC murmurs are of two kinds: some are seated in the visceral envelope of the heart and should be qualified pericardial; the others arise in the pulmonary apparatus but should be classed with the former on account of the similarity they offer to heart murmurs and also because they are produced by the movements of the heart. Pericardial friction is very common, being moist, dry, soft or rough, and can be heard especially at the time of systole. Its rhythm is not regular, therein completely differing from souffles. It remains localized, while its intensity seems to be proportional with the extent of contact existing between the two layers of the pericardium. Usually it is accompanied by a thrill readily detected by the hand. Other murmurs may simulate it, such as a pleural thrill which can be distinguished by its synchronism with the respiratory movements, excepting in those rare instances where it results from the heart beats. Confusion of pericardial friction sounds with murmurs is not always easy to avoid when the former take on a sibilant character and are not limited to a small area. However, pericardial friction-sounds have no rhythm and are superficial and very limited in extent; they disappear when a fluid effusion occurs and reappear when the fluid has been absorbed, and are then usually rougher and more intense than at the onset.

Extracardiac sounds of the second type are seated in the pleura and lungs. The abnormal sounds of the pleural cavity produced by the heart movements are the better known. They are generally preceded or accompanied by sharp thoracic pain, are very superficial, and are heard over the midpericardial region at a point quite far from the sternum. They accompany diastole much more rarely than do true pericardial friction sounds and almost invariably coincide with the ventricular systole. Rhythmical pleural friction sounds due to the heart beats are not generally limited to the pericardial region, but are heard elsewhere. In many cases their appearance is followed by a fluid pleural effusion, when they disappear to be again heard when the liquid is absorbed. Briefly, when friction sounds synchronous with ventricular contraction and having these characters are heard without any symptom of pericarditis, pleurisy should be suspected, and this diagnosis cannot be doubted if the respiratory movements, especially during deep inspiration, give rise to friction sounds.

Certain sounds produced in a diseased lung by the heart beats were long ago suspected by Laennec, but their nature has been definitely recognized only since the work of Potain and Choyau. They almost always coincide with morbid changes due to phthisis, especially cavity formation and pleuropericardial adhesions capable of retaining portions of diseased pulmonary parenchyma in front of the heart area. To bring them out and to distinguish them from those produced by the respiration, the patient should stop breathing. They consist of moist and rattling sounds.

Sounds due to systolic and diastolic cardiac and vascular beats, seated in a healthy portion of the lungs, were mentioned by Laennec, but the sounds to which he referred do not belong to those about to be considered. He met with them in chronic bronchitis and phthisis. Laennec also described under the term of pulsatile pulmonary crepitation a sound similar to a crepitant râle produced by the heart's action compressing the lungs, at each ventricular systole, during inspiration.

Woillez has described a pulmonary souffle occurring with the aortic diastole, very similar in type to the cardiac souffles of chlorosis. It almost always coincides with ventricular systole, exceptionally with diastole, and ordinarily only during expiration. When present in cardiac hypertrophy it can be heard during both respiratory phases. It is a matter of some difficulty to explain its mechanism, but Potain is inclined to believe that it is inspiratory and develops as follows: At the time of ventricular systole, the heart decreasing in some of its diameters, suddenly causes a vacuum in front of a certain number of pulmonary cells already collapsed; air then rushes into these alveolæ, producing a sound of partial inspiration having the character of a souffle. Choyau says that this explanation holds only in some exceptional cases in which the souffle coincides with the second cardiac sound, while in all others—which are far more numerous—the sound is due to partial expiration rendered sibilant by the sudden cardiac shock. However this may be, what gives the character of a souffle is the rapidity of penetration of air into a limited area of healthy lung parenchyma interposed between the thoracic wall, the heart, and the large vessels. If the sound is ordinarily produced only during expiration it is because, the thoracic walls being then much nearer the circulatory center than during inspiration, compression of the lung by the heart is brought to its maximum. In the same way cardiac hypertrophy, when considerable, produces a sufficient pulmonary compression to give rise to a sound even during inspiration and thus produces an uninterrupted souffle.

Kuessner has divided extracardiac morbid sounds

arising in the respiratory apparatus into two principal groups: (1) Those simulating endocardial sounds and which, in reality, are pulmonary soufflés, and (2) those which simulate pericardial friction sounds due to pleural exudates. Both sounds are seated in the tongue of the upper lobe of the left lung, described by Luschka, which sometimes covers the apex of the heart. They appear, disappear, and vary in character and intensity without any appreciable cause and are not related to any particular movement of the heart, but they are markedly modified by the respiratory movements.

THE CYTOLOGY OF HYDRARTHROSIS.

THE hydrarthroses form a disparate and nonhomogeneous group of lesions. Hydrarthroses of gonorrheal or tuberculous etiology are specific lesions, so that only the cytology of traumatic and the so-called essential hydrarthroses—for want of a better name and indicating our ignorance of the subject—need be considered; but to these may be added those of hydrarthrosis resulting from a neoplasm in the bone near the joint. At present, on account of the numerous arthrocenteses currently done, the cytology of traumatic hydrarthrosis has been fairly well worked out. During the first few weeks of the process the appearance of the fluid content offers one of two types. Sometimes it is colorless, in which case it is a true hydrarthrosis; at other times it is tinted pink and is therefore rather a hemo-hydrarthrosis, but from the clinical viewpoint this can be included among hydrarthroses. In the first type, there is simply a mechanical irritation and Mauclaire and Julliard have shown that in them nothing but endothelial cells are present in the fluid. In the second type, red blood corpuscles represent the majority of elements, being about 90 per cent., but in some cases they may represent only about 50 per cent. In the latter circumstance a very slight hemorrhage has taken place in the joint at the same time as the irritation.

After a few months have passed, hydrarthroses have a cytological formula which is about constant; the red blood corpuscles form the major part of the elements, while lymphocytes represent a good part of the other elements present. This seems to have been quite conclusively shown by Dopter, Tanton, Thirion, and others. Now, it is known that clinically hydrarthroses have a very different evolution from one case to another. Some are recovered from in a few days, but these are very exceptional; others, on the contrary, last for years, although this cannot be explained by the patient's general health, nor can any local cause be found preventing recovery. Consequently, perhaps, it can be admitted that certain hydrarthroses characterized simply by a shedding of the endothelial cells in the joint are recovered from quickly, while others, in which a trifling intraarticular hemorrhage has taken place, are obstinate to treatment, and are painful, accompanied by chronic irritation made evident by the presence of numerous lymphocytes. The cause of this slight hemorrhage may be in some cases a tear of the ligaments, as some patients complain of pain over the internal lateral ligament especially.

The hydrarthroses of unknown cause comprise an extremely varied lot of cases. The hydrarthrosis may be constant or recurring. In one case of the latter form, Dopter and Tanton found only lymphocytes, and in another an equal proportion of lymphocytes and polynuclears. But among the hydrarthroses of unknown etiology a variety has been described by Thirion, characterized by the absence of any cell elements that can be detected by cytoscopy. One case was in a man with pneumonia with a very large knee joint containing fluid, which had been present for years and was troublesome only after long walks. After defervescence of the pneumonia, 10 c.c. of fluid was withdrawn from joint; it formed no deposit whatsoever. Two other cases gave the same history with the same cytological results. In all three the fluid was viscid, resembling normal synovia, so that it may be thought that these cases represented an excessive secretion of this fluid and absence of absorption of the excess.

In one case of hydrarthrosis, an osteosarcoma of the lower end of the femur, the neoplastic granulations had perforated the cartilage and penetrated the joint, which was greatly distended with fluid; 50 c.c. of the fluid was withdrawn and was found to coagulate very rapidly. After defibrination it was examined, and numerous lymphocytes and red blood corpuscles were found. In spite of very many examinations, no sarcomatous element could be detected. The growth in the femur had produced an histologically hemorrhagic fluid such as happens in cases of sarcoma extending to the pleura.

Briefly put, traumatic hydrarthroses contain either endothelial cells or red blood corpuscles with lymphocytes. The predominance of endothelial cells indicates a recent irritation of the joint of little gravity. A predominance of red blood corpuscles should make the prognosis more reserved. Simple traumatic hydrarthroses do not present polynucleosis. Nontraumatic hydrarthroses may contain lymphocytes or polynuclears; sometimes the process seems to be due to a simple excess of synovial fluid in the joint, and no trace of figured elements can be discovered.

CUTANEOUS DIPHTHERIA.

THE World War has brought this subject before the medical profession anew. German surgeons saw wound localization in one-fifth of their diphtheria cases, and in only about 25 per cent. of them was faucial diphtheria also present. The frequency of these wound infections may easily be exaggerated, but certainly in any suspicious or atypical ulceration the secretions should be examined for the

bacillus of the disease. In summing up his long narration of a personal case in a man of twenty-seven years, Winkler (*Schweizerische medizinische Wochenschrift*, April 21, 1921, li, 16) emphasizes that the general condition was excellent at the time of the outbreak; that two sharply bordered ulcers with a grayish-white deposit appeared on the scrotum with larger and crustous ulcers on the right thigh and apparent furunculosis of the right hip region. These manifestations were followed by the appearance of faucial and nasal diphtheria. The disease-toxins caused a renal lesion—albuminuria and white blood cells in the urine. The pathogenesis was probably as follows: The virus was doubtless conveyed by the nails to the delicate skin of the scrotum, which was slightly macerated by dancing or cycling. From the initial focus the thigh was infected and two days later there was the first appearance of sore throat. Three other members of the family had a mild angina, which in at least one case was associated with the diphtheria bacillus. The family were butchers by trade, but the author is skeptical concerning the transmission of animal diphtheria to man, and the origin of the episode remains unsolved. Those interested in cutaneous diphtheria may read the magistral account by Trousseau, who had unusual opportunities for studying it. He witnessed one murderous epidemic in which the cutaneous location was greatly feared, since it often meant death to old as well as young. He said of it that it appeared on blistered surfaces, in the cutaneous folds of fat children, in herpes vesicles, rhagades of the breast, incised wounds, scrotal excoriations, and, in short, on any area divested of epidermis and subject to irritation.

In our own day the affection is limited almost wholly to children, especially those with the so-called scrofulous and exudative diatheses. Serum injection does not always prevent death from paralysis of the heart. Landé of Göttingen, who saw forty-four cases, states that the retroauricular fold was a favorite seat of cutaneous diphtheria. The typical diphtheritic ulcer he describes as follows: The epidermis is destroyed; the floor of the ulcer is the derma or papillæ of the corium; the margin is dentate and more or less infiltrated, at times like a wall with steep incline; the surrounding skin is reddened; there is a so-called false membrane on the base of the ulcer, of a grayish white or grayish yellow color, which comes away with difficulty and bloodily. The size of these ulcers varies greatly—from that of a pinhead to larger than a silver dollar. The membrane may be absent, or present only as a thin veil, but in many cases there is formation of a thick crust. The general picture has simulated impetigo, varicella, pemphigus, ecthyma, etc. Secondary phlegmon may develop in certain cases, as in diphtheria of the navel stump, causing fatal peritonitis. A diphtheritic felon has been described, and Kyrle has reported a case of chronic diphtheritic ulcer without implication of the general health.

The preceding pictures do not include actual wound diphtheria in which definite war wounds became infected with the bacillus. Aside from frank cases with severe and fatal termination there was an entire series of cases of wounds, smears from which showed the bacillus without clinical diphtheria. One German surgeon, Weinert, alone saw 200 cases of the latter, while of about 500 miscellaneous wounds in another clinic nearly 60 per cent. showed the bacillus on smears.

OSTEOMALACIA.

THIS affection has assumed new importance since the war because of the evident existence of a hunger type of the malady, because of the relationship with late rachitis and many bone deformities now classed under the latter, because of the advance of our knowledge of radiographic diagnosis, and of course by reason of the close relationship between osteomalacia and endocrine pathology. Hence, the article on this affection and its congeners by Schlesinger in the *Wiener klinische Wochenschrift* for May 5, 1921, xxxiv, 18, should be of timely interest. The term osteomalacia according to this author now denotes a group of diseases which show one trait in common—softening of the bones which may readily be cut, fragility, decalcification in places, etc. The skeleton is not uniformly involved in this process. First should be mentioned puerperal osteomalacia, a condition much more common than has been supposed. It shows a tendency to regional cumulation in certain localities. The initial symptoms comprise algias, so that the affection is often confused with neuralgias and rheumatism. There may be tenderness over the sternum, ribs, spine, or pelvis. A symptom of great significance is the adductor tension or spasm when the thighs are sharply abducted. Precocious paresis of the psoas is seen in stair climbing. The symptoms of the fully developed condition are sufficiently well known. Senile osteomalacia is seen after the close of the menopause and is a progressive affection. Paradoxically it cannot be brought in close association with abolition of the ovarian function. It is often associated with angiosclerosis of the arteries of the lower extremities. The condition is distinct from osteoporosis, but differentiation is by no means easy at times.

The osteomalacia of psychoses is more than a coincidence. It is very far from rare and attacks men as well as women. It is very difficult to recognize, for the numerous pains complained of are commonly regarded as psychogenic. Hunger osteomalacia has been known only since 1919, when it occurred in Austria in an outbreak of wide incidence. The initial symptoms were tenderness and spontaneous pains over the lower ribs and at times over the cranial bones. It stood in some close relationship with hunger tetany. In incomplete form hunger osteomalacia gave origin to a number of hitherto undescribed clinical pictures in the young. Here belong spontaneous fractures and certain painful local affections involving the spine, hips, sac-

rum, etc. Hunger osteomalacia was ascribed to general lack of food and lack of fats in particular. In regard to endocrine motivation the author mentions the frequent find of hyperplasia of the parathyroids and there is considerable evidence to suggest that osteomalacia is a pluriglandular syndrome. Under diagnosis, multiple bone tumors from metastasis may be excluded by the absence of albumosuria, absence of a primary focus in the breast, thyroid, etc., and especially by the *x*-ray. Paget's bone disease may also be excluded by the latter resource. The treatment of osteomalacia comprises phosphorus in codliver oil, soluble calcium salts, and, in cases of underfeeding, an appropriate diet.

The Treatment of Tuberculosis by Sodium Morrhuate.

For long in India and elsewhere chaulmoogra oil has enjoyed a high reputation in the treatment of leprosy. Dr. Victor Heiser by compulsory segregation and by the administration of chaulmoogra oil diminished greatly the incidence of the disease in the Philippines. In a paper read before the Section of Therapeutics and Pharmacology at the Royal Society of Medicine on April 19, 1921, Sir Leonard Rogers after relating his successful experiences with the gynocardate and chaulmoograte of sodium by intravenous injection in the treatment of leprosy, suggested an analogous method for combating tuberculosis. As for the use of oils of this nature in tuberculosis, Rogers says that the efficiency of sodium morrhuate, which he tested with favorable results in 1917, both subcutaneously and intravenously, in his opinion, justifies the publication of the method for trial by others and in preference to the use of tuberculin. The results recently shown in pulmonary cases were not so satisfactory as in glandular tuberculosis and lupus, in which the drug appeared to have a selective action, and for the former he advised treatment by sodium morrhuate combined with streptococcal vaccine derived from the organisms secondarily infecting the sputum. Experimental study of the gynocardate and morrhuate products in the laboratory had shown the destructive effect of the former on acid-fast bacilli, the addition of 1 per cent. sodium gynocardate preventing their growth on solid media. On the other hand, the morrhuates had no effect on cultures *in vitro;* when infected intravenously, however, they caused breaking up of the bacilli, a process which had been demonstrated in microscopical section of the leprous lesions. So far as this treatment of tuberculosis is concerned, it is still in the experimental stage, but experiments in this direction are sufficiently encouraging to arouse and foster the hope that, at any rate, the glandular forms of tuberculosis, for which sodium morrhuate appears to exhibit a selective action, should be benefited by its administration.

Diffusion Through the Vagus Nerve of Poisons Taken by the Mouth.

The vagus nerve is often involved more or less in organic affections of the stomach. In ulcer and especially ulcus callosum of the lesser curvature, as well as in certain cases of cancer, there may be a vagus neuritis. From the peripheral filaments the disease ascends along the nerve fibers until the trunk is reached. In studying this phenomenon, Loeper, Forestier and Tonnet made a number of experiments with toxic substances—potassium ferrocyanide, formol, and tetanus toxin, substances which may be demonstrated by histochemical or biological tests. (*Progrès Médical,* April 30, 1921, xlix, 18). In young fasting dogs the pylorus was ligated and 60 c.c. of the 20 per cent. solution of ferrocyanide introduced into the stomach. Absorption was shown by the elimination of the drug in the urine but the histochemical test of the tissues with hydrochloric acid and perchloride of iron proved negative. When formol was used to the extent of 30 c.c. of 15 per cent. aqueous solution the result was also negative, but the substitution of a glycerine solution, after scratching the mucosa with a needle, gave a positive result, as shown by the rosaniline bisulphite test. In the absence of exact information on the matter we have to conclude that these histochemical tests were made in connection with fibers of the vagus. The tetanus toxin was introduced into the stomach like the other substances—20 c.c. of a 1 to 2 per cent. solution after ligation of the pylorus. Here a histochemical demonstration was of course out of the question. It was long ago shown by Vincent that the stomach mucosa and juices are able to neutralize the local action of the toxin and prevent its absorption. The authors therefore took the precaution to scratch the stomach mucosa with the needle as above mentioned. The left vagus was then excised, triturated into a pulp, and injected into the right forefoot of a guinea pig. The second day showed a paresis of this member, followed on the ensuing day by full paralysis and contracture of the same. The sciatic of the same dog used as control gave a negative result. So far as the research has gone it seems assured that at least two classes of substances, aldehydes and toxins, are able to traverse minimal lesions of the gastric mucosa and became incorporated incidentally in the distribution of the vagus nerve. It is, therefore, possible that in the pathological stomach certain toxic substances may also be able to interfere with the innervation of the vagus nerve in a like manner.

Impalement Injuries.

These lesions are relatively rare, and we do not recall any large material even in collected cases. It is therefore somewhat of a coincidence to find a report of 7 cases in the current number of the *Journal d'Urologie* (xl, 4) and another of 5 in the *Upsala Läkareförenings Handlingar* for June 8, 1921, xxvi, 3-4. The longer series is reported by Ferron under the title of wounds of the perineum, all but one occurring in males. Four patients died of the injury. They had been operated on, but too late to save life. The fatal result seems to have been due to wounds of the intestine. Of those who escaped death one suffered from a perforated bladder while the other two sustained a lesion of the urethra. So far as the external wound is concerned all the cases were of a single type—lacerated, profusely bleeding wound of the perineum. The paper,

while long, is wholly technical and the author attempts no analysis of his cases. The other reporter is Häggstrom of Upsala, the assistant of Petrén. Four cases are given in the first contribution, followed by a separate description of a belated fifth case. There is a notable difference between the Scandinavian and French cases for the former occurred in children and adolescents, and of the five, two were female. The material of Ferron comprises three elderly and two young men, one adolescent, and a little girl. Of the seven cases of Ferron, five were intraperitoneal, all ending fatally but one. Of the five Scandinavian cases, two were intraperitoneal, but all five recovered, in marked contrast with the mortality in the French series. Quite unlike the latter, in which the anus and rectum seem to have been spared, the Upsala series presented but two cases of perineal wound, the sharp object having in the other three cases entered the pelvis through the anus.

News of the Week.

Infantile Paralysis in New York State.—According to figures made public on September 9, there had been reported to the New York State Department of Health from July 1 to that date 241 cases of infantile paralysis with 21 deaths. It is probable, however, that these figures do not represent the entire mortality from this cause. The total number of cases of infantile paralysis reported to the New York City Health Department during this period was 78, making a total of 319 for the entire State. Fifty-eight cases have been reported from Utica.

Source of Typhoid Fever Epidemic Discovered.—The typhoid fever epidemic in Monmouth and Burlington counties, N. J., has been traced by the State Department of Health to chicken salad served at a church harvest home festival in Jacobstown, July 27. Up to September 8, there have been 200 cases reported in 116 homes in twenty-three different communities, all traced to the harvest festival. This is the most widespread and virulent epidemic of typhoid fever that has occurred in New Jersey for many years. Patients have been discovered on certain dairy farms from which milk is shipped over a wide area. The health authorities have accordingly stopped the shipment of milk from such farms.

Society for Cinematographic Instruction.—This society, in New York City, has devoted the past eighteen months to experimental work at hospitals and laboratories in order definitely to ascertain the applicability of the motion picture to the study of medicine, surgery, and dentistry, and through processes which have been evolved it is now possible to record accurately and permanently every detail of any minor or major surgical operation. Having established this fact, it is the aim and intention of the society to work out various courses of study by means of cinematography, and to establish a central cinematographic library in New York City. This library will be equipped for private and group study, while members and institutions at a distance may either rent or purchase at a nominal charge, duplicate copies of any of the subjects in the main library. At the present time an exchange arrangement is being negotiated with the profession in a number of the European countries where such cinematographic work is being done. Any physician, surgeon, or dentist in good standing is eligible to membership in the society. Monthly meetings will be held at which will be shown the latest work in its courses, and research work will be pursued continuously. Dr. James S. Edlin of New York is president of the society.

New Hospital Nears Completion.—The Fifth Avenue Hospital, New York, located on Fifth Avenue between 105th and 106th Streets, is rapidly progressing toward completion. Of a total of $3,000,000 for the building fund only $750,000 remains to be subscribed. An endowment fund of $1,000,000 has been provided which will insure maintenance after completion. This will be the first wardless hospital in the world, and is designed especially for persons who have not enough money to pay for private care and who do not wish to accept charity.

Connecticut Psychopathic Hospital.—Under the auspices of the Yale Medical School, the State of Connecticut and the Rockefeller Foundation will unite to finance a proposed Connecticut Psychopathic Hospital. The Rockefeller Foundation will contribute $500,000, the State probably the same amount, while the share and part of Yale in the transaction have not yet been determined. The hospital building will be erected by that State grant, the Rockefeller Foundation will supply the salaries for the teaching staff, while Yale may supply the clinical quarters and other costs. There will be a close connection between the Psychopathic Hospital and the New Haven General Hospital. Dr. Paul Waterman of Hartford is Chairman of the Commission.

Dr. James G. Fickel, who has practised medicine for nearly fifty years in Carlisle, Pa., retired from active practice on September 1.

Dr. James A. Waterman of Breckenridge, Mo., has been named penitentiary physician of Jefferson City to succeed Dr. W. A. Clark.

The American Public Health Association will hold its semi-centennial celebration in New York City, November 8-18, 1921. There will be four phases of the celebration: (*a*) Scientific sessions will be held November 14-18. (*b*) A health institute will be conducted during the week preceding the convention proper, November 8-12, which will consist in organized demonstrations of the various types of public health activities in New York and its environs. (*c*) Dr. Stephen Smith, the founder and first president of the Association, who is now in his 99th year, will be the guest of honor at a banquet to celebrate his approaching centennial and the semi-centennial of the Association. (*d*) An historical jubilee volume, entitled "Fifty Years of Public Health," will be published about October 1. There will be articles by seventeen authors, relating to the accomplishments and present status of each of the important branches of public health, and presenting a general history of public health from the earliest days to the present. Information regarding the celebration may be had upon addressing the Association at 370 Seventh Avenue, New York City.

Promoter of Fraudulent Tuberculosis Cure

Prosecuted.—The New York City Department of Health brought action some time ago against a physician of this city for violation of section 118 of the Sanitary Code, which pertains to fraudulent representation concerning treatment. Evidence was presented at the trial which showed conclusively that the accused had claimed that a preparation made by him was a specific cure for tuberculosis. These claims were proven to be fraudulent and, as a result, a $500 fine was imposed by the court. The case was of somewhat more than usual interest because of the difficulty of obtaining a sample of the preparation for analysis, as the man insisted on administering it himself, believing that in so doing he was safe from prosecution because of lack of evidence. However, a sample was finally secured for analysis, which showed that the preparation was a shotgun mixture of a great many common pharmaceuticals.

Medical Society Elections.—THE MEDICAL SOCIETY OF DELAWARE at its 132nd annual session held in Rehoboth, August 14-16, 1921, elected the following officers for the ensuing year: *President*, Dr. J. W. James, Dover; *First Vice-President*, Dr. James M. Martin, Magnolia; *Second Vice-President*, Dr. John Ball, Elsmere; *Secretary*, Dr. W. O. LaMotte, Wilmington; *Treasurer*, Dr. S. C. Rumford, Wilmington.

THE ALBERTA MEDICAL ASSOCIATION, at its meeting held in Calgary, Alta., August 17, 1921, elected the following officers for the ensuing year: *President*, Dr. A. E. Archer, Lamont; *First Vice-President*, Dr. A. Anderson, Edmonton; *Second Vice-President*, Dr. William McKenzie, Red Deer; *Secretary*, Dr. Hepburn, Edmonton; *Treasurer*, Dr. T. J. Costello, Calgary.

Obituary Notes.—Dr. WALTER W. PARMALEE of Auburn, Maine, died following a surgical operation on September 2, at the age of forty-seven years. He was graduated from the University of Vermont Medical College in 1909.

Dr. FREDERICK NORMAN SWIFT, a graduate of Long Island College Hospital, Brooklyn, in 1896, died at his home in West Chazy, N. Y., on August 10.

Dr. STANLEY HEWITT HAYNES of Minneapolis., Minn., died in a local hospital following an operation on August 8, at the age of twenty-eight years. He was graduated from Rush Medical College in 1919.

Dr. ALBERT W. GREEN of Utica, N. Y., a graduate of the College of Physicians and Surgeons, Baltimore, in 1884, died from the effects of a paralytic stroke on August 17, at the age of sixty-eight years.

Dr. WILLIAM F. ROSS of Booneville, Ark., a retired physician, died on August 9, at the age of sixty years.

Dr. WILLIAM M. KENNISTON of Exeter, N. H., died of heart disease in Skowhegan on August 18, at the age of fifty-one years. He was graduated from Bowdoin Medical School in 1895.

Dr. M. R. WAGGONER, a practitioner of medicine of De Witt, Ia., for sixty-five years, died on August 11, at the age of eighty-three years. He was graduated from the Hahnemann Medical College and Hospital Chicago, in 1871.

Dr. JOHN M. BOICE of Sistersville, W. Va., a graduate of the Medical College of Ohio in 1878, died suddenly in August 12, at the age of sixty-five years.

Dr. JOHN A. DUNCAN of Havre, Mont., a graduate of the University of Toronto Faculty of Medicine in 1904, died suddenly of heart disease on August 10, at the age of forty-three years.

Dr. HENRY A. VEAZIE of New Orleans, La., well known for his work and writings on yellow fever, died after a lingering illness in a local hospital on August 11, at the age of sixty-six years. He was graduated from Tulane University School of Medicine in 1876, and for many years has been a member of the visiting staff of Charity Hospital.

Dr. ROBERT EUGENE BERING of San Francisco, Cal., a graduate of Tulane University, New Orleans, La., in 1895, died of paralysis at Long Beach, Cal. He was for fifteen years superintendent of the Bering Senatorium in San Francisco and a former member of the Standard Medical Faculty.

Dr. F. D. VANDERHOOF of Phelps, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1864, and said to be the youngest surgeon in the Civil War, died on July 29, at the age of seventy-eight years. For several years he served the town of Phelps as health officer.

Dr. NATHANIEL GREEN STANTON, the oldest practicing physician in Newport, R. I., died suddenly on July 2, at the age of eighty-five years. He was graduated from Harvard University in 1866.

Dr. LESTER BURNSIDE LEGRO of Haverhill, Mass., died of diabetes on August 18, at the age of fifty-six years. He was graduated from the Baltimore Medical College in 1905, and was a member of the American Medical Association and the Massachusetts Medical Society.

Dr. HENRY WINCHESTER SAWTELLE of Washington, D. C., after an illness of five years, died in a local hospital on August 19, at the age of eighty years. He was graduated from Georgetown University in 1868, and was appointed an Assistant Surgeon in the U. S. Marine Hospital Service in 1873. He was promoted to the grade of Surgeon in 1879, served at various Marine Hospitals in the United States, and was retired from the service in 1906. He was a member of the American Medical Association, the State Medical Association of Maine, the Association of Military Surgeons of the United States, the Detroit Academy of Medicine, and the Southern Medical Association.

Dr. JOHN S. SAUVELLE of New York, a graduate of the College of Physicians and Surgeons, New York, in 1889, died on August 28. He was for many years consultant to the French Hospital.

Dr. WARREN BLANCHARD CHAPIN, a graduate of New York University Medical School in 1888, died at his home in New York City on August 29.

Dr. GEORGE VICKERS PRICE, a retired physician of Brooklyn, N. Y., died of cerebral hemorrhage on August 30, at the age of sixty-five years. He was graduated from New York University Medical College in 1885.

Dr. ALEXANDER MARCY, Sr., for many years a practising physician of Camden, N. J., died at his summer home at Cape May on August 18, at the age of eighty-four years. He was graduated from the University of Pennsylvania school of Medicine in 1861.

Dr. ARTHUR G. THOMPSON of Pine Bluff, Ark., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1880, died suddenly on August 18, at the age of seventy years.

Dr. LEWIS C. PAGE of Honey Grove, Tex., a graduate of Rush Medical College in 1870 died on August 20, at the age of 76 years.

Dr. HENRY RICH HIGGINS, a graduate of Boston University School of Medicine in 1883, died at his home in Boston on August 23, at the age of seventy-six years.

Dr. CHARLES A. STONE of Mason City, Ill., died on August 20, at the age of fifty-two years. He was graduated from Rush Medical College in 1894, and served for a terms as mayor of Mason City.

Dr. SAMUEL BURTON MCGARRY of Joice, Ia., a graduate of Drake University College of Medicine, Des Moines, in 1903, died in a hospital in Mason City, Ill., on August 20, at the age of forty-eight years.

Dr. ERNEST PIERRE DUPRE of Paris, an officer of the French Academy of Medicine, died on September 2, at the age of fifty-nine years. He was widely known for his writings on pathology and on nervous and mental diseases.

Dr. FRANK P. SMITHSON of Forest Hill, Md., died of paralysis in a local hospital, on August 12, at the age of sixty-nine years. He was graduated from the University of Maryland School of Medicine in 1880.

Dr. EBENEZER ALDEN DYER of Whitman, Mass., a graduate of Bellevue Hospital Medical College, New York, in 1882, died after a lingering illness, on August 22, at the age of sixty-three years.

Dr. FRANCIS JAMES DRAKE of Phillipsburg, Pa., a graduate of the University of Pennsylvania School of Medicine in 1900, died in a local hospital on August 26, at the age of forty-nine years.

Dr. AMERIC GEORGIO D'AMICO of Somerville, N. J., a graduate of the University and Bellevue Hospital Medical College in 1919, was instantly killed when his automobile was struck by a locomotive near Somerville, on August 28. He was twenty-six years of age.

Dr. ROBERT B. CAREY, of West Chester, Pa., a graduate of the University of Michigan Medical School in 1871, died after a prolonged illness, on September 2, at the age of seventy-nine years.

Dr. GERTRUDE A. G. BISHOP of Brooklyn, a graduate of the New York College and Hospital for Women in 1877, died on September 5, at the age of eighty-three years. She was at one time resident physician of Wellesley College, and for twenty years was a director of the Woman's Health Protective Association of Brooklyn.

Dr. FREDERICK S. CRUM of Newark, N. J., assistant statistician of the Prudential Insurance Company, was accidentally drowned near Oakland, Me., on September 2. He received the degree of Ph.D. from Cornell University in 1897, and for many years was a member of the Newark Board of Health. He was forty-nine years of age.

Dr. CHARLES H. SMITH of Linglestown, Pa., died from the effects of a stroke of apoplexy on September 2, at the age of seventy years. He was graduated from the University of Pennsylvania Medical School in 1872, and was for many years Commissioner of his county.

Correspondence.

THE EPIDEMIC OF POLIOMYELITIS IN THE CITY OF NEW YORK.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—During the last ten days poliomyelitis has assumed a truly epidemic character, the increase in the cases apparently being the result of the return of a large number of children from the different summer resorts. The disease being much milder in character than in 1916, undoubtedly a great many cases are escaping observation. The prodromic stage is very indefinite, consisting of slight fatigue, anorexia, and irritability, and is rapidly followed by vomiting, rise of temperature and pulse-rate, rigidity of the neck, especially on bending the head toward the sternum, muscular tremor or jerking, more or less marked drowsiness, and pronounced irritability when disturbed. The patients complain of pain only when handled. In one of our cases, in an infant eight months old, the onset of the disease was accompanied by convulsions, and in another case, a boy four years old, by transitory diplopia. The paralysis makes its appearance within about forty-eight hours of the onset of the disease. Facial paralysis is especially common in this epidemic and abducens and glossopharyngeal paralysis is not uncommon. In only one of our cases were the respiratory muscles affected. In several of our cases, instead of frank paralysis, only marked ataxia was noted, which symptom, by the way, should always be looked for in doubtful cases.

The fatality in this epidemic thus far is fortunately low. Early lumbar puncture is a useful procedure, and the same holds true of the administration of the salicylates and hexamethylenamine during the entire course of the disease. There is at present no positive evidence of the value of convalescent serum, either as a preventive or as a curative agent. Where cerebral symptoms prevail, warm baths are beneficial.

Of course, every suspicious case of the disease should be promptly isolated and the patient should be given the benefit of absolute rest to body and mind.

HERMAN B. SHEFFIELD, M.D.
127 WEST EIGHTY-SEVENTH STREET, NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, August 24, 1921.

The Health of London.—The annual report of Dr. W. H. Hamer, county medical officer of health of the County of London, on the health of that city, has just been issued. Some of the facts set forth therein are both interesting and important. The birth rate rose from 18.2 to 26.4 per 1,000. The death rate fell to 12.6, the lowest ever recorded. The infant mortality was 76, compared with England and Wales as a whole, and 85 for New York, the only other city of the world approaching in population to that of London. While these are the main outstanding facts many of the details of the report and some of the remarks of Dr. Hamer are highly interesting to those concerned with health problems in all parts of the world. Especially

should they attract the attention of the health authorities and medical profession of New York, which as said before, is the only other great aggregate of population which can be compared with London. A deduction drawn from the phenomenal general and infantile death rates mentioned in the report, as Dr. Hamer truly said, relating as they do to so large a population as that of the county of London is that it must give pause to those who advocate, at any rate, on grounds of health alone "a return to the land," and cause hope to spring in the breast of even the most gloomy and pessimistic of the four and a half millions of human beings whose avocations compel them to work and live within a few miles of St. Paul's. A death rate of 12.6, if it were possible to maintain it at that level for a series of years, would entail an average duration of life of the four score years deemed some thousands of years ago to be attainable only "by reason of strength and far exceeding the expectation of life of the first life table of William Farr, the pioneer British health statistician and of all the later tables, too.

Some observations of Dr. Hamer on the influence of migration from the country on London's health statistics and on the tuberculosis rate especially, give one furiously to think. He guesses roughly that nearly a sixth of the phthisis mortality of London is a mortality of men and women, chiefly men who have come to London after early middle life. He states definitely that this conclusion is not based merely on a priori reasoning, but on much close observation of London life and statistical matter. What he has to say on this subject is really of intense interest and applies quite as nearly to New York as to the British metropolis. He points out that it is now agreed that London draws in, as it were, like a vortex, the enterprising and ambitious boys and girls from all parts of the country. But perhaps even more important from the phthisis point of view is the fact that the lure of London continues to be exerted in later years. At the higher ages there are, however, marked distinctions and differences, qua sex and quality. The female immigration apparently reaches its maximum at an earlier age than the male, and the male curve continues at a higher level after the female curve has noticeably declined. Moreover, as the age of the immigrants is increased their quality becomes poorer, and this is particularly the case with the males. Young single men and single women coming to London are, as a rule, enterprising and ambitious. After a time the young men fetch up their sweethearts from the country and start housekeeping in London, and a considerable number of young married people, perhaps, with young families, come, too. There is a noteworthy falling off in immigration of women after 30 or 35, few country women come to London to stay there after 40, and very few after 50 years.

The essential importance of good nutrition in the upbringing of a healthy race is well brought out in the report. It is stated that during the war years there was a notable improvement in the general physical condition of the children as shown by the state of their nutrition. In 1919, however, it was remarked that there was a perceptible deterioration of their nutritional state, and that this was especially marked in the case of children entering upon school life, in whom it might be expected that the earliest reaction to adverse circumstances would be seen. Unfortunately, this deterioration has continued, and is now shown in boys and girls of all ages, but especially in the case of the eight-year-old group, in which the greatest amount of undernourishment is apt to be found. Although the deterioration is not as yet alarming, it is significant, and reflects the effects of combined high prices and unemployment.

Stammering appears to be a somewhat common affection among London children. The total number of notifications for this disability during 1920 was 914,682 boys and 232 girls. There were found to be two distinct sets of cases. In the first the stammering came on together with the development of speech; these cases were the more difficult to cure. In the second, the stammering came on later after a period during which the child spoke normally. Frights of various kinds were frequent causes, and among these air raids during the war played a part. Night terrors and nightmare were associated with many of these. The majority of children were found at the outset to possess very poor chest development with marked rigidity and spasmodic breathing. Part of the training was accordingly directed toward the improvement of the condition of the chest, particularly with the object of inducing relaxation. The reports for the whole of the year 1920 show that 225 children were treated, 106 were cured, 61 left before cure or were withdrawn for various reasons, and 108 were in attendance at the end of the year. It is instructive to note for the edification of those who believe that left handedness usually accompanies stammering, that this condition was found in only thirteen cases.

Meeting of the British Association.—The British Association for the advancement of science will meet in Edinburgh from September 7 to September 14, inclusive. Sir Edward Thorpe will be the president in succession to Professor W. A. Herdman.

The Use and Abuse of X-rays.—The lay papers here a few weeks ago "boomed" a new *x*-ray apparatus as a probable cure for internal cancer. Indeed, some of these journals went even further than this. The apparatus in question is known as the Wintz apparatus from the name of the Bavarian doctor, who has been employing it. It is not new in principle nor are the claims advanced for it by any means admitted in Germany. British radiologists feel very strongly on the matter; in fact, so impressed are they that unjustifiable and extravagant assertions have been made of its capabilities that an official statement is to be publicly brought out by the medical society which comprises the leading British practitioners of *x*-ray methods.

History of Deaf Mute Instruction.—The priority in this advance is usually given to Cardan with Fabricius ab Aquapendente as the practical successor. Recently Spain has asserted her claim as the rightful pioneer through the names of Pedro Ponce, a Benedictine, who was the original instructor (1500-1584), and Bonet, who published the first book on the subject in 1620.—*La Pediatria.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 1, 1921, clxxxv, 9.

1. Extra Pleural Thoracotomy for Advanced Unilateral Pulmonary Tuberculosis. Wyman Whittemore and G. Lawrence Chaffin.
2. End Results in Cancer Cases. Cancer of the Breast. Robert B. Greenough and Channing C. Simmons.
3. Myxedema Following Treatment of Graves' Disease with Roentgen Ray. Malcolm Seymour.

1. Extra Pleural Thoracotomy for Advanced Unilateral Pulmonary Tuberculosis. Report of a Case.—Wyman Whittemore and G. Lawrence Chaffin state that since the beginning of the use of pneumothorax in the treatment of pulmonary tuberculosis, there has been felt the need of a treatment for the 25 per cent. of the cases in which a satisfactory collapse of the lung cannot be effected, because of adhesions between the parietal and visceral pleuræ. It was for this group of cases that Bauer and Friedrich, in 1907, advanced the idea of an extra pleural thoracoplasty. The original operation of Friedrich has been greatly modified and a mortality rate of 25 per cent. has been reduced to one of comparative safety. Enough cases have been done in Europe with satisfactory results to urge that this operation be done more generally in the United States. The case reported is the only one treated by this method at the Massachusetts General Hospital. The patient was an Italian laborer, 34 years of age, who gave a history of eight years' duration. He was operated on August 3, 1920, by the method of Paulsen and Sangman, under regional and mass infiltration anesthesia, following preoperative medication with morphine sulphate. Subperiosteal resection of sections of the upper eleven ribs, beginning at the eleventh and working upward, was done, the ribs being sectioned posteriorly as near the transverse processes as possible, but it was not thought important to carry the anterior section too near the sternum. The sections of ribs removed measured from 2 to 11½ cm. The parietal pleura was freed forward and backward, from the chest wall, care being taken not to open the pleural cavity. After completing the operation a thick gauze dressing was held in position by adhesive and an especially made chest belt applied at once to compress the right lung. Following this the patient made rapid improvement under sanatorium treatment, and gained twenty pounds. After leaving the sanatorium he began to lose weight, but under hygienic home treatment was again improving rapidly.

2. End Results in Cancer Cases. Cancer of the Breast.—Robert B. Greenough and Channing C. Simmons urge the need of some uniform standard for reporting end results of operations for cancer in order that comparison of the work of different clinics may be possible, and accurate mass statistics obtained. In a recent paper on cancer of the breast an arbitrary standard was adopted, and that standard has been maintained in the present communication. It is as follows: (1) A definite period of time has been elected, ending at least three years prior to the report, and all the cases entered in the hospital records under the given diagnosis have been investigated. (2) No case has been accepted as cancer without proof by pathological examination, or subsequent recurrence, or autopsy. (3) Cases which have survived at last report, only a portion of the necessary three year period, are eliminated as inconclusive. (4) Cases not traced at all after discharge from the hospital, and not appearing in the mortality statistics of their place of residence, are eliminated as inconclusive. (5) All cases fulfilling the above requirements are published and counted in the statistics with such subdivision into radical and palliative operations as may seem expedient. A scheme for the reporting of end results is presented and also a study of 103 cases of primary cancer of the breast admitted to the Massachusetts General Hospital from August 1, 1911 to April 1, 1914. Of these 95 are available for the study of end results, which are compared with those of a series reported by the writers in 1907. In the later series the time limit has been extended for three to five years and in spite of this fact the percentage of "cures" for all operations has been raised from 19 to 27 per cent., and the percentage of "cures" for radical operation from 31 to 32 per cent. Details in regard to errors in diagnosis, operative complications, date and site of recurrences, variety of cancer, and involvement of axillary glands are given.

Journal of the American Medical Association.

September 3, 1921, lxxvii, 10.

1. The Acute Element in the Chronic Nephropathies. Charles P. Emerson.
2. Truer Standards in the Diagnosis of Heart Failure: A Hitherto Unemphasized Form of Pulse Irregularity. Harry I. Weil.
3. A Study of Tropical Sprue, or Psilosis. David Bovaird.
4. The Role of Fatigue in the Malnutrition of Children. Borden S. Veeder.
5. Effect of Posture on the Health of the Child. Frank D. Dickson.
6. Observations on the Heart in Diphtheria. S. Calvin Smith.
7. Use of the Sigmoid Flexure and Cecum in Pelvic Peritonization. Carey Culbertson.
8. Standardization of the Wassermann Reaction. John A. Kolmer.
9. Public Health and Private Practice. L. L. Lumsden.
10. Experimental Inoculations in Scarlet Fever. George F. Dick and Gladys Henry Dick.
11. Intermittent Hydrarthrosis. Walter L. Bierring.

1. The Acute Element in Chronic Nephropathies.—Charles P. Emerson. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1084.)

2. Truer Standards in the Diagnosis of Heart Failure: A Hitherto Unemphasized Form of Pulse Irregularity.—Harry I. Weil. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1080.)

3. A Study of Tropical Sprue, or Psilosis.—David Bovaird. (See MEDICAL RECORD, June 11, 1921, xcix, 24, p. 1036.)

4. The Role of Fatigue in the Malnutrition of Children.—Borden S. Veeder. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1085.)

5. Effect of Posture on the Health of the Child.—Frank D. Dickson. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1084.)

6. Observations on the Heart in Diphtheria.—S. Calvin Smith. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1080.)

8. Standardization of the Wassermann Reaction.—Dr. John A. Kolmer describes his efforts to build up a new standard complement fixation test for syphilis. He does not call it a standardized test, however, because only future experience can tell whether it deserves that designation, but it is intended to meet the requirements of a standardized technic in the following ways: A. *Meeting the requirement of sensitiveness* by: (1) using a highly sensitive antigen; (2) using relatively large amounts of antigen; (3) using relatively large amounts of serum and spinal fluid; (4) heating serums for only fifteen minutes at 55° C.; (5) using a mixture of guinea-pig serum complements prepared in a manner tending to increase sensitiveness to fixation; (6) mixing serum and antigen for a brief period before the addition of complement; (7) using a primary incubation of from fifteen to eighteen hours at from 6° to 8° C.; (8) by close adjustment of the hemolytic system adjusted to cold primary incubation; (9) by using an antisheep or antiox hemolytic system; the test may be conducted with an antihuman system that is not as delicate as with an antisheep system; (10) by reading the reactions three hours after the conclusion of the secondary incubation. B. *Meeting the requirement of practical specificity* by: (1) adjustment of the hemolytic system to cold primary incubation; (2) adjustment of the dose of antigen to cold primary incubation, and (3) using numerous controls. C. *Meeting the requirements of technical accuracy and uniformity in results* by: (1) adoption of the principle that pipetting relatively large amounts of fluid (from 0.2 to 1.0 c.c.) tends to greater accuracy than measuring smaller amounts; (2) using a total volume of 3 c.c. with sufficient corpuscles and test tubes of suitable size to yield clear, sharp, and easily read reactions; (3) using a reading scale furnishing hemoglobin in solution and nonhemolyzed corpuscles in proper portions. D. *Meeting the requirements of a quantitative reaction.* This has been accomplished by employing a series of dilutions or doses of serum or spinal fluid. Extensive trials have shown that five doses (six tubes, including the serum control) are sufficient and a method

has been worked out whereby these may be prepared rapidly and accurately. The test also meets the requirements of economy and simplicity. The writer bespeaks the cooperation of serologists and asks them to give the new test a fair and unbiased trial for the purpose of gradually adopting a technic which the majority of serologists can subscribe to as being worthy of adoption as a standard complement fixation test for syphilis.

10. Experimental Inoculations in Scarlet Fever.—George F. Dick and Gladys Henry Dick have conducted inoculation experiments with whole blood of early scarlatina patients and with filtered throat mucus. In all, thirty volunteers were inoculated with eighteen strains of hemolytic streptococci, and then observed for sore throat, fever, and rash on the skin or palate. All were negative as to rash on the skin or palate. Seven developed sore throat associated with fever and leucocytosis without rash. Twenty-three were entirely negative. Nine inoculation experiments were done with a living pure culture of a pleomorphic organism similar to those previously found in cultures of throat, blood, and urine in early cases of uncomplicated scarlet fever. Attempts to prepare a satisfactory antigen of this organism for complement fixation tests were not successful. The strain used in these experiments was isolated from the throat mucus and the inoculation carried out by means of throat swabs. Two of the nine developed sore throat with fever, leucocytosis, and a rash on the palate, but did not show a skin rash. This organism evidently bore no etiologic relation to scarlet fever. In this series of inoculations no instance of typical scarlet fever was produced.

11. Intermittent Hydrarthrosis.—Walter L. Bierring. (See MEDICAL RECORD, June 18, 1921, xcix, 25, p. 1083.)

The Lancet.

August 13, 1921, cci, 5111.

1. Presidential Address on Psychology of Medicine: Its Position in Medical and Allied Services. C. Hubert Bond.
2. Further Experiments on the Preservation of Lemon Juice and Prevention of Scurvy. Percy W. Bassett-Smith.
3. Scurvy: A System of Prevention for a Polar Expedition, Based on Present-Day Knowledge. A. H. Macklin and L. D. A. Hussey.
4. Anesthesia with Nitrous Oxide and Oxygen Under Pressure. H. H. Dale and Leonard Hill.
5. Nausea and Vomiting in Pregnancy. Victor John Harding.
6. The Problem of the Head Louse. G. A. Auden.

4. Anesthesia with Nitrous Oxide and Oxygen Under Pressure.—H. H. Dale and Leonard Hill have carried out experiments on cats which showed that they cannot be deeply anesthetized by nitrous oxide until asphyxiation is partly induced. They then tried the same mixture, viz., eight parts of nitrous oxide to one part of oxygen, in the pressure chamber at the Lister Institute. The method of administration was absolutely the same except that the air pressure was raised to about 1½ atmospheres. The effect of the extra half atmosphere of pressure was to raise the partial pressure of nitrous oxide notably, and, at the same time, make that of oxygen much nearer to that in the air of the plains. In this way full, deep anesthesia without any deficiency of oxygenation was obtained. The writers believe that in an operating room built as a pressure chamber it should be a very simple thing to secure sufficiently deep anesthesia in man, using nitrous oxide and oxygen, four, five, or six parts to one, with safety and with freedom from symptoms of after poisoning and shock. An air compressor would be required to keep up the pressure at the extra half atmosphere, or less, and to ventilate the chamber, and an air lock would be needed to permit people to pass freely in and out. With such an apparatus it would be possible to overcome the present drawbacks to nitrous oxide oxygen anesthesia. It is hoped that it will soon be possible to bring the method to practical trial.

5. Nausea and Vomiting in Pregnancy.—Victor John Harding recalls that a little over two years ago he put forward the theory that the nausea and vomiting of early pregnancy is due to a deficiency in the maternal liver; that secondary factors are intestinal intoxication and neurosis; that as the condition progresses starvation and possibly dehydration intensify the symptoms to a degree known as pernicious vomiting, and that correct therapy consisted in the recognition of these factors and bringing them under proper control. In the present communication he extends and amplifies the contention of the previous report and states that nearly two hundred cases have been treated by carbohydrate feeding with but few failures, and those due to deliberate and continued breaking of dietetic regulations, or to the fact that the patients came in such advanced stage of pernicious vomiting that it was doubtful if any treatment would have been of avail. The treatment consisted in the use of glucose to restore and maintain the glycogen content of the maternal liver; a high carbohydrate diet, from which fats might be excluded for a considerable time; rest and isolation, with a cautious use of sedatives to control the neurosis, and the use of water, by mouth, if possible, if not by enemata, or by glucose solution administered intravenously, to combat any dehydration.

British Medical Journal.

August 13, 1921, *No.* 3163.

1. Adolescent Tetany and Its Relation to Guanidin. F. J. Nattrass and J. S. Sharpe.
2. The Sachs-Georgi Precipitation Test for Syphilis, and a Comparison with the Wassermann Reaction in over 1500 Cases. T. Taniguchi and N. Yoshinare.
3. Typhoid Fever in an Infant Complicated with Suppurative Arthritis. E. N. Russell.

1. Adolescent Tetany and Its Relation to Guanidin.—F. J. Nattrass and J. S. Sharpe assert that from the observations of a number of investigators the conclusion seems inevitable that the symptoms of tetania parathyreopriva and of idiopathic tetany of children are both due to some error in the metabolism of guanidin in the body. Findlay and Sharpe, in 1920, recorded a case of adult tetany in which the excretion of guanidin in the urine and feces was markedly above normal. They now record another case of the same kind in which the excretion of guanidin in the urine and feces was estimated. The patient was a girl of fifteen years, who gave a history of painful spasms of the hands for about a year before coming under observation. The attack occurred apparently from no cause. An attack in one hand would be induced by pressure on the corresponding nerve trunks in the upper arm (Trousseau's sign), and a very severe attack in the right hand followed shortly after galvanic testing of the right ulnar nerve. There was also a history of tetany in a brother and a sister of the patient. The patient was placed on a creatine-free diet and the excretion of guanidin estimated by the pierate method, and found to be in excess of normal. The patient showed a slight, uniform enlargement of the thyroid gland, no greater than that often seen in girls at puberty, and no signs of hyperthyroidism. She was treated over a long period with parathyroid and thyroid tablets with no appreciable effect. Neither has the administration of salol by mouth appeared to diminish the attacks.

2. The Sachs-Georgi Precipitation Test for Syphilis.—T. Taniguchi and N. Yoshinare have compared the results of the Sachs-Georgi and Wassermann tests in a series of 1,575 serums, comprising cases submitted to the laboratory from the wards of a general hospital, as well as the venereal diseases center. The results of the two tests were parallel in 90 per cent. of the serums examined. There were discrepancies in 157, or 10 per cent., of the cases. In 23 of these there was a positive Wassermann but a negative or doubtful Sachs-Georgi reaction; in 77 there was a negative or doubtful Wassermann but a positive Sachs-Georgi. When cases of syphilis which had undergone specific treatment are grouped by themselves the proportion of positive results with the Sachs-Georgi test is greater than with the Wassermann reaction. Attention is directed to the following practical points in performing the test: (1) Heated serum should be used; unheated serum from positive cases may fail to cause precipitation in any concentrations. (2) The concentrations of serum recommended should not be exceeded, since heated normal serums in large amounts —for example, 0.2 to 0.3 c.c.—may cause precipitation. No positive case has been met with in which the usual amounts of heated serum employed failed to show pre-

cipitate, but the reaction may be more marked with 0.05 c.c. than with 0.1 c.c. (3) The mixture must be kept at 37° C., as a precipitate may form with non-syphilitic serums at lower temperatures. Sometimes, however, it is an advantage in the case of weak reactions to record the results after the tubes have stood for thirty minutes further at room temperature, but the behavior of the negative control must be carefully scrutinized. (4) The results should be controlled by including in each series of tests known negative, weak, and strong positive serums, just as in the case of the Wassermann reactions.

Annals of Surgery.

July, 1921, lxxiii, 1.

1. Ruptured Spleens. Spontaneous and Subcutaneous. John F. Connors.
2. Spontaneous Rupture of the Malarial Spleen, with Abstract of Cases Reported Between 1842 and 1921. William E. Leighton.
3. Surgery of Cysts of the Spleen. Royale H. Fowler.
4. Technic of Nerve Surgery. K. Winfield Ney.
5. The Surgery of Infantile Paralysis. J. Torrance Rugh.
6. Fracture of the Skull in Children. John J. Moorhead and Walter Weller.
7. The Value of Dakin's Solution in the Treatment of Thoracic Empyema. Abraham O. Wilensky.
8. Primary Closure of the Ureter and Renal Pelvis After Nephrolithotomy Le Grand Guerry.
9. Uretero-ureteral Anastomosis. J. D. McEachern.
10. Diverticula of the Jejunum. Hugh N. MacKechnie.

1. Ruptured Spleen. Spontaneous and Subcutaneous.—John F. Connors reviews the history of splenectomy, quotes the history of twelve cases of spontaneous rupture of the spleen reported in the literature, and reports three cases of splenectomy in children in whom rupture of the spleen was caused by the wheels of a wagon passing over the abdomen. He also records a case of spontaneous rupture of the spleen in which there was no history of malaria, typhoid, or typhus fever. He brings out the point that study of the histories of rupture of the spleen show that the majority of cases have occurred at or near the point of maximum enlargement a few hours after taking food. It appears also that the loss of the spleen has made no difference in the physical welfare of these patients. The most important changes in the cases of splenectomy for trauma have occurred in the blood, and are more marked than in cases in which the spleen has been removed for disease. The most important changes are an increase in the leucocytes, characterized by a relative increase in the mononuclears. The erythrocytes decrease in number but gradually increase with the increase in the percentage of hemoglobin. It has been observed that a moderate æsinophilia occurs and may persist for a considerable length of time. In the writer's cases the blood picture at the last examination revealed but a slight deviation from the normal. Faltin and Stubenrauch found at the time of second laparotomies, one and six years, respectively, after splenectomy, that the peritoneum of these patients was covered with numerous nodules, showing microscopically the characteristics of splenic tissue. Similar observations were made by Guerrini on a dog after splenectomy. Such findings suggest that small accessory spleens occasionally undergo hypertrophy and functionate in place of the missing main organ. It is desirable that such hyperplastic accessory spleens be looked for in the future, in autopsies performed a considerable time after splenectomy. The author does not agree with Auveay and Vauverts, who advise resection of the costal border in performing splenectomy; he believes there is sufficient room with the abdominal incision. Resection of the costal border necessitates a longer operation, and splenectomy should be done as quickly as possible. A study of the literature shows that results in splenectomy are steadily improving, due largely to the use of direct blood transfusion which is being resorted to more frequently.

6. Fracture of the Skull in Children.—Dr. John J. Moorhead and Walter Weller summarize their findings based on an analysis of one hundred cases of fracture of the skull in children, treated by four visiting surgeons or their associates or assistants at the Harlem Hospital, as follows: (1) A combination of vault and basal injury can be expected in a very large percentage of cases in which the injury has been severe, and when the violence has not been direct and localized in character; in the latter vault injury is more usual. (2) The mortality in this series was 26 per cent., in which 5 per cent. followed vault fracture, and 10 per cent. basal, and 11 per cent. combined vault and basal injury; in other words, involvement of the base gave a mortality four times that of the vault. If associated injuries are excluded the mortality in this series is 17 per cent. (3) Early death, within forty-eight hours, was due to the head injury or associated injury; thereafter infection in the form of meningitis, often pneumococcic, was the chief factor. Sixteen of these cases died within twenty-four hours, four within forty-eight hours; this means that over three-fourths of the fatalities occurred within the first two days. (4) Fifty-one per cent. of the quoted cases involved the vault, with a mortality of 5 per cent.; 17 per cent. involved the base and vault, with a mortality of 11 per cent. (5) By comparison with adults, children have a 25 per cent. better chance for life with an equal grade of skull injury. (6) The number of cases requiring operation is relatively small; in this group 12 per cent. were operated upon.

7. The Value of Dakin's Solution in the Treatment of Thoracic Empyema.—Abraham O. Wilensky concludes from his experience that in actual practice the use of the Carrel-Dakin method in the treatment of empyema wounds has but a limited use. The method is not feasible in the presence of any sort of reinfection (insufficient drainage of any kind, osteomyelitis of the rib, etc.)), in the presence of any communication with the bronchial tree, in empyemata other than the simple pyogenic varieties, in empyemata whose contour is other than the very simplest, or in empyemata the mechanical conditions of which are not conducive to a reasonably prompt healing (collapsed lungs). The method is very useful in the relatively small minority of small encapsulated empyemata and which do not suffer any of the drawbacks or complications previously indicated. Under even these ideal conditions the method has not, in the writer's experience, shortened the length of time necessary for the complete cicitrization of the wound. This is probably due to the constant care necessary in carrying out the details of the dressing, and even in the best of hands breaks of technic are constantly occurring. As soon as these occur the even progress of healing is interfered with and time is lost. Experience has shown that it is wisest not to suture secondarily the outer wound because of the numerous recurrences, but to allow the outer wound to close spontaneously after the cavity is supposedly sterile under a dry or other innocuous dressing. One cannot but gain the impression that in the cases in which the use of Dr. Dakin's solution is satisfactory, a healing similar in all respects would be obtained without the use of this antiseptic solution if the same meticulous care were exercised in the postoperative management as is necessary according to the precepts of this method.

Endocrinology.

July, 1921, v. 4.

1. The Parathyroid Glands. Walter M. Boothby.
2. Epilepsy Suggestive of Endocrine Relationship. Henry J. Van den Berg.
3. Does the Administration of the Anterior Lobe of the Hypophysis to the Tadpole Produce an Effect Similar to That Obtained from Thyroid Feeding? Philip E. Smith and Garnet Cheney.
4. The Internal Secretion of the Spleen. Nathan B. Eddy.

1. The Parathyroid Glands.—Walter M. Boothby reviews the literature, and summarizes our knowledge regarding the functions of the parathyroid glands as follows: (1) In many species of animals the removal of all parathyroid tissue causes death from tetany, within a few days in most instances; the herbivora are less liable to tetany than the carnivora; age appears to have a definite influence on its frequency and severity, as do pregnancy and lactation. There is some evidence of late trophic changes in those animals that survive parathyroidectomy and have few or no tetanic symptoms. (2) The preservation of very small amounts of parathyroid tissue prevents or renders tetany less intense. (3) From the evidence at hand, the function of the parathyroids appears to be distinct and separate

from that of the thyroid; their only relationship appears to be anatomic and not functional; the parathyroids are not embryonic thyroid tissue. (4) There is evidence that their function is in some way concerned with calcium or guanidin metabolism or both; they may play some part in the regulation or maintenance of the acid base equilibrium in the body. (5) The experimental evidence pointing to the parathyroids as the primary cause of idiopathic tetany, unassociated with operative procedures on the thyroid, is very limited. (6) The only definite clinical entity which has yet been proved experimentally to be of parathyroid origin is the tetany occasionally seen after operations on the thyroid. In these conditions calcium in large doses usually ameliorates the symptoms. The reports as to the benefit obtained by parathyroid transplantation or feeding are not convincing.

4. The Internal Secretion of the Spleen.—Nathan B. Eddy reports experimental work on rabbits which lends support to the hypothesis that the spleen produces an internal secretion. This evidence consists in (1) the changes in the erythrocytes after splenectomy, (2) the modification of the blood picture in hyperplasia of the spleen, ameliorated in some cases at least by splenectomy, and (3) the specific effect on the red blood corpuscles of injection of splenic extract. He says that we know nothing of the chemical nature of the supposed splenic hormone and it is difficult to formulate a consistent theory of its possible mode of action, but suggests that the chief function of the spleen is the removal from the circulation of the disintegrated erythrocytes; that the splenic cells elaborate this material, producing thereby an internal secretion which was a component of the erythrocyte, either stroma or pigment portion; that this internal secretion reduces the resistance of all red blood corpuscles, the effect amounting to actual destruction of the older cells; and, finally, that this internal secretion, possibly after modification by the liver, stimulates the erythrogenic function of the bone marrow and is used up in the manufacture of new corpuscles.

New Orleans Medical and Surgical Journal.

July, 1921, lxxiv, 1.

1. The Importance of Securing Bony Union Following Fracture of the Patella. E. D. Martin.
2. Recent Work on Inorganic Constituents of the Blood. W. Denis.
3. Hemorrhage into the Upper Digestive Tract. Sidney K. Simon.
4. Preliminary Report on Treatment of Granuloma Inguinale. W. A. Reed and Monroe Wolf.
5. Abstract of Address on Mortality from Cancer in the South. Frederick L. Hoffman.
6. Tribute to Dr. F. L. Hoffman. Rudolph Matas.

2. Recent Work on Inorganic Constituents of the Blood.—W. Denis calls attention to a study by Denis and Minot in 1920, in which it was found that 65 per cent. of a considerable number of blood samples of nephritic and cardiorenal cases showed unmistakable evidence of phosphate retention. It was further noted that fatal cases showed a rapid and progressive increase in plasma phosphate, increases of more than ten times the maximum normal value being not uncommon; on the other hand, the non-fatal cases, even though the patient was seriously ill, presented a relatively slight increase. It has been found that there is no definite relation between the level of inorganic phosphate, non-protein nitrogen, and of the alkaline reserve. In several cases in which the alkaline reserve was extremely low, and the level of inorganic phosphate high, intravenous injection of sodium bicarbonate given in amounts sufficient to produce a distinct alkalosis was absolutely without effect on the level of the plasma phosphate. The results so far obtained would suggest the possible prognostic importance of the determination of inorganic phosphates in the plasma of persons suffering from nephritis or allied disorders. So far no condition has been noted in which abnormally large amounts of calcium are found. It has been demonstrated, however, that in parathyroid tetany, pneumonia, acute rachitis and uremia, there is a marked decrease in the calcium content of the plasma. That the tetany of parathyroidectomized animals or of rachitic children is due to a decreased blood calcium alone is questionable. It would seem rather that such abnormal manifestations might result from a disturbance of the equilibrium between calcium and other inorganic electrolytes of the blood.

3. Hemorrhage into the Upper Digestive Tract.—Sidney K. Simon reports three cases occurring within a comparatively short period, in which there was massive hemorrhage into the digestive tract apparently as a result in each instance of a diseased state of the arterial system with especial localization in the vessels of the stomach and duodenum. He says that notwithstanding the fact that rupture of a diseased vessel wall with ensuing massive hemorrhage is an event of common occurrence in other organs, it would seem from a careful survey of the literature that a similar accident along the gastrointestinal tract is one rarely, if ever, encountered. It should not be overlooked that simple arterial rupture is possible along the gastrointestinal tract, without previous ulceration, simulating a pathological picture not infrequently presented in other organs; notably the brain. One might even consider an apoplexy of this type, within the free lumen of the digestive tract, as a life-saving effort, sparing the more serious consequences which would await a vascular accident of similar nature in more vital organs.

Schweizerische medizinische Wochenschrift.

July 14, 1921, li, 2s.

The Rectal Magnesium Treatment of Tetanus.—Hotz reports a case of lockjaw from a pediatric clinic, the patient being 10 months old, and the disease idiopathic or at least there could be found no sign of traumatism. The child was in the midst of an attack of chickenpox and the bacilli of tetanus are believed to have entered the organism through one of the pocks. Treatment comprised chloral per rectum with magnesium sulphate subcutaneously. This treatment was maintained for 16 days. Serum was given several times, but evidently it was not intended to be the chief reliance. At the end of the 16-day period the child was so covered with needle punctures that the magnesium was given by enema—10 c.c of the 20 per cent. solution. The improvement was startling. For the next 6 days only enemas were given and the results were all that could have been obtained from subcutaneous exhibition. If further experience be as favorable the change will doubtless be upheld for routine work because the subcutaneous injection of magnesium sulphate is apt to precipitate convulsions of tetanus, and, as has also been noted, of tetany as well when used in spasmophilia. The author also suspects that the fever seen in this patient after he had been on the mend was also due to the subcutaneous use of the drug. The author writes at considerable length concerning the action of this salt, but, with the German's facility for purloining ideas, nowhere mentions the name of the late Dr. Meltzer, who originated its use in tetanus and who wrote numerous articles on the subject in which he defended the value of his discovery against its critics.

Schweizerische medizinische Wochenschrift.

August 4, 1921, li, 71

The Extinction Phenomenon in Scarlatina.—Reymond writes this paper from Professor Feer's pediatric clinic. The phenomenon in question has to do chiefly with the differential diagnosis of scarlatina from measles and various rashes. It is based on the discovery in 1918 by Schultz and Charlton of a certain property of normal human blood serum when injected into the skin of a scarlet fever case. The result is the disappearance at the end of seven or eight hours of an area of the rash about the puncture. The injection is made directly into the exanthem and but a few square centimeters of the latter pale out, but this result is not seen in any other rash or skin disease. This extinction may be effected by any human serum, even that of a subject who has never had the fever. The only known exception is the serum from a patient in the early stage of the disease. The author has tested 97 eruptive patients, of whom 84 were scarlatinous. The total number of injections in this series was 145. In the

scarlatinous series there were 25 negative results. By eliminating some of these because too late in the evolution of the disease or for other plausible reason the per cent. of positives may be raised to 82. Of the surely negative there were a number in which the diagnosis may have been open to some doubt. The results of other authors, however, show that the test cannot be regarded as infallible. The author was unable to produce extinction of the rash in any other malady, although some observers claim to have seen the phenomenon in measles and toxic erythema. No animal serum has ever produced a positive result to date. The test should be made in the first three days of the rash and the power of the serum persists for about three weeks when taken from a scarlatinous subject.

La Presse Médicale.

July 16, 1921, xxix, 57.

Superinfection in Tuberculosis.—Lavergne discusses this subject with especial reference to prophylaxis. Its importance appears in the fact that some systematic writers ignore it entirely. The author, however, takes the existence of superinfection for granted and hence it is necessary to ascertain the exact significance which he gives to the term. In the only case narrated the subject was a boy about 3½ years old, born at term and of normal weight. The father was healthy, but the mother had had attacks of dry pleurisy. She was unable to nurse the infant. At the age of three months the latter was vomiting its bottled food, but the condition yielded to the proper treatment. At the age of 14 months there were fever and emaciation, and not only the child but the mother presented clinical evidence of tuberculosis. The mother showed an abundance of Koch's bacilli in the sputum, while the child gave a positive cutireaction. Apparently the latter had been contaminated, presumably by its mother, at the age of 10 to 11 months; for the mother had begun to ail about that time, and the actual symptoms in the child went back two months, leaving several weeks for an incubation period. It seemed hardly possible to separate mother and child, yet the danger of massive superinfection from the mother was great. The patients had the benefit of a sojourn in the country and the child was operated on for adenoids with benefit. At one period it seemed threatened with meningitis, but improved rapidly on mercurials. The *x*-ray showed tracheobronchial adenopathy, with the physical signs of pulmonary lesions. At the present moment the child is in its fourth year and in fairly good condition despite the fact that it had never left its mother's side. The mother had never been free from bacilli in the sputum and the author assumes that she had constantly superinfected the child, although the latter not only survives her, but may even have acquired a certain degree of immunity.

La Presse Médicale.

July 23, 1921, xxix, 59.

Nature of Essential Epilepsy.—Pagniez contributes a synthetic review of this subject. Fleury, writing of essential epilepsy only, sees two components, one an injury, so to say, of the nervous system and the other an intoxication, perhaps alimentary. In certain cases the injury is evident, in others only presumptive; and this is also true of the toxic factor. But on the whole pathological anatomy is reticent about the nature of these lesions, the possibly constant presence of which has been made more probable by many war cases. Extensive statistics of cases following cranial injuries are now available. Convulsions which supervene at an early period following injuries are not included. Jacksonian cases occur as a rule earlier than generalized cases. Hence the relatively late supervention of the latter has been brought into association with the formation of the scar. It seems plausible to associate this process with the development of general convulsions. This is in accord with observations of cases of infectious encephalitis which have been followed by epilepsy. In a case quoted, an arteritis of the brain following paratyphoid led to a focus of softening and later there developed in succession petit and grand mal epilepsy. The interval corresponded with that of cicitrization of the softened area. The old dispute as to whether the brain is anemic or congested during a major epileptic paroxysm has been revived by the experience of Leriche, who in two cases saw the traumatic area in the cortex, which had been responsible for the epilepsy, pale out during the seizure; as a result apparently of active vascular contraction. Doyen is said to have had the same experience, while Knies saw the fundus oculi blanch under the same circumstances. The hypertension seen in the trephined by Ebaugh and Stevenson, which persisted through the conclusive stage and later, is evidently not a constant phenomenon, for the very converse has been noted in other trephined subjects. Passing to the toxic factor, the author quotes the work of Plantier on digestive intoxication as an important document to the subject. This phenomenon can only occur at intervals and something concerned therein has evidently a cumulative property. When a certain degree of preparation has occurred something is evidently set free in the body which produces the vasomotor spasm responsible for the seizure. But why does not this toxic body manifest its presence by casual symptoms? The author replies that this is exactly what does happen. Certain changes in the blood and cerebrospinal fluid have been noted, although they are not constant. The possibility that a digestive anaphylaxis causes the epileptic paroxysm has been much agitated, but the evidence is not convincing. In anaphylactic shock the blood pressure is lowered, while in an epileptic paroxysm it is elevated. Again in petit mal the analogy is very slight or absent. But to go to the other extreme and state that there is absolutely nothing in common between epilepsy and anaphylaxis is much too reactionary, for the two have much in common—sudden onset, a vascular component, connection with digestive disturbance, etc. Moreover, many known anaphylactic phenomena, as urticaria, asthma, and migraine, have some connection with epilepsy, occurring as "equivalents" (?) or in epileptic families. In rare cases epilepsy itself has seemed to depend on special ingesta, as sweets. Recently a number of reports of the application of proteintherapy in epilepsy have been published. The original is doubtless the crotalin or snake venom treatment, now long known, but quite recently peptones, milk, tuberculin, horse-serum, autohemotherapy, etc., have been tested in different clinics with varying results, some of them, however, fairly good, according to the reports.

La Medicina Ibera.

July 16, 1921 xv, 193.

The Mortality in Madrid from Cancer.—Lasbennes quotes figures which cover twenty years, beginning 1901. The steady increase in the annual number of deaths might be set down as due to the growth of the city, but the percentage per thousand inhabitants also shows a steady increase. In fact, this percentage, which was 0.8 per 1,000 in 1901, was last year 1.16. The incidence in males has considerably more than doubled in twenty years, while that in women is greater by 3 to 2. The principal element of increase is apparently in the direction of cancer of the stomach. In 1901 this class was represented by 108 cases all told, while in 1920 the corresponding figure was 269. On the other hand the increased incidence of cancer of the uterus and breast is not so great that it could not be explained by increase in population. The total loss from cancer, etc., for the twenty-year period was 11,601, and the annual loss therefore under 600. The cancer death rate of Madrid is therefore about the same as that of Greater New York, which, with as much as tenfold the population of the Spanish metropolis, has a cancer death loss of from 5,000 to 6,000 annually. The author makes but few comments; his statement that social status and occupation cut no figure doubtless means no more than that there is no exempt class. He finds a constant sex ratio of three women to two men, which exactly inverts the tuberculosis ratio of two women to three men. He also adds that cancer of the stomach is on the increase in women as well as men.

Book Reviews.

COMMON INFECTIONS OF THE KIDNEYS WITH THE COLON BACILLUS AND ALLIED BACTERIA. Based on a Course of Lectures Delivered at the London Hospital. By FRANK KIDD, M.B., B.C. (CANTAB.), F.R.C.S.ENG., Surgeon to London Hospital; Surgeon-in-Charge of Genito-Urinary Department, London Hospital; Member of the International Society of Urology; Membre de l'Association Française d'Urologie. With an Additional Lecture on the BACTERIOLOGY OF THE URINE, by Dr. PHILIP PANTON, Clinical Pathologist, London Hospital. New York: Oxford University Press, American Branch, 1920.

IT always seems like giving away the kernel of a joke or the answer to a riddle when the content and summary of a book are offered in review. But this book is such a delight for the manner in which the subject matter is handled, the language in which valuable material is given to the reader, and for the strength and virility expressed in every page.

Says the author, "The time has come to try to make medicine more simple by elaborating wider principles that can subsume a large number of phenomena. If the student and practitioner are adequately trained by explaining to them the larger principles, they can apply these for themselves to their cases in practice and obtain a wider interest and better results." Again, there is a temptation to applaud the writer when he says, "It has been too much the fashion to make medical books and papers an elaborate summary of the literature. . . . Men are afraid to use their own eyes and to draw their own conclusions from their own observed cases. They have been too frightened of the literature, much of it mere hack work and based on insufficient observation. . . . My method is to study certain cases over a period of years with the most developed weapons of my specialty. . . . and draw the deductions that seem warranted by the facts." "The present work endeavors to give a picture of common infections of the kidney, bladder, prostate, and testicle with the colon bacillus and allied organisms. Such infections are of everyday occurrence in practice, yet the practitioner has so far had no certain guide to lead him in dealing with them." And the author carries out his intention so well that any reader interested at all in this subject would wish that even more detailed observations, conclusions and treatments had been included. The work is sufficiently illustrated, and on the whole is a unique and much-to-be-prized book on this specialty.

THE LOGIC OF THE UNCONSCIOUS MIND. By M. K. BRADY. New York: Oxford University Press, American Branch, 1920.

"THIS book purports to be a sketch, not a finished thesis, for which the author would be ill qualified." "Logic has seemed to many people in modern times a dry and abstract study only remotely connected with real life, but this, we venture to think, is because the science has to be re-formed, for we have outgrown the logic of our forefathers, just as we have outgrown their chemistry. . . . The student of logic today is called upon to give the subject a fresh start, and this he is enabled to do by the discoveries of psychoanalysts concerning the unconscious mind. Equipped with a new understanding of human motives, he has to look at people's reasoning, his own and others', and see what connecting principles may be observed, what general laws are actually in operation."

Thus the author speaks, and her purpose is carried out in this book in a sincere manner with a style that certainly should appeal to those who love to delve into the unseen causes for both clear, keen, and stupid motives for the activation of the human race. The simplicity employed in the presentation of her reasoning and in the statement of her facts is most refreshing after the deluge of almost unintelligible reading matter that has been launched on the public this past year with relation to psychoanalysis and allied subjects.

Her encouraging viewpoint is offered in these words: "The view of life which thus presents itself is full of hope, for it is seen that the dearest wishes of the heart whether past or present, primitive or advanced, are those belonging to the dawn. Two things delay their consummation, ignorance and ill-will. The battle is not over, but till the present, enlightenment and goodwill win the day." "It may be that a vision of the ultimate triumph of love brings little consolation to the victims of present hatred—a hatred destined to blight the lives not only of themselves, but of their children's children. Neither can all men feel the joy of worship, the passionate and enduring triumph of him who recognizes the supremacy of love, its place in the world of thought and things."

Comparatively few women have attempted to write on such a subject, so, again, this work is interesting because it gives the avenue of attack and of thinking on such an apparently speculative matter from the angle of a trained feminine mind. Perhaps, later, when more women have the courage to stand the training, the contributions from the woman mind on the unconscious life from the feminine standpoint, will offer a wealth of true sentiment intertwining the cold facts, which will give a tremendous insight and impetus to life itself and the clearer living and understanding of it and what it means. The last word has not been said; in fact, the first frail efforts have barely been put across when it comes to the understanding of human nature. Certainly a keenly-trained, keenly-thinking woman mind has much to offer and a bigger field could not be desired for her efforts.

INJURIES OF THE PERIPHERAL NERVES. By HENRY S. SOUTTAR, F.R.C.S. Eng., Late Senior Surgeon, British Red Cross Hospital, Netley, and EDWARD W. TWINING, M.R.C.S., L.R.C.P. Lond. Medical officer in Charge of Physical Treatment Department, Pensions' Hospital, Netley. Price, $4.50. New York: William Wood & Company, 1920.

THIS volume contains but 30 illustrations and hence can hardly be said to have an atlas component. The 24 chapters include such subjects as changes in the nerve and outlying tissues, examination for sensation and motion, results of the various nerves, differential diagnosis, the phenomena of recovery, the period of preparation, general operative technique, nerve suture, nerve resection, difficult suture, operative technique of special nerves, physical treatment (4 chapters), prognosis, alterative methods, and painful lesions.

THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM FROM A PHYSIOLOGICAL VIEWPOINT. By CHARLES MANNING CHILD, Professor of Zoology, University of Chicago. Price $1.90. Chicago: University of Chicago Press, 1921.

THIS small volume comprises 14 chapters, the last being merely a general résumé. The others are The Problem of Pattern, The Axiate Pattern (3 chapters), The Organismic Pattern (2 chapters), Relations of Central Nervous System to Other Portions, Segmentation, Centralization and Cephalization, Problem of Neuron Pattern (2 chapters), Transmission and Conduction and the Reflex Arc. There are 70 illustrations and an extensive bibliography. The plan of the work comprises the discussion of pattern and its relation to gradients. Concerning the latter there has been nothing published since 1915. This discussion furnishes the groundwork of the book.

THE EXTRA PHARMACOPŒIA of Martindale and Westcott. Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B., Lond., D.P.H. Seventeenth Edition. Vol. II. London: H. K. Lewis & Co., 1921.

THE amount of information contained in the two volumes of "The Extra Pharmacopœia" is enormous, as those who have seen it pass through its successive editions, each one fuller than the preceding, well know. The book has become so well known, indeed, that to review it seems quite unnecessary. The first volume of this edition was noticed some time ago and now the second has appeared, completing the work. As before, this volume is concerned chiefly with tests of various kinds, analyses of milk, water, blood, urine, etc., bacteriology, and laboratory work in general. A long section on radium and other radioactive substances is especially noteworthy. This new edition, like those that have preceded it, is literally invaluable as a guide to therapeutics and as a work of reference on all matters pertaining to materia medica, pharmacology, and organic analyses.

Society Reports.

AMERICAN GYNECOLOGICAL SOCIETY.

Forty-Sixth Annual Meeting, Held at Swampscott, Massachusetts, June 2, 3 and 4, 1921.

THE PRESIDENT, DR. WALTER WILLIAM CHIPMAN, MONTREAL, CANADA, IN THE CHAIR.

Basal Metabolism in Pregnancy and the Puerperium.—Dr. JOSEPH L. BAER of Chicago said that the increased basal metabolic rate in late pregnancy was due to the growing demands of the fetal organism and placenta. The incomplete or delayed return to normal was due to involution of the uterus and the onset of lactation. Twin pregnancy should show a rate above the average for single pregnancy when both twins were well developed. Thyroid enlargement might occur in pregnancy without increasing the basal metabolic rate above the averages obtained in this series. Differential diagnosis between uterine tumor and pregnancy would not be helped unless greater refinements in method showed increased rates much earlier than in this series. The *x*-ray could be called on as early as the fifth month and with reasonable certainty in the sixth month.

Vaginal Supracervical Hysterectomy with Interposition of the Cervical Stump for Cystocele and Procidentia Associated with Enlargement of the Uterus.—Dr. HIRAM N. VINEBERG of New York City stated that in over one-third of the cases of procidentia and cystocele the uterus was found too large to be adapted for interposition. Decreasing the size of the uterus by excising a portion of the anterior wall or fundus had been found unsatisfactory on account of the rarity of obtaining primary union of the thickened and diseased walls of the uterus and the consequent high morbidity and mortality. A much more advantageous procedure consisted in amputating the body of the uterus at the level of the internal os or higher up (if the patient was under 40 years of age) and interposing the cervical stump.

Certain Dietary Factors in the Causation of Sterility in Rats with Speeal Reference to the Histology.—Dr. EDWARD REYNOLDS and Dr. DONALD MACOMBER of Boston, Mass., stated provisionally that a moderate decrease in the percentage of the fat soluble vitamine, of the proteid, or of the calcium contained in an otherwise excellent diet produced a definite decrease in the fertility of individual rats. A slight decrease in the fertility of both partners would produce a sterile mating. The fertility of the mating might be stated as the product of the fertility of the individuals concerned. If the index so obtained fell below a given point the mating would be sterile, and this result held true whether the partners were of equal or of widely different fertility. These principles explained the fact that two individuals, which were sterile when mated together, might nevertheless reproduce freely when mated to new partners (of higher fertility). Dietary deficiencies produced a lowered fertility which varied in degree with different individuals though of the same percentage and in the same cage. Diminished fertility sometimes resulted in the appearance of abortion. Mere percentage deficiency in both proteids and calcium produced visible ill health and great fertility.

Radical Conservatism in the Surgical Treatment of Chronic Adnexal Disease.—Dr. FREDERIC C. HOLDEN of New York City said that it had been demonstrated that pyosalpinges might be incised and suspended without mortality or excessive morbidity. A young woman with chronic adnexal disease, when physically disabled, and not responding to several weeks' rest and treatment, should be offered a choice between radical operation with its surgical menopause and conservation with its possibility of reoperation. In the event of conservation of ovarian tissue being decided upon, the technique described in his paper might be of benefit.

The Disposition of the Uterus Following Salpingectomy Where It Is Desirable to Preserve Menstruation.—Dr. CAREY CULBERTSON of Chicago stated that ventral fixation of the uterus had objections which rendered it an undesirable procedure in association with removal of both tubes. Round ligament shortening was unsuitable where the tubes had been removed and should be reserved for the simpler uterine displacements where pregnancy was to follow. The reduction of the uterus in size by removal of its entire fundus was a ready method of disposing of the organ after salpingectomy where, particularly in young women, it was desirable to preserve menstruation. Defundation became a logical procedure not only in operating for the cure of infectious processes, but also for simple sterilization, for ectopic pregnancy, ovarian cystomata and like conditions. Its only contraindication from a technical point of view was that of procidentia uteri.

Pneumoperitoneum and Roentgenology as Aids to More Accurate Obstetric and Gynecologic Diagnosis.—Dr. REUBEN PETERSON of Ann Arbor, Mich., said that the pneumoperitoneal *x*-ray was a great aid to accurate obstetrical and gynecological diagnosis. In suitable cases and with the proper technique gas inflation was free from danger. The apparatus for gas inflation and pelvic roentgenography was simple and inexpensive and could be used in any obstetrical or gynecological examining room. The method should not be used in cases of acute pelvic inflammation or when disturbances of circulation might arise from sudden abdominal distention. Since carbon dioxide gas was absorbed within half an hour it was preferable to use oxygen for inflation since the latter gas might not be absorbed for days. Whenever possible, the transuterine should be chosen in preference to the transperitoneal route for the introduction of the gas because of the valuable information it furnished regarding the permeability of the Fallopian tube. Excessive quantities of gas caused great pain. Experience had shown that for the ordinary case 1,000 cubic centimeters of gas would cause only moderate discomfort and was sufficient for good roentgenograms. With the proper position (partial knee chest with tilted table) and the ray directed perpendicularly to the plate in the axis of the pelvis, the pelvic organs were clearly shown by roentgenography.

Concerning Torsion of the Uterine Adnexa Occurring Before Puberty, Together with a Consideration of Torsion of Normal Adnexa; Report of a Case and a Review of the Literature Since 1900.—Drs. RICHARD R. SMITH and WILLIAM J. BUTLER of Grand Rapids, Mich., said that torsion of ovarian tumors was an uncommon occurrence in childhood, as shown by the fact that only 26 cases, including their own, had been reported in the literature since 1900. About 50 per cent. occurred between the ages of 8 and 10. Sixty per cent. of them were dermoids. The tumors varied in size from that of an adult ovary to one reaching above the umbilicus. The symptoms were those of an abdominal crisis similar to that of the same accident in adult life, sudden abdominal pain, vomiting, a variable degree of prostration, tenderness, rigidity, distention, temperature, increased pulse rate, and the presence of an abdominal tumor. The diagnosis was usually difficult, probably due to rarity. Appendicitis was often the preoperative diagnosis. The causes were much the same as in adult life. Fourteen cases of claimed torsion of normal adnexa had been reported to date. Eight of 14 cases, more than half, occurred before the age of 20; 4 under 12, and presumably before puberty. The tube alone might be involved, the tube and ovary together, or the ovary might be essentially the offending organ. A large percentage occurred in close relation to the menstrual period. Three were reported during pregnancy. Some question still existed as to whether a normal tube could undergo torsion, but it seemed to be proven that a normal ovary might do so. Factors, such as the length of the mesentery, the size of the ovary, and the length of the tube, must be considered as well as the histological structure of the organ. Torsion of adnexa in hernial sacs (apart from strangulation) was relatively rare. It occurred only in congenital inguinal hernias and usually in the first year of life.

The Fads and Fancies of Obstetrics: A Comment on the Pseudoscientific Method of Modern Obstetrics.—Dr. RUDOLPH W. HOLMES of Chicago stated that in safe and conservative hands maternal and fetal mortalities had decreased in private practice. The maternal and fetal death rates in hospitals had not shown any appreciable decline in 100 years. The fact that the death rate among the emergency cases (*i.e.* those

sent in by medical attendants) was over 10 times that of regular applicants in the New York Lying-In Hospital was a reflection on the preliminary medical training of the profession. Scientific investigation of antenatal pathology which would promote a prophylactic therapy would lower infant mortalities more than would the present attempts to do so by routine operative termination of labor. A properly conducted prenatal clinic, combined with conservative conduct of labor was a more certain method for securing declining death rates than promiscuous intervention. Under normal conditions, spontaneous labor, aided by proper analgesia was the safest way for mother and child. Inordinately applied operative interferences increased the hazards of birth. The authorities who had fostered a peculiar method of routine interference in all parturient women, with their imitators, had retarded the advance in obstetric care, and were part contributors to the high American mortalities incident to childbirth. It was a lamentable thing that properly controlled midwives would have less mortality than those who practised a routine intervention. The proponents of operative cults had produced no evidence to show that their systems were more worthy, less risky, and promised a higher conservation of life than carefully watched spontaneous labor. There were no more reasons why all parturient women should be operatively delivered than that all people should be inflicted with routine enemata or catheterization. A medical fad should be discountenanced; precept and example founded on injudicious enthusiasm led to many unwise courses. Indications for obstetric operations demanded revision; certainly, they should be more clearly drawn, curtailed, rather than extended. A wise conservatism in obstetrics would be more productive of ideal results than injudiciously used skill. Obstetric teaching was so deficient in most colleges that there should be a sharp and early improvement. So long as obstetric teaching was defective, so long would obstetric results be bad in practice. An obstetric curriculum should be devoted to practical instruction on the mannikin, in the class room, and in clinic; obstetric surgery should be a very small part of the coordinated whole. The proper place of the latter was in postgraduate courses intended for those preparing for the specialty.

A Comparison by Statistical Methods of Certain External Pelvic Measurements of French and American Women.—Dr. FRED L. ADAIR of Minneapolis said that he appreciated fully the limitations of external pelvimetry, but also felt that the value of this method of examination might be increased by better methods of statistical study. The racial and national pelvic differences should be more carefully studied and recorded so that observations made and conclusions drawn in one section of the world might not be applied too arbitrarily in other sections. There were apparently definite pelvic differences, not only in different races, but in different nationalities. This was indicated by the earlier work of La Verneau and Vrolick. It was shown definitely by the work of Williams and his associates in comparing the pelvis of the negro with that of the white, by the studies of Emmons and De Souza, also by those of Acosta-Sison and Calderon. The present study also showed less marked, but none the less definite, indications of national as well as racial pelvic differences which were apparent even on external examination of the living subject. It was obvious that much more accurate deductions could be drawn by more complete and extensive pelvic measurements. He regretted that he had been unable to make these comparisons, but the conditions under which the work was done made it none too easy to secure even the measurements which were obtained.

Forced Labor.—Dr. JOHN O. POLAK of Brooklyn, N. Y., said that in 200 cases of labor in contracted pelvis, recently studied, he found that 81 per cent. were delivered spontaneously, or the labor was terminated with low forceps. This certainly showed that each case of relative contraction was at least entitled to a proper test of labor before the abdomen was sectioned. While the application of forceps to the engaged head in the presence of properly prepared soft parts was admitted to be a most valuable procedure, both in the interests of the mother and the child, when the fetal arrest was due to failing powers—it had its limitation of safety as a routine measure, and definitely increased trauma to the soft parts. Therefore, he felt that shortening the second stage by intervention with the forceps was not justifiable as a routine measure any more than eliminating the second stage and delivering every child whose head would come into the brim by elective version and extraction with no other indication than to eliminate the second stage of labor and thus relieve the woman of the pains and agonies of childbirth; was safe teaching for the student or graduate without months or years of special training. Furthermore, the cesarean section was not without its morbidity and its mortality. Beck showed that there was a 30 per cent. morbidity in his study of 107 cases. Rupture of the cesarean scar was not an unknown possibility, and in his collective study of 2,000 cases done by the leading operators throughout the country, there was a mortality of nearly 10 per cent. and of over 2 per cent. in the elective group. Another procedure that should come up for consideration and comparison, was hurrying the third stage of labor by expression of the placenta with the first uterine contraction after the child had been delivered. This was definitely unphysiological in that it took time for the uterus by its contraction and retraction, to separate and expel the placenta and produce proper uterine hemostasis. While this practice might be safe in the hands of the trained specialist, it was bad practice and bad teaching for the practitioner and for students.

Acute Malignant Endocarditis Complicating Pregnancy.—Dr. PALMER FINDLEY of Omaha reported the case of Mrs. B., aged 30, II-para, seen in consultation with Dr. Malcolm Campbell of Malvern, Iowa, was seemingly in perfect health until early in her third pregnancy when she suffered from pains in ankles, hips, and shoulder joints which her family physician diagnosed as rheumatic arthritis. The tonsils and teeth were not involved, but the nasal passages were occluded with mucopurulent secretions and incrustations which persisted and prevented her from breathing through the nose. This was the only focal infection discerned. She rapidly lost flesh and strength and became extremely anemic and nervous. There were repeated chills with an irregular course of fever ranging to 104° F. Shortness of breath and palpitation of the heart were recorded as early symptoms. The aortic and mitral valves were early involved and later the tricuspids as well. Blood cultures were taken and the *Streptococcus viridans* found. Precordial friction sounds were observed as a late development. The urinary findings were negative until near the end when the urine presented the usual findings of an acute nephritis and this was associated with uremic symptoms; death was preceded by coma and convulsions. For practical purposes acute endocarditis was classified as simple and septic (malignant). These types probably represent varying degrees of the same morbid process according to the virulence of the microorganisms and the resistance of the tissues. The clinical phenomena and anatomical changes did not differ essentially in the various etiologic forms. The septic type was of special interest to the obstetrician in that it was not infrequently found in association with puerperal infections. Clinically, the septic form of acute endocarditis was distinguished from the simple type by the occurrence of chills, irregular course of fever, and the appearance of multiple emboli. Malignant endocarditis was always of bacterial origin and should be regarded as a local complication of a general infection. Because of the fairly frequent association of acute malignant endocarditis with puerperal infections one found this type of cardiac lesion twice as frequent in women as in men. According to Lenhartz, 21 per cent. of all cases of septic endocarditis were of genital origin. It was rare that any other than the puerperal form of genital infection was complicated by septic endocarditis.

The Drudgery of Obstetrics and Its Effect Upon the Practice of the Art, with Some Suggestions for Relief.—Dr. BROOKE M. ANSPACH of Philadelphia stated that while the almost general and universal use of hospitals for obstetric cases had infinitely lessened the drudgery of obstetrics, much was still to be desired in the direction of securing close cooperation between the obstetric

intern and the practising obstetrician. The obstetric intern should not only be permitted, but should actually be trained to examine the woman in labor under his care. Indeed, before she entered the hospital, the patient should be made to understand that the practising obstetrician would call into cooperation with him the obstetric intern. During pregnancy, the obstetrician should be careful to write a full history and make complete and regular notes of visits and examinations, including the results of pelvimetry, the diagnosis of position, etc., which should be sent to the hospital as soon as the patient went into labor. These notes, with perhaps a telephone conversation, would give the obstetric intern the information he required. As a result, he would be better able to look after the patient during the early stages, and would summon the obstetrician when he was needed. In the larger maternity hospitals fresh attendants might be provided throughout labor by a shifting staff of anesthetist, two nurses, and an obstetric intern, every eight or twelve hours. If the period of labor of a patient continued beyond the time allotted to the staff on duty when he was admitted, the notes made by the first staff might be turned over to their successors. By this plan perfect analgesia throughout labor might be maintained by well trained attendants who were unfatigued and thoroughly awake to the necessities and requirements of the case. An elaboration and possibly an outgrowth of this plan would be the association of several obstetricians—men of approximately equal standing and experience in one maternity hospital. Instead of engaging a particular obstetrician to care for her, the patient would enlist the services of the group collectively, stipulating that she would be willing that any one of them should look after her, the choice depending upon the time of her delivery.

The Interpretation of Vesical Symptoms in Gynecological Diagnosis.—Dr. F. E. KEENE of Philadelphia said that because of its intimate anatomic relationship with adjacent structures, the bladder often participates in the pathology of these organs, whether this be in the form of a displacement, neoplasm, or infection. The vesical symptoms arising from such participation naturally varied in degree as well as kind, and depended primarily upon the nature of the pelvic lesion and secondarily upon the subsequent changes either within the bladder alone or in combination with the kidneys and ureters, which might in their turn become involved. Painful urination was usually the manifestation of an infection which might, with ease, be engrafted upon a chronic retention. Hematuria was rarely found in association with uncomplicated benign tumors and when present might be due to small varices in the bladder wall or to minute papillary excrescences of the mucosa in the immediate vicinity of the tumor, both incident to impaired circulation. Consequently, hematuria in association with a benign pelvic tumor should never be considered a secondary manifestation until proven so cystoscopically, for it usually signified a lesion in the bladder or kidney entirely independent of the pelvic lesion. Likewise pyuria, in the absence of an antecedent history of retention or evidences of an infected tumor, was an uncommon secondary event and its presence should be the indication for cystoscopic study to determine the exact nature and location of the infection. Malignant tumors, especially carcinoma of the cervix, frequently produced vesical symptoms due to direct extension of the growth to the bladder or secondary to renal infection incident to incomplete occlusion of the ureters. The majority of cases of acute pelvic infection, associated vesical symptoms presented little or no difficulty of interpretation being due to extension by continuity along the urethra or to direct contact between the bladder base and the diseased structures. Here cystoscopic studies were not only necessary, but often inadvisable. In the chronic cases the presence of persistent bladder irritability was certainly an indication for such investigation to determine the nature and extent of the disease, whether it had arisen as a purely secondary manifestation or was a coincident lesion, independent of the primary pelvic infection and to what degree, if any, the ureters and kidneys were sharing in the production of symptoms. In conclusion, he could not emphasize too strongly the importance of making cystoscopic examinations in all gynecological cases presenting vesical symptoms, even though the condition might seem quite sufficient to explain these symptoms. Not infrequently, by such a plan, lesions would be discovered which were unsuspected and which were of more vital import than those of the pelvic organs.

Hemorrhage from the Nonpregnant Uterus in the Absence of a Neoplasm.—Dr. WILLIAM A. SCOTT of Toronto, Canada, discussed the histology of fibrosis uteri. The majority of cases were of the subinvolution type with thick-walled, hard uteri, containing an excess of elastic tissue. It had been assumed that the bleeding also occurred from small sclerotic uteri as well as from the large soft organ. Moreover, the typical histological findings of fibrosis uteri were not constantly found in all bleeding cases, but might be found apart from bleeding. Therefore, it seemed probable that the bladder was not dependent upon these histological changes. Glandular hyperplasia of endometrium was the most constant finding in cases of bleeding. Bleeding and hyperplasia were likely ovarian in origin.

Ovulation and Menstruation and Postoperative Considerations.—Dr. THOMAS J. WATKINS of Chicago stated that ovulation and menstruation as postoperative considerations were important because many of the pelvic operations affected these functions. The problem of the ovary relative to operative indications concerned the production of ova and corpus lutea. Unanimity of opinion existed relative to conservation of the ovary when conditions obtained which were favorable to reproduction. Opinions varied much in regard to conservation of the ovary for the purpose of production of corpus lutea. The corpus lutea during menstrual life had been proven to be an important part of the endocrine system. The physical changes that took place at puberty and the menopause emphasized the importance of the ovarian function. The usual good health which obtained after the menopause was completely established demonstrated the ability of the endocrine glands to compensate for the loss of the corpus luteum. The problem of atrophy following the menopause was the one of greatest biological importance. Atrophy following the artificial was no more than after the natural menopause, but the latter was beyond our control. More or less atrophy necessarily followed loss of ovarian function, as growth and sustained growth required function. The loss of one lessened the other. Loss of the ovarian function necessarily caused atrophy in the tissues associated with it in function. No clinical or theoretical evidence indicated that excision of the fibroid uterus compromised the life or function of the ovaries unless they were so situated that the operation disturbed their blood or nerve supply. The menopause symptoms following hysterectomy with conservation of the ovaries appeared about the usual time. The ovaries also remained normal in size, determined by conjoined palpation. It had been his custom for many years to leave the ovaries in favorable cases when excising the fibroid uterus. He had had no instances that raised the suspicion of an increased liability of such ovaries to disease. He had no record of ovarian cysts developed in ovaries left after fibroid operations. It was reasonable that they should occur, but it had not been his experience to see them. His experience in the treatment of small uterine fibroids with radium had induced him to generally limit the use of radium to cases past forty years of age; in younger women supravaginal hysterectomy had seemed preferable to destruction of the ovary by radium. The fact that with radium profuse bleeding occasionally occurred before amenorrhea was established, and that cessation of menses and arrest of growth was often temporary in younger women, was additional evidence in favor of supravaginal hysterectomy. The same evidence for and against conservation of the ovary in fibroids was applicable in case of salpingitis, except that in salpingitis the cortex of the ovary was modified by inflammatory reaction. Conservation of menstruation had no value aside from its relation to reproduction. Menstruation was a handicap nature seemed to have been obliged to impose upon woman for the accomplishment of pregnancy. It was a part of the means of recovery of the uterus from the sorrow over the loss of the ovum. His records showed that operations for re-

trodisplacement of the uterus had become infrequent, generally not more than two or three a year. The uncomplicated cases were usually not operated; the operated cases generally had enough pathology to indicate supravaginal hysterectomy.

The Unsolved Problems in Gynecology and Obstetrics.—Dr. W. BLAIR BELL of Liverpool, England, said that the present position of gynecology and obstetrics as a special development of surgery was high. The object of his paper was to point out that, whereas in regard to clinical and surgical technique there was little room for improvement, our progress in regard to essential biological problems was slow. The question as to whether our present methods of education are likely to help the investigator was first considered. The tendency to minimize the importance of biology and to urge the superior claims of hospital study was unfortunate and probably was to some extent accountable for the present position. Today elementary gynecological anatomy and physiology were taught by the clinician and not by the anatomist and physiologist—at any rate, in Great Britain—the result was that the anatomist and physiologist was unaware of the hiatuses in our knowledge. The man who had difficulties to face in practice would, if properly educated, be the person most likely to overcome them. The necessary improvements in educational methods were radical: The clinician should have the right to define the subject matter of the physiological and anatomical courses, and physiology should be taught more in coordination with clinical work. With regard to postgraduate work it seemed likely that the clinical unit and units for group study would give the best results. In the latter part of the paper some of the morphological and physiological problems were briefly mentioned by way of illustration, such as development of genital ducts and atavisms, tuboovarian sacs, bony deformities of the pelvis, neoplastic developments, maleness and femaleness, puberty, menstruation, lactation, menopause, selective sterility, conception and eclampsia.

Perforating Hemorrhagic (Chocolate) Cysts of the Ovary; Their Importance and Especially Their Relation to Pelvic Adenomata of Endometrial Type (Adenomyoma of the Uterus, Rectovaginal Septum, Sigmoid, Etc.).—Dr. JOHN A. SAMPSON of Albany, N. Y., offered the following as evidence that perforating hemorrhagic cysts of the ovary were hematomata of endometrial type: (1) These hematomata, as the uterine mucosa, manifested their "activity" during the menstrual life of the patient. (2) Histologically the epithelial lining of the ovarian hematomata was similar to that of the uterine hematomata, due to the retention of menstrual blood, often present in adenomyoma of the uterus. (3) Periodic hemorrhages occurred in the ovarian hematomata which were similar in gross and histological appearance to that of menstruating endometrium. (4) The chocolate contents of the ovarian hematomata resembled old menstrual blood. (5) In two patients operated upon at the time of the menstrual period, one the day that menstruation was due, and the other the last day of menstruation, the histological changes in the ovarian endometrial tissue corresponded to the phase of the menstrual cycle indicated by the menstrual history of the patient. (6) The fact that material escaping from the ovarian hematomata might give rise to the development of adenoma of the endometrial type in the tissue thus soiled was further proof that these hematomata contained endometrial tissue.

Bacteriology and Pathology of Fallopian Tubes Removed at Operation.—Dr. ARTHUR H. CURTIS of Chicago said that this study indicated that gonorrheal infection was responsible for at least three-fourths of all inflammatory lesions of the Fallopian tubes. Infection with various types of streptococci had been second in frequency. Tuberculosis, exclusive of generalized tuberculous peritonitis, ranked third. Infections with other bacteria, notably those of the colon group, had been less common and less important. With the exception of a few streptococcus infections, bacteria had not been isolated from tubes which failed to show grossly active inflammation. Just as gonorrheal endometritis seldom became chronic, so it appeared that gonorrheal infection of the tubes ran a quickly self-limited course. While it had long been known that gonococci soon disappeared from the tubal mucosa, it was of interest to learn that modern cultural methods failed to yield growth when the entire diseased tube was thoroughly ground and inoculated into culture media, provided two weeks had elapsed since temperature and leucocyte count returned to normal. This test had been performed repeatedly and with unvarying results. He therefore felt warranted in the conclusion that the Fallopian tube was not a focus for chronic gonorrheal infection. Unfortunately this did not exclude the danger of repeated infection from without, or recurrent invasion of bacteria from the chronically infected lower genital tract. The present study sustained previous experience that the colon bacillus did not cause serious tubal disease. *Bacillus coli* was particularly frequent in tubo-ovarian abscess of large size. As a primary cause of salpingitis it appeared to be of little importance. A survey of the pathology encountered in these tubes emphasized that gonorrheal infection primarily involved the tubes, with resultant thickening, nodulation, closure of the fimbriated ends, and pelvic adhesions which were amenable to separation by blunt dissection. In streptococcus infection tubal involvement was usually but a part of the picture. Perisalpingitis was the most frequent type of tubal lesion, although typical salpingitis, notably hydrosalpinx, occurred with moderate frequency. Tuberculosis was very likely to be overlooked if routine histological preparations were not made. When limited to the pelvic organs it was difficult to establish a diagnosis from the gross appearance alone. Unusually resistant adhesions suggested tuberculous or streptococcus infection. Somewhat similar operative measures appeared indicated in streptococcus and in tuberculous salpingitis. In both diseases infection was not usually confined to the tubes; in both, viable bacteria were often still present in the tissues and there was danger of chronic postoperative infection of the ovaries. It was not his desire to suggest definite rules for operative procedure. But with the possible exception of the cervix, and particularly in regard to extirpation of the ovaries, more radical surgery appeared indicated than in gonorrheal infections of corresponding severity.

Torsion of the Cecum with Review of the Literature and Report of a Case.—Dr. SIDNEY A. CHALFANT of Pittsburgh said that volvulus of the cecum was possible only in patients with an abnormally mobile cecum and ascending colon. This occurred in about 1 per cent. of all persons. This type of volvulus was more common under 30 years of age. The symptoms were those of intestinal obstruction. The treatment was surgical. The nature of the operation was to be determined by the extent of damage to the intestine and the condition of the patient. The case was reported in order to point out the fact that torsion of the cecum, while a rare condition, did occur and that it must be considered in making a diagnosis in obscure cases of intestinal obstruction. This was especially the case in patients presenting a history of obstinate constipation with previous attacks of severe pain in the upper abdomen.

Vulval and Vaginal Cancer.—Drs. HAROLD C. BAILEY and HALSEY J. BAGG of New York City stated that until Janeway had instituted the use of imbedded emanation in vulval cancer, the general opinion of gynecologists was that radium had no place in this field, and even recently they had seen a statement to the effect. From a study of the subject extending now for more than three years they must disagree with this opinion, for they knew that the original lesion might be completely eliminated without loss of any considerable amount of normal tissue, without sloughing and with comparatively little pain. They believed that the method outlined was an ideal one for destroying the primary lesion. There was a minimum opportunity for spreading the disease, especially if the insertion of the tubes was preceded by an application of heavily filtered radium, which tended to devitalize the tumor cells. Wherever possible, the radium tubes surrounding the lesion were inserted through normal tissue. It might seem at first thought that the cautery could accomplish as much and in a short time. It must be remembered that the two reactions were dissimilar. The imbedded radium produced a prolonged, gradual, re-

active inflammation, which was effective in checking the extension of the disease. The experience with various doses of embedded unfiltered radium emanation had shown that if the tubes were of 5 mc. strength, the elimination of the tumor was associated with extensive sloughing and prolonged and serious discomfort; whereas the smaller dose of about 0.5 mc., accomplished as much for the removal of the growth, and yet without sloughing and with little pain. Except in the most minute lesion, it was not possible to arrange the placing of the tubes so that all the cancer cells were effectively radiated. Filtered radium to further check the growth of the injured or partly damaged cells was necessary as an adjunct to the implantation of bare tubes in vulval and vaginal cancers.

The Cure of Cystic Cervical Endometritis by the Aid of Multiple Scarification.—Dr. HENRY T. BYFORD of Chicago said that cystic degeneration of the cervix was curable only by a destruction of the degenerated glandular tissue. When it was limited to a small part or parts of the vaginal portion the desideratum was to destroy only the cysts and degenerating glands. Cutting operations and cauterization destroyed too much functionating mucous membrane while the ordinary local treatment consisting of puncture of follicles as they developed and the application of the tincture of iodine was seldom curative. The author employed a modification of this local treatment that made it curative. Instead of using the ordinary lance pointed uterine scarificator only upon cysts as they became apparent, he used a bayonet pointed one and made from 50 to 100 punctures into the diseased area or areas from once to twice a week and made an application of iodized phenol strong enough to destroy or cause atrophy of what remained of the epithelial cells in glands that were already seriously damaged by the inflammatory action, but not strong enough as used to destroy functionating glands. The application consisted of one part each of iodine crystals and glycerin and two parts of phenol. A few treatments were made twice weekly, then once weekly until the surface looked and felt normal. After a few months the patient reported for examination and possible treatment of cystic follicles that had not been reached.

BRITISH MEDICAL ASSOCIATION.

Eighty-ninth Annual Meeting, Held at Newcastle-on-Tyne, July 15-23, 1921.

(Special Report from Our London Correspondent.)

Poliomyelitis.—Dr. G. FARQUHAR BUZZARD of St. Thomas's Hospital, London, read this paper in the Orthopedic Section. Perhaps the most interesting part of the paper was that in which he discussed the similarities and differences of poliomyelitis and encephalitis lethargica. It was pointed out that we are now faced with two infective diseases of the central nervous system in both of which the chief incidence of inflammatory action may be cerebral or spinal. In that disease, for which the virus of poliomyelitis is responsible, the spinal cord is more often attacked than the cerebrum. But polioencephalitis and poliomyelitis are not uncommonly present in the same patient, or in epidemics especially a certain number of individuals only display symptoms referable to inflammation of the higher centers. Practically all cases of lethargic encephalitis present cerebral symptoms and signs, but a small minority are characterized by evidence of spinal cord involvement as well. Buzzard drew attention to the fact that from the etiological point of view poliomyelitis is a disease of infants and children, the incidence rapidly declining as age advances. It prevails chiefly during the summer months, is acute in its onset and runs its course in a few days. Lethargic encephalitis, on the other hand, attacks impartially persons of all ages. It is more prevalent during the winter and varies enormously in its mode of onset and in the duration of its attack. Although the presence or absence of any particular symptom or sign is insufficient to differentiate the two diseases, seeing that inflammation of any part of the central nervous system is a factor common to both; yet there are certain features in many cases of lethargic encephalitis which are to some extent characteristic. These are lethargy, the mid-brain symptoms, and the involuntary movements and muscular contractions which have drawn so much attention to the disease.

Radiology in Diseases of the Blood.—Dr. G. LOVELL GILLAND of the University of Edinburgh read this paper. He pointed out that there is one disease of the blood in which radiation deserves a much more systematic trial than it has yet received, polycythemia vera, or Vaquez's disease. Its main features are a great increase of the circulating red corpuscles, often to double the normal number or more with high blood pressure, and usually with enlargement of the spleen. The cases are very rare, and since it occurred to Gulland to try radiation for them he has only seen one case. In this a course of *x*-ray treatment was commenced, but had to be stopped for family reasons. The marrow in this condition is unduly active, and it is possible that radiation of the long bones might be useful in checking the increased output of red corpuscles. According to the author the most favorable form for radiation is chronic myelocythemia, and in regard to this disease a very large amount of experience has now been accumulated. Some time ago, as he was disappointed with the *x*-ray results, he began treating all his cases with radium, and, while he cannot say that the benefit produced has been any more permanent, it has been more certain and rapid, and it has seemed to him that the patients improved more in general condition, and especially in recovering from their anemia. The amount of radiation required varies greatly in different cases, partly because of the different periods in the disease at which treatment is begun, partly because of the general condition of the patient and probably because of unknown factors also. He is accustomed to regard a leucocyte count of 20,000 as the signal for stopping radiation, for the effect goes on for some time after radiation has been stopped, both as regards the white count and the diminution in size of the spleen. In Gulland's opinion the reason why the myelocythemias are so much more amenable to radiation than the myeloblastemias is that the cells affected are of a much more differentiated type, they approach more nearly to a benign tumor. It is evident from the progress of cases that many of the circulating leucocytes are destroyed, and that the rays also arrest their development. For this latter reason radiation of the long bones in turn is sound, both theoretically and practically.

PROFESSOR SIDNEY RUSS remarked that a study of the effects of *x*-rays upon the circulating leucocytes of the rat has shown that whereas for a certain measured dose of *x*-rays the effects upon the lymphocytes are regular and can be repeated, simultaneous observations upon the polynuclear leucocytes show that here the changes produced are quite irregular, for an increase or decrease may occur in their numbers as a result of exposures to radiation. These outstanding differences in behavior are illustrated by blood counts upon the same batches of animals. Observations have also been made upon the effects of exposure of the body to rather large quantities of gamma rays. In this case blood counts were made immediately before exposure to the radiation which lasted for some hours: counts were then made two and seven days after the exposure. Here again it was found that a greater regularity was observed in the behavior of the lymphocytic than in the polynuclear forms.

Protection Against Radium and Roentgen Rays.—Dr. J. C. MOTTRAM, discussing the use of blood counts to indicate the efficiency of *x*-ray and radium protection summarized as follows: (1) That a single blood examination may give warning of danger if the count be near the low limit for normals. (2) That a considerable fall with a sustained low level in the repeated blood examinations of a single individual indicates that insufficient protection is being provided. (3) That if several workers in the same department present very low counts, this also shows that further protective precautions are required. (4) That in workers using soft *x*-ray radiation special attention should be paid to the lymphocytes, because these cells are more likely to be affected than the polynuclears or red cells. Mottram concluded by saying that it is to be regretted that rulings more precise than the above

cannot be laid down, but that this will not be possible until further data in respect of both normal individuals and *x*-ray workers have been collected.

Treatment of Gonorrhea.—Mr. DAVID LEES, Surgeon to the Venereal Diseases Department of the Royal Infirmary, Edinburgh, read a paper on the treatment of gonorrhea in men. The paper was very long and can be referred to but briefly. As for general treatment, the speaker pointed out that this aspect of the therapy of gonorrhea is chiefly of importance during the acute stage. As in all inflammatory suppurating conditions, cleanliness, rest, simple diet, and the essential acting of all the excretory organs of the body are necessary. Alkaline diuretics combined with urinary sedatives are of greater value than any of the more reputed specific drugs, and much less harmful to the general condition. The combination of the sedative action and the mechanical flushing of the urinary tract outwards as a results of diuresis, by increasing the amount of urine and the frequency of passing it, is the safest and best means of cleansing the tract. There is, in the view of Lees, no appreciable danger in alkalinizing the urine if the drug is not exhibited over too long a period, and on an average seven to ten days is a sufficiently long period over which to induce this diuresis. The speaker went on to point out that there are few, if any, other drugs required in the treatment of any case of gonorrhea running a normal course. In the complications, however, and during the instrumental treatment necessary often as the result of the action of the gonococcus on the urinary tract, drugs, such as urotropin, salol, boric acid, etc., are of value, but should not be given in doses which will set up urethral irritation. Urotropin is a good example of this and gr.v to gr.vii, three times a day, is sufficiently large for almost any case. There are also certain drugs, such as ichthyol and atropine and opium, which are helpful in prostatic and epididymis complications, while in joint complications iodides are often advantageously exhibited. The only successful method of eliminating the gonococcus from the deeper tissues and the many side-tracks where it is certainly inaccessible to antiseptics is by increasing the antibody response. Numerous workers in America, in Europe and in Great Britain have so perfected the complement fixation test as to be able to estimate this antibody response, but few of these workers are agreed in the estimate they form of what this response means in relationship to cure. In his experience a rapidly increasing and high antibody response seen serologically is coincident with rapid clinical improvement, and the test is of value in diagnosis, in control of the administration of vaccines, and in the determination of cure. If the ideal treatment is to be attained, Lees is convinced that it will be along the lines he has indicated, by the use of mild antiseptics applied to the inflamed part in combination with the administration of a strongly antigenic and specific vaccine; but the clinician must have working with him a competent bacteriologist or serologist to help in working out more accurately the methods of administering specific vaccines and of controlling their actions.

Syphilis in Women and Children.—Dr. WALTER C. SWAYNE of the University of Bristol read a paper on this subject. He emphasized the importance of the family doctor in the treatment of the disease, pointing out the venereal clinic should not be the only avenue of attack on the disease. Early diagnosis and continuous treatment are most important, and the cooperation of the family doctor is necessary for any real advance. Diagnostic difficulties are not greater than they were in years gone by, but diagnostic facilities are now much increased. The technic of modern methods of treatment is not difficult and can quite easily be learned if time is available. The family doctor can with great advantage treat a large number of patients now attending clinics. Clinics should be much more largely consultative for diagnostic purposes, and should be used for such treatment as the family doctor feels he is not able to undertake, either on account of lack of time, or any other reason which may seem good to him. The foregoing remarks apply especially to syphilis in women, the majority of whom will avoid the publicity of a special clinic, and a large proportion avoid consulting any medical practitioner at all. This is often from lack of knowledge of the possibilities of infection and the possible immediate and remote results. There are obvious difficulties in the recognition of primary symptoms by the patient herself, and if the site of infection is within the genital canal this is not possible. Swayne summarized the situation as regards syphilis in women as follows: (1) There are greater difficulties in women than in men, owing to the frequent failure of the patient to detect symptoms in herself. (2) A very large number of those affected contract the disease innocently. (3) Women are, on the whole, more likely to act as innocent carriers than men, especially of extragenital infections. (4) Diagnosis is on the whole, more difficult with women than with men. (5) Treatment is often interfered with by home duties, conditions of employment, pregnancy, and parturition. (6) The special social and family surroundings of women make the disease in their case more difficult to deal with, and perhaps of more importance than in the male. (7) Quite a large proportion of women suffering from syphilis come, sooner or later, into the hands of the gynecologist for the treatment of various pelvic affections.

The Standard of Cure in Gonorrhea.—Dr. E. R. TOWNLEY CLARKSON read this paper. He laid stress upon the point that it is of the utmost importance that the microscopical and bacteriological examination should be carried out by an expert. The practice which sometimes obtains of these examinations being made by practitioners possessed of but slight experience in such highly technical procedures is to be condemned. Such an action is unfair to the patient and may be productive of injury to others. It is also impolitic, inasmuch as the false verdict of an amateur may be followed by a recurrence of the original trouble and the defection of the patient. If the practitioner is not accustomed to obtaining the necessary specimens it is better for him to secure the presence of the bacteriologist for the purpose. The speaker said he was well aware that most of his hearers placed but small reliance upon the bacteriological and microscopical examination as constituting a necessary factor in testing patients before discharging them as cured. Their contention was that all necessary information could be obtained by skilled clinical examination and observation. On the other hand, there were those so influenced by bacteriological and microscopical methods that they were in danger of employing these in a manner verging on the mechanical, and through a lack of experience were tempted to evaluate clinical examination very lightly. A lesson may be learned here from the annals of syphilis, which tell of the brilliant results which were obtained by experienced clinicians before spirochetes were thought of and when the Wassermann reaction was unknown. Just as competent syphilologists now regard the clinical and laboratory findings as complementary in relation to the investigation of syphilis, so it is equally rational to cull and judiciously interpret all information which can be obtained from these two provinces in respect to the determination of the cure of gonorrhea.

The Dysergy of Scorbutus.—In addition to the frank symptoms of scurvy we should know the latter through its predisposing to other affections. Abels in the *Wiener klinische Wochenschrift* for October 7, xxxiii, 41, calls attention to this predisposition *dysergia scorbutica*. Subjects deprived of antiscorbutic vitamines are greatly predisposed to various infections and it is the infection which may be responsible for the hemorrhage. The reactions of this dysergia are paradoxical and incomplete. Such a problem should be solved by the aid of animal experiment for by placing the animal on a scurvy diet it should be easy to produce infections of hemorrhagic type. This has now been worked out by Abels. Guinea pigs were rendered scorbutic by an exclusive diet of cereals and water. When in this condition they were readily killed by injections of coli cultures, which ordinarily they could withstand. Injections into the derma, lymphnodes, muscles, etc., of cultures of staphylococci caused hemorrhages, although in the guinea pig scurvy, spontaneous hemorrhages are of rare occurrence.

Miscellany.

Guy Patin.—This ancient medical worthy of France could not visualize the possibility of progress in his profession. He refused to believe in Harvey's discovery and other innovations of the period. Bloodletting and purgation he practised but all powerful drugs like opium were for him only so many dangerous poisons, the use of which in medicine was a crime. He inveighed against his colleagues who "grew rich through poisoning their fellow creatures." It is not surprising that he abandoned his first profession for literature, and this without regret. As a writer his correspondence was not highly regarded by Voltaire. Pic made a compilation from his writings which was a success, but regarded the author as much overrated and shallow. But since he was not writing consciously for the public his writings have the value which attaches to that class of publication. Critics who came after Voltaire were more favorable to Patin. Sainte-Beuve commended his good sense, and amusing "pep," and his very notions, prejudices, freedoms of speech, inconsequences, and mannerisms confer an originality upon him as an epistolary chronicler of the manners of the time. His most recent editor is Andre Thèrive, who has just published a volume entitled "Guy Patin. Lettres du Temps de la Fronde," which is one of a series of "overlooked masterpieces." It comprises selected epistles which relate to the days of the Fronde and the editor styles his subject a ready writer who is not correct but whose prattle is agreeable and natural and who smacks of the native soil. —*Le Progrès Médical.*

A New Biographical Work on Laennec.—Long before the Laennec Centenary his chief biographer, Rouxeau, had begun to publish his work along this line, largely from unpublished documents. The earliest volume appeared in 1912 and dealt with his subject up to the year 1806, or during the periods of childhood and youth. The second volume has recently appeared and is entitled "Laennec after 1806" covering the period 1806-1826. The documents comprise many letters to his father, Uncle William, relatives, and friends. At the beginning of the period he was but 25 years old, resident for several years at Paris and already very prominent in the public eye. He was on the University Faculty, editor of a medical journal, and member of the leading medical society of France. As an anatomist he had discovered the subdeltoid bursa and the fibrous capsule of the liver; he excelled as an operating surgeon, and as a diagnostician he seemed to have a special clairvoyance. He was the first to discover and describe peritonitis, he discovered also acephalocysts, and gave the first good description of melanotic tumors. His work on pathological anatomy was a masterpiece which he was never able to have published. Already he had been termed the Bichat of pathological anatomy. Before long he was on the staffs of three medical periodicals and showed enough journalistic ability alone to have made his name distinguished. In controversy he refused to yield an inch. But despite his eminence he was terribly poor and even when the period opens he was making but 400 francs a year from his practice with a small addendum from the *Journal de Médecine* of which he was sole owner. He thought his practice ought to yield from 1800 to 2000 francs, which shows how far he stood behind his modest ambition.

There were the usual disappointments. Two much-coveted salaried posts which might have made him went elsewhere. There was nothing to do but stick to practice. He joined the staff of a free dispensary. Quite unexpectedly he was appointed through a friend to be personal physician to a cardinal of the Church and was obliged to borrow the money to make himself presentable for his new berth. This sum of 700 francs was evidently in excess of his entire annual income at the time. The amount was well invested, for the position gave him prestige in the eyes of the public. From 1808 his income steadily mounted, and by 1813 it had reached 10,000 francs. His clients were largely people of distinction, and this nearly proved his ruin, for in 1814 there was a sudden exodus of society to the country, probably connected with the reverses of the French armies. During the next two years he barely "broke even," and when the clientèle returned they seemed to have forgotten him completely, as he was unable to keep up the appearance of the successful practitioner, including the private carriage which alone meant an expense of 300 francs a year. He tried to get money from home, with but little success. Since 1803 his lungs had been troubling him, and his inability to rest in the country coupled with his enormous mental industry was beginning to tell on him. He had now become a hypochondriac dyspeptic. His portrait, painted by Dubois in 1812, looked like that of a dying man. At last he was forced to take a brief vacation, which did him a world of good, and he began to think of removing permanently to his native Brittany. Two more tremendous years of work, with the loss of his fashionable practice and the death of many of his old friends and well-wishers, finally made the choice for him, and he returned to the paternal roof, where he was badly needed to save the estate from its creditors. Thus began the last chapter of his life. —*Le Progrès Médical.*

Official Report of the Influenza Pandemic in Cuba.—This report, made by Dr. Le-Roy y Cassá, appears in *Sanidad y Beneficencia.* The epidemic appeared in October, 1918, and spread rapidly over the island. Of similar episodes in the past we have records of but two, the epidemic of "dengue" in 1828, which was almost certainly not influenzal, and that of undoubted influenza in 1889-90. In only a few months of the time since this 1890 pandemic has there been a total absence of influenzal deaths, so the disease may be regarded as endermic in the island. In May, June, and July, 1918, there was an epidemic coinciding in point of time with the first pandemic wave in Europe, but apparently quite unconnected with it. Between July and October there was no suggestion of epidemicity. The duration of the recent pandemic was from October, 1918, to April, 1919, when it had abated to the normal rate. During this period there were 6260 victims of the disease, of which considerably over one-third occurred in the month of November alone. As the estimated population of the island is more than 2,800,000, the mortality was 22.32 per 1,000 inhabitants.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 13.
Whole No. 2655.

NEW YORK, SEPTEMBER 24, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

THE PRESENT STATUS OF NONSPECIFIC PROTEIN THERAPY.

BY HENRY SMITH WILLIAMS, M.D., LL.D.,

NEW YORK

A STRIKING landmark of contemporary progress is furnished by a series of articles in recent numbers of the *Journal of the American Medical Association* dealing sequentially with Serum Therapy, Vaccine Therapy, and Nonspecific Protein Therapy. That a conservative journal should have thought it expedient to give such recognition to Nonspecific Protein Therapy, and with the full authorization of the ultraconservative Board of Pharmacy, only a little over five years after the general theory of the nonspecific protein response was first propounded, bears witness to the astonishingly rapid progress of this newest comprehensive method in scientific medicine.

What, then, is today officially conceded, by the most conservative observers, to Nonspecific Protein Therapy?

First of all, and in general terms, a place in the therapeutic hierarchy in full coalition with Serum Therapy and Vaccine Therapy. In more specific terms, recognition as a therapeutic agency that has been extensively tested and not found wanting (1) in acute infections, including typhoid fever, diphtheria, anthrax, typhus fever, pneumonia, and acute sepsis; (2) in arthritis, acute, subacute, and chronic; (3) in various urological and dermatological maladies, including gonorrheal complications, syphilis, lupus erythematosus, exfoliative dermatitis, and psoriasis; and (4) in iritis, trachoma, and tuberculosis. Mention is also made of the fact that nonspecific proteins have been used for treatment of sarcoma and carcinomas.

An interesting list, assuredly. Taken by itself it quite adequately justifies my prophecy of October 2, 1915, that the protein response would be found to be a resource against all types of protein toxemias, including bacterial invasions. It tends also to validate the prediction made in a monograph published in December, 1916, and reiterated in my book, "The Proteomorphic Theory and the New Medicine," to the effect that:

> Protein therapy, of proved value in conditions ranging from anemia and intestinal toxemia to typhoid fever and tuberculosis, and from rheumatism to cancer—a method, in short, that combats every form of protein toxemia by fortifying the bodily defensive and offensive mechanism as represented in blood forming organs and blood corpuscles—may without exaggeration be said to constitute the most general and the most comprehensive procedure known to modern scientific therapeutics.

The idea that actuated my original suggestion that the use of non-bacterial proteins might supplant the use of serums and vaccines developed from the conception that the observed action of the latter is perhaps largely due to their protein content, as such, even when it is supposed to be a specific action.

This conception in turn was based on my direct observation of the response of the organism to non-bacterial proteins—specifically, sheep serum and plant proteins. These observations, interpreted in the light of the new conception of the physiology of the blood corpuscles (which I had put forward under title of the Proteomorphic Theory) furnished the foundation of the structure now assuming significance as Nonspecific Protein Therapy.

By way of anticipation, I may say that the term "nonspecific" is unsatisfactory. I shall elaborate the point before I am through, but it seems well to retain the term here to avoid confusion.

My personal observation of the value of non-bacterial proteins was fortified by a survey of the literature leading me to the conclusion that a large number of workers for many years in the past have practised Nonspecific Protein Therapy without knowing that they were doing so. I called attention to this and used the inference, with specific illustrations, to fortify my belief that the profession has been gradually and unconsciously working toward the principle that I now generalized in the monograph of December, 1916, and in my book. The conservative expositors whose work is now under review concede the validity of this deduction in these words:

> Then came the recognition that older therapeutic agents belonged to the same category—serums, nuclein injections, the use of yeast, tuberculin, Beard's use of trypsin in carcinomas, or the use of Coley's fluid in sarcoma.

The "same category" referred to is:

> Protein split products—proteoses, bee toxin, pollen, etc., milk injections (intramuscularly), and extracts from tissues.

Having gone so far, however, the conservative reviewers curiously stop, and make no further mention of the nonspecific protein treatment of cancer, although that is at once the most important field to which the method has been applied and the one in which it has been most extensively and convincingly tested. It is equally to be regretted that limitations of space or failure to apprehend the true character of the protein response led the reviewers to fail to present, except by the most cursory references, the well established facts as to the applica-

tion of the method to the allied disturbances of metabolism which for the average adult are so much more important than acute infections.

This omission causes anyone who fully apprehends the problem to feel, on reading the three articles devoted to alleged summary of the status of nonspecific protein therapy today, that we are given a report comparable to that of the traditional three blind men who examined the elephant—grasping trunk and leg and tail respectively—one pronouncing the animal like a snake, one like a tree, one like a rope. We get reports on foreign protein therapy in acute infections, in arthritis, in certain urological and dermatological maladies—the trunk and legs and tail of the elephant—but only vague reference to the great groups of disorders of disturbed metabolism—from anemias and leukemias to tuberculosis, from intestinal toxemias to arteriosclerosis, albuminuria, glycosuria, asthma, goiter, and cancer—that constitute (still holding to our symbol) the body of the elephant.

However, it is much to have the principle of the general protein response recognized as a tangible entity. At least the blind men know now that an animal is there—and a very big animal. In time the animal will be revealed to them in its true dimensions, form, and proportions.

Meantime, let us attempt a brief orientation of the subject in its comprehensive aspects—including trunk, legs, and tail, if you please, but not forgetting the head and body. In other words, let us summarize the facts at present available as to the therapeutic value of Nonspecific Proteins as applied in the two great groups of maladies which, roughly speaking, may be said to constitute the field of the physician's activities, namely: (1) microbic infections and (2) disturbances of metabolism more or less independent of microbic action.

Nonspecific Protein Therapy and Microbic Infections.—In considering this phase of the subject we must bear constantly in mind an elementary fact that is often overlooked even by bacteriologists; the fact, namely, that every specific infection involves a nonspecific element. That is to say, the acute or chronic illness resulting from a bacterial invasion—diphtheria, typhoid fever, pneumonia, or what not—involves the invasion of the body by an actual physical company of protein-bearing organisms, which may be visualized as an army. These organisms, if left unchecked, would multiply with such rapidity that within a few hours they would inevitably clog the entire blood stream and cause the death of the patient even if they were otherwise entirely innocuous.

In this view, the invading microbes are nonspecific proteins. They must be considered as actual physical invaders to be combated by the bodily defenders if the host is to escape overthrow.

But these nonspecific protein invaders in the course of their development give out by-products that are poisonous to their host. It is not that they should be likened to an army that sends ahead of it poisonous gases; but rather to an army that in the very nature of things through its existence gives out excrementicious matter—sewage, garbage —that makes the environment unwholesome; infecting the soil and the water if you please.

These poisonous by-products are inseparable from the growth of the organism; they differ slightly among the different organisms even of allied species, and they constitute what we are accustomed to speak of as the specific toxins of disease. These toxins must be neutralized or the human host will suffer. In the case of such an organism as the diphtheria bacillus, which chiefly grows on the mucous surface, sending its by-products into the blood—in effect using the human vascular system as a sewage system—the specific toxin appears to be the more potent influence; but it must be obvious that in every case the organism itself precedes the by-products; and it follows that if means were available to destroy the organism promptly, the danger from its toxin would be negligible.

In other words, we are presented with what at first seems the paradox that if the nonspecific element in the microbic invasion could be promptly destroyed or removed, there would be no occasion to consider the specific element.

The truth of this proposition is at once manifest if we consider the concrete case of effective antiseptic or aseptic surgery, in which by physical removal or exclusion of the bacterial protein bodies all danger of development of toxicity in the patient is prevented. Similarly, if one could promptly remove any diphtheria bacilli that found lodgement anywhere about the mouth or pharynx of the patient, there would be no occasion for the use of a specific antitoxin. The same thing is equally true, quite as obviously, of the germs of typhoid fever or of pneumonia or of tuberculosis or any other pathogenic organisms that may enter the buccal or nasal passages.

It is obvious also that, in lieu of mechanical removal of these invaders, the same purpose would be served if the mucous surfaces themselves secreted bactericidal fluids; or if the blood and body fluids of the patient contained bactericidal or antitoxic enzymes; or if the phagocytic blood corpuscles were adequate to engulf and destroy immediately any microbes that found their way into the parenteral system.

In point of fact, these conditions may be met adequately in the case of the normal human organism, as proved by the fact that most individuals go about in an environment more or less inhabited by pathogenic bacteria, and yet escape illness. We say of such individuals that they are immune to the attacks of the pathogenic organisms in question. To cite a specific case, we now know that a high percentage of infants are immune to diphtheria. The Schick test utilizes diphtheria toxin and antitoxin to test the individual as to immunity, and, incidentally, to enable us to develop immunity in the susceptible.

Suppose, however, that the body of an individual not possessing such natural immunity is invaded by the pathogenic germs—let us say Klebs-Loeffler bacilli—which find lodgment and a nourishing soil in the fauces. They multiply rapidly and, their excreta being absorbed into the blood stream of the patient, a condition of intoxication is produced characterized by symptoms pathognomonic of the disease we call diphtheria. The conventional thing to do then is to practise specific serum therapy; inoculating the patient with so-called antitoxin which, as everybody knows, is developed by inoculat-

ing a horse with diphtheria toxin and ultimately securing blood-serum containing the antidotal substance developed within the organism of the animal.

The relative efficacy of this method of treatment is quite beyond question. Specific serum therapy as thus exemplified is used for the salvage of human life all over the world, and untold thousands of individuals owe a tribute of gratitude to the genius of Von Behring, the father of serum therapy.

A moment's consideration makes it clear, however, that the use of an antitoxic serum involves not merely specific therapy (the neutralization of a specific bacterial toxin), but also nonspecific protein therapy, in that the proteins of the blood serum of the horse are administered along with the antitoxin which as yet we have no means of isolating.

In the light of the new knowledge as to the protein response it becomes a highly interesting question as to what share in the benefits derived by the patients from an injection of antitoxic serum is to be ascribed to the antitoxin itself and what share to the nonspecific serum proteins. The latter unquestionably have a physiological effect. Every practical physician knows of the danger of violent reactions of the type called anaphylactic. Such reaction, associated with leucocytosis and presumably with an increase of phagocytic and enzymic activities, is now recognized as being of value for the patient in combating various infections.

May we not plausibly assume, then, that the horse serum, hitherto considered as an excipient for the antitoxin, is in itself a therapeutic agent of value in stimulating the bodily defenses against the Klebs-Loeffler bacillus? If so, we are meeting the nonspecific protein invasion (represented by the bodies of the bacillus) with a nonspecific protein antigen (the protein of the horse serum), while at the same time we meet the specific toxin invasion with a specific antitoxin.

Carrying the argument a step farther, might it not be possible, particularly at an early stage of the invasion, to utilize the nonspecific antigen alone (the normal horse serum) to vanquish the bacterial invaders before they have time to secrete any considerable quantity of toxin? If so, we should have nonspecific protein therapy substituted for specific serum therapy—the *possibility* that I clearly suggested when I first put forward the theory of the general protein response thus becoming an *actuality*.

When we read in the series of papers referred to at the beginning of this article of the use of nonspecific proteins to combat "typhoid fever, typhus, pneumonia, diphtheria, anthrax, acute sepsis, tuberculosis, and syphilis"—as listed by Dr. Joseph L. Miller—we cannot avoid the feeling that the prophecy, which no doubt seemed fantastic to most readers when presented, is well on the way toward fruition. The correctness of my original contention that we had to do with a general protein response quite independent of the particular character of the proteins, so long as it is foreign to the individual organism under observation, is emphasized by Dr. Miller's statement that: "The results in the treatment of typhoid are quite uniform, regardless of what particular form of foreign protein is used;" by sundry references of a similar implication, and indeed by the necessary implications of the entire series of articles.

Moreover, Dr. Miller cites Bingel as reporting "a series of 466 cases of diphtheria treated with normal serum in which he claims that the results were as satisfactory as in 471 controls receiving antitoxin serum;" and although the validity of the inference is not unchallenged, it is admitted that the results suggest "some benefits derived from normal serum," and that "at least certain normal serums possess considerable antitoxin properties."

This, after all, is no more than might have been inferred *a priori* (since all we can expect of any organism is the accentuation of enzymic activities already existing, not the creation of new potentialities), but it is of importance always to have theoretical inferences sustained by practical observation.

To the same end we may note that "Myer reports $33\frac{1}{3}$ per cent. of guinea pigs saved after receiving a lethal dose of diphtheria bacilli, as compared with 100 per cent. saved after antitoxic serum." Again, "Kastenmeyer states that three animals receiving one hundred times the fatal dose of diphtheria toxin were saved with normal serum." Also, "most striking are observations made by Kieus and Kenna in the treatment of anthrax in man with normal beef serum given either subcutaneously or intravenously in dose of 30 to 50 cc. They report 146 cases so treated with one death; results better than had been reported with the use of immune serum."

Such results, accepted and quoted by conservative observers, appear to substantiate the suggestion that the use of specific serum therapy involves, whether or no, the application of nonspecific protein therapy as well. Whether the nonspecific treatment alone would suffice depends, probably, upon the stage of the development of the malady and therefore the degree of toxin invasion. It takes nothing from the force of the evidence to concede, with Miller, that, pending further laboratory study, "no physician would care to assume the responsibility of administering a foreign protein in diphtheria in lieu of antitoxic serum."

I would supplement this testimony of various independent workers with the following comment: It is my personal opinion, based on wide experience, that vegetable proteins, relatively devoid of toxicity, and partially hydrolyzed to eliminate the danger of anaphylaxis, are preferable to animal serum (or to milk proteins and egg proteins, which also I have tested extensively) for the general utilization of the nonspecific protein principle. I have suggested the generic name *Proteïls* for the nonspecific animal proteins and the allied word *Proteals* for the vegetable proteins. I do not affirm that there may not be cases or types of maladies in which the animal extracts are superior. But my personal experience and the experience of several hundred physicians who have co-operated in testing nonspecific proteins prepared in my laboratory, justifies high confidence in the proteals and proves that they have a wide range of application both in infectious maladies and metabolic disturbances.

Not to get ahead of our story, however, a few words must be said about the interpretation of certain well-known phenomena of the second member of the ultra-modern therapeutic triumvirate—vaccine therapy.

Nonspecific Protein Elements in Vaccine Therapy.

—Properly interpreted, vaccine therapy is only serum therapy in which the human organism is made to develop its own antibodies (antitoxins, bactericides, bacteriolysins, opsinins, agglutinins, according to the usual terminology) instead of having this work performed vicariously in the body of a horse or other animal. Practically, we inoculate a patient with a quantity of dead bacteria, introducing thus the bacterial proteins together with their endogenous specific toxins.

Personally, I regard this procedure as illogical and as necessarily in some measure harmful. It is unpleasantly like administering more morphine to a patient who is suffering from morphine poisoning.

It is conceivable that the benefits from the protein in the bodies of the bacilli (through evoking a typical nonspecific protein response) may more than counteract the harm done by adding more toxin to a system already struggling against toxin of the same type. But a far more logical procedure, it seems to me, is to introduce the nonspecific proteins altogether dissevered from any specific toxin. To that end, one may advantageously discard the vaccine and substitute foreign proteins of altogether different origin—normal serums of horse, or ox, or sheep; or still better, in my opinion, vegetable proteins extracted from nontoxic seeds such as those of alfalfa, clover, millet, rape, and numerous others.

If this reasoning is valid, vaccine *therapy* as practised in recent years is now an anachronism—or at least a method open to challenge. It is a questionable procedure, and vaccines as *therapeutic* agents have doubtful place in the equipment of the physician. My suggestion of six years ago that nonspecific protein therapy would perhaps supplant vaccine therapy altogether is, I believe, by way of being realized in the present.

But if this applies to the specific use of vaccines (antityphoid vaccine, for example, in the treatment of typhoid fever), it applies with almost equal force to the use of the same or similar vaccines in carrying out an alleged nonspecific protein therapy. To administer some millions of bodies of typhoid bacilli, and along with them an increment of typhoid toxin, to a patient suffering, let us say, from arthritis, on the ground that you wish to introduce a foreign protein—and that alone—into the system, is about as logical as to mix in a toxic dose of morphine or strychnine when administering quinine to a malaria patient. It suggests the use of a bludgeon as an adjunct to ether in producing anesthesia.

It will be understood by every thoughtful reader that in all that has just been said no reference whatever is intended to the use of the vaccines in question as *immunizing* agents. It must be clear to everyone having the slightest conception of the nature of immunization that to introduce the dead bodies of bacilli together with their toxins in order to evoke a systemic response both nonspecific and specific, that the individual organisms may be put in a position to offer immediate defense against the possible future invasion of living bacteria, may be an altogether logical and highly commendable procedure; whereas the introduction of the same vaccine into the system of a patient already suffering from an invasion of the living bacteria might be harmful instead of beneficial.

In other words, we should discriminate sharply between vaccine *immunization* and vaccine *therapy*. The former stands as a perennial tribute to the genius of Sir Almroth Wright; the latter represents the misapplication of a method that is at least open to question.

So much for the trunk and legs and tail of our therapeutic elephant. Now let us make a very brief survey of its body and vital organs.

Nonspecific Protein Therapy and Conditions of Disturbed Metabolism. — This more important aspect of the subject is treated in detail in my earlier writings, notably two articles in the *New York Medical Journal* (October 2 and November 13, 1915); in a monograph titled "The Proteal Treatment of Cancer and Allied Conditions," issued in December, 1916; in a book of more than 300 pages, "The Proteomorphic Theory and the New Medicine," issued in March, 1918; and in two articles in the MEDICAL RECORD titled "A Year of Proteal Therapy" (November 22, 1919) and "Theory and Practice of Proteal Therapy" (December 20, 1919). The last named articles, as the titles imply, deal chiefly with the vegetable proteins (being mainly concerned with a review of my own work, which has been chiefly, though by no means exclusively, concerned with the vegetable proteins), but having purview of the entire subject, as implied in the opening sentence of the first article: "What are the applications and limitations of nonspecific protein therapy?"

As to how the question was answered, I must refer the reader to the articles themselves, or to the book, which is still, I believe, the only comprehensive work on the subject in any language. The MEDICAL RECORD articles—constituting by far the most comprehensive treatment of nonspecific protein therapy that has appeared in periodical literature—supplement and extend the evidence presented in the book, for the value of the method (chiefly as exemplified in the use of nontoxic vegetable proteins) in combating an extraordinary range of maladies associated with disturbances of metabolism.

As the pamphlets in which the text and tables of these articles are reprinted bulk more than ninety pages and yet profess to give only a summary of the subject, it would obviously be folly to attempt even an epitome of their contents here. Nor can I attempt to present even an outline of the newer evidence as to the value of the method in most of the conditions mentioned and in sundry others—including specific urethritis and syphilis—that has come to hand through my personal observations or reports received from cooperating physicians during the intervening months.

Instead I must content myself with a few recapitulatory statements lacking which the present article might not be clearly intelligible to physicians who have not seen or cannot now secure access to the literature above mentioned. For the benefit of such readers I would state that my pioneer work in nonspecific protein therapy has included the practical use of bacterial vaccines (to a limited extent); animal serums, in particular sheep serum; proteins of milk and of egg albumin; and (notably) a wide range of vegetable proteins principally ex-

tracted from the seeds of alfalfa, millet, rape, mustard, clover, hemp, and cotton, but including first and last about a score of other plants, and various food proteins.

The protein extracts have been prepared of various strengths, but for the past four and a half years the standardization in my laboratory has been (for plant proteins, for which, as already mentioned, the name proteals has been suggested) on the basis of three milligrams of nitrogen to the cubic centimeter, representing therefore approximately a two per cent. protein solution. Some of the extracts, notably that of alfalfa proteins, have lent themselves readily to the production of a solution of double strength (approximately four per cent. protein). The solutions of egg and milk protein were standardized on the basis of approximately three per cent., as they seemed less potent than the vegetable proteins. For these, along with the other animal proteins, I have suggested the name proteils. Various horse serums and sheep serums, including those believed by their developers to contain antibodies against goiter, cancer, etc. (but in which, in my view, the action is at least partly that of nonspecific proteins) have been found to contain from six to ten per cent. protein, being therefore considerably more concentrated than the normal vegetable extracts prepared in my laboratory.

The vegetable proteins originally utilized comprised the unbroken protein molecule, and with them there was the possibility of producing an anaphylactic reaction. During the past five years, however, a method of preparation has involved boiling the ground seed in dilute hydrochloric acid solution, so that partial hydrolysis occurs. The resulting extract is, therefore, properly speaking, a solution of proteoses (with perhaps peptones and polypeptids) rather than of unbroken proteins. The therapeutic response appears to be adequate, and only one or two cases of anaphylactic reaction of a mild type have been reported in the course of the administration of tens of thousands of doses.

The detailed method of preparation of the nonspecific protein extracts (chiefly proteals) in my laboratory has been repeatedly published and has been communicated to the official Boards of Health in every State in the Union, of all large cities and to the Council of Pharmacy of the American Medical Association.

The resources of my laboratory were offered without reserve to the government throughout the war and are at the command of any hospital or institution, official or unofficial, where patients are under treatment to whom this line of medication might be beneficial.

I welcome also the cooperation of fellow practitioners everywhere, and my standing offer to supply proteals in any quantity entirely without remuneration for the treatment of charity cases in the hands of qualified practitioners anywhere in the world, is still open, and is taken advantage of. I am happy to say, by so many physicians that the resources of my small laboratory are constantly taxed to the utmost.

This laboratory is a department of the office in which I practise medicine; its prime object is experimental and to make the benefactions of nonspecific protein therapy available everywhere until such time as pharmaceutical houses qualified for the task, and hospitals and Boards of Health in general, take up the work of producing nonspecific proteins.

To avoid any possible misunderstanding, let me explain that my laboratory is not a commercial institution. Its methods are, however, open to full observation of any legitimate pharmaceutical houses, to several of whom, indeed, I have suggested the making of proteals after the formula used in my laboratory—explicitly specifying that no restrictions are or can be placed on the method; that it is not necessary to mention me in connection with it; and that under no circumstances would I consider or accept any commission, royalty, or other honorarium in connection with the matter.

I make these personal statements with great diffidence, and only to prevent any possible misunderstanding which might act prejudicially in retarding the acceptance of a method that has already stood the test of practical application at the hands of many hundreds of physicians, but which cannot hope to find its way to the great mass of the profession except by slow and gradual stages, involving months or years.

Having said so much, I am constrained to quote the opening paragraphs of a review of my book ("The Proteomorphic Theory and the New Medicine") which appeared in the number for May, 1921, of *The American Journal of Clinical Medicine*, because the reviewer explicitly calls attention to an aspect of the matter that has genuine significance:

> It is a well known fact that any new method of treatment, claiming to be successful in cancer or any other serious pathological condition, is compelled to run a gauntlet of scepticism, misrepresentation, and even worse. This is not fair either to the cause of science or to the suffering public, for, if a cure for cancer is ever found, any unnecessary delay in bringing it into general use by physicians will mean unnecessary suffering and death among cancer victims. Who will be responsible for those unnecessary deaths? Clearly those who, through bigotry, have put obstacles in the way of the prompt adoption of the new system of treatment. We doubt whether this phase of the matter is considered as often as it should be.
>
> This author claims to have discovered a new principle in physiology and to have successfully applied it in the treatment of several somewhat intractable diseases. If his system is based on a false foundation it will die without being kicked to death; but if it really is what he believes it to be, then we all have a responsibility in seeing that suffering humanity gets the benefit without unnecessary delay.
>
> The present reviewer has, for the past two years, been observing the results of the proteomorphic treatment whenever opportunity offered, more especially in cancer, rheumatism, and psoriasis. While the cases have been few in number, and while it is quite true that one swallow does not make an inebriate, the results have been so remarkable as to abundantly justify further observation and experiment.

I suggest that the reader cast his eye again over the first paragraph of the above quotation, and meditate for a few moments on its implications before proceeding to examine the matter that follows. As an aid to such meditations, I will merely point out that the statistical proof of the efficacy of protein treatment in ameliorating the condition of cancer sufferers was published in a medical journal of high standing as long ago as October, 1915. Since then more than half a million victims of

cancer have gone to their graves, in the United States alone, unsolaced by a treatment that might have been available for every one of them but for—

I permit the reader to finish the sentence out of the materials of his own meditation.

Let us now take up the trend of our story.

The Theory of the Protein Response.—The thoughtful physician will be sceptical, and properly sceptical, about the possibility of applying any single method to a wide range of maladies, unless he can be shown that there is a plausible physiological and pathological basis for such application. Let me, therefore, hasten to assure the reader that the new method fully meets these conditions. I stated some years ago, and I reiterate, that we have a clearer knowledge as to why and how nonspecific proteins elicit their response than we have as to the intimate nature of the action of most familiar drugs, including morphine, strychnine, and digitalis.

When any writer stresses "the incompetence of our knowledge" in this connection, his statement must be viewed as a personal expression, and his position may be likened to that of the British peer who, as reported by Lord Avebury, remarked as the two were walking home one night from the House of Parliament: "How strange it is that the moon changes its shape night by night. I suppose we shall never know the cause of this remarkable phenomenon."

Knowledge of the nature of the protein response is, indeed, incomplete in the sense that all knowledge of biological processes is incomplete. But in comparison with our knowledge of the intimate action of familiar alkaloids and of serums and vaccines, for example, our understanding of the protein response is adequate. The explanation is based on the assumption (supported by much evidence) that the blood corpuscles are the mechanisms directly concerned in the hydrolysis of any foreign protein that enters the blood stream. The stimulus to responsive activity on the part of the blood-forming mechanism given by any protein whatever is, in this view, direct and unequivocal. I have presented detailed evidence as to this in my earlier writings.

The physician who is interested in a full exposition of the subject may advantageously consult these publications. Here there is space only for the most condensed epitome, under a few suggestive headings. Let us lay the foundation by considering:

The Histological Evidence of the Protein Response.—Here we must discriminate sharply between the administration of bacterial proteins associated with bacterial toxins and the administration of therapeutic doses of relatively nontoxic proteins or protein products extracted from milk, egg albumin, animal tissues, or vegetable products, notably seeds. The former cause a more or less profound febrile reaction, accompanied by marked leucocytosis; the latter, administered in appropriate doses, cause no appreciable toxic symptoms, and the response of the blood-forming mechanisms is something quite different and altogether characteristic. In general terms, this may be described as a tendency toward normalization of the blood conditions.

Possibly the word "rejuvenation" would be more appropriate here than the word "normalization"; for there is one very notable and characteristic modification of the blood histology—namely, the increase of large monocytes—that makes the blood-picture of the patient under nonspecific protein treatment simulate that of childhood and adolescence. The observed fact of this increase of large monocytes under protein treatment (combined with the clinical observation of the coincident modification of neoplasms) led me to formulate the hypothesis that leucocytes of this type are particularly concerned with the early stages of hydrolysis of foreign protein molecules in the parenteral system. The well known fact that the large monocytes have relative preponderance in the blood of children during the period of growth (when, obviously, there is call for the handling of excess quantities of protein for the building up of tissues) is at least suggestively consonant with that hypothesis.

The other typical modifications of the blood under protein treatment, including increase of hemoglobin percentage, and normalization of the count of both red and white corpuscles in the aggregate, are features demonstrated by so large a number of cases in my personal experience, and in the experience of associated workers, as to be adequately established. The therapeutic bearing of these observations will be obvious to any clinician.

Nonspecific Proteins and Practical Medicine.—In the MEDICAL RECORD article of November 22, 1919, I gave a list of one hundred consecutive cases from my office records, thinking thereby to present a clearer picture than could otherwise be given in the same space of the various types of maladies that came within the range of nonspecific protein therapy. In a subsequent paper (December 20, 1919) these cases were grouped, for analysis of blood conditions, under the following headings: 15 cases of intestinal toxemia; 20 cases of neurasthenia; 18 cases of tuberculosis; 18 cases of dysthyroidism; 29 cases of disturbed metabolism.

The first four of these groups are self-explanatory. The fifth group brought together cases of great clinical diversity, including asthma, arthritis, anemic obesity, carcinoma, diabetes, psoriasis, and rheumatoid arthritis—all of them conditions which, in my opinion, are associated etiologically with protein toxemias.

That was the belief that led me to apply protein treatment to these widely divergent maladies. A study of blood conditions accompanied the clinical observation of every case. Characteristic modifications of the blood under treatment were associated, in the great majority of cases, with clinical modifications of gratifying character.

It would be worse than futile, in the space now at command, to attempt even a summary of results. Suffice it that the accumulated experience of the intervening months has served merely to support and accentuate the conclusions presented in the publications previously referred to. If I affirm now with dogmatic brevity that nonspecific protein therapy offers invaluable aid in the treatment of a large proportion of the cases of the maladies just mentioned, I am voicing no mere theoretical preconception, but an opinion based on personal observation of adequate series of cases, supported by the independent observations of several hundred phy-

sicians who have used protein antigens supplied from my laboratory.

With much confidence, then, I reaffirm the statement I have made again and again that nonspecific protein therapy offers the most comprehensive therapeutic measure known to present-day medicine. That the method should have come so far in six years is a testimonial to the receptivity of the profession; yet the fact that it has come no farther tells a story of conservatism that is regrettable even if not surprising.

The method is as simple as it is generally available. The practitioner who permits a case of anemia, of leukemia, of goitre, of tuberculosis, of cancer, of arthritis, of albuminurea, of glycosuria, of arteriosclerosis, of psoriasis, of asthma—naming only a few salient conditions—to pass through his hands without at least making the effort to give the benefits of nonspecific protein therapy, cannot be regarded as in touch with the trend of the times. That much at least may be said without challenge.

The Specific Element in Nonspecific Protein Therapy.—At the risk of seeming to propound a paradox that is subversive of much that has gone before—a paradox, however, that I shall endeavor to explain more in detail in another connection—permit me in conclusion to make this statement:

I have spoken all along of nonspecific protein therapy, and have not attempted to qualify the phrase, because the term has attained a certain meaning in current usage and I did not wish to create confusion. But I would have it recalled that in my original exposition of the subject I did not speak of *nonspecific* protein therapy but of *protein therapy* without qualification.

In the exposition of the Proteomorphic theory I have elaborated the conception that every type of protein has specific significance in its relations to the living organism. I have endeavored to elucidate the character of the general protein response, but I have never lost sight of the fact that there are specific features (as gauged, for example, by anaphylaxis) in connection with every protein used as an antigen, in addition to the general or nonspecific features.

Even in the present brief résumé I have intimated that there are at least quantitative differences between the responses evoked by, for example, egg protein, milk protein, serum protein, and various vegetable proteins.

Physicians familiar with details of my work will recall that one of the new therapeutic principles I have enunciated is that in dealing with cases of profoundly disturbed metabolism—for example, cancer—no single protein, even if administered for an indefinite period, can evoke a maximum response or produce optimum results. It is necessary from time to time to shift to a different protein—for example, from the protein of alfalfa seed to that of millet or clover or rape or hemp or cotton seed.

But it must be manifest that this implies specificity in connection with the response to each protein; not specificity in the sense in which we use the word in connection with pathogenic bacteria, and yet something analogous because implying that every protein has certain qualities that differentiate it from every other protein.

To elaborate this feature of the subject would obviously carry us far afield. Yet even a summary treatment of the subject of nonspecific protein therapy would be a very incomplete record of present knowledge were it to overlook the fact that the phrase "nonspecific" is used in a loose sense; that what we really mean when we use the phrase is—protein antigens dissociated from bacterial toxins; and that, in the final analysis, and with regard to the ordinary and accepted meaning of words, all protein therapy is specific therapy.

In the therapeutics of the future, bacterial toxins may have a place. Bacterial proteins dissociated from their toxins will probably have a place along with numberless other proteins of vegetable and animal origin. Ultimately we shall know which protein, bacterial, vegetable, or animal, will evoke the most satisfactory or desirable response when this or that pathological condition of the organism obtains.

Then we shall be practising scientific protein therapy of a new type of specificity, which will almost surely supplant the old specific serum therapy and vaccine therapy.

Pending the acquisition of the new knowledge that will bring us to this culminating phase of Protein Therapy, we have at the moment, particularly in the vegetable proteins, materials for the application of a method to which the term Nonspecific Protein Therapy may justifiably be applied to distinguish it from Serum Therapy and Vaccine Therapy; and I repeat that these nonbacterial protein antigens constitute even to-day the most comprehensive and under many conditions the most satisfactory agency available for the practical physician in combating a wide range of metabolic disturbances, including the major part of the so-called degenerative diseases that are responsible for perhaps three deaths out of five in the adult population.

104 EAST 40TH STREET.

PRESENT OPINION ON INTRASPINAL THERAPY IN NEUROSYPHILIS.

BY EUGENE N. BOUDREAU, M.D.,

SYRACUSE, N. Y.

CHIEF OF NEUROPSYCHIATRIC CLINIC, SYRACUSE FREE DISPENSARY; INSTRUCTOR IN NEUROANATOMY AND ASSISTANT PROFESSOR IN NEUROPSYCHIATRY, SYRACUSE UNIVERSITY MEDICAL SCHOOL.

IT is the purpose of this paper to try to remove some difficulties, and to help to clear thinking in the problem of treatment in neurosyphilis. The literature on the subject is abundant, conflicting, and confusing and leaves one in doubt. For the busy general practitioner who is beset continually with the need of gaining the best opinion concerning the problems in many fields, this situation is lamentable. With the hope of getting into convenient space and form the essential facts, this abundant literature was gone over and sifted, and only that which was most convincing selected. It was also a concern of the writer to deal impartially, therefore the best was sought from centers as far removed from one another as possible so as to minimize the element of personal influence among the observers. Authors are quoted verbatim in many instances where it has seemed best.

Now, in order first to gain a perspective of the

whole situation, let me give, briefly, the essential points which seem to me important as they appear crystallized from this vast material:

All agree that the central nervous system is invaded *early after infection* by the *Spirocheta pallida*. Also that in some cases the nervous system spontaneously takes care of itself, while in others the offending elements become harbored and resist elimination sturdily or seemingly become dormant and remain there for long periods—five, ten, or twenty years. It is consequently essential to subject this part of the organism to searching inquiry before it is considered free from danger. Most observers likewise agree that arsenic as salvarsan, neosalvarsan, arsphenamine or neoarsphenamine, given intravenously in the accepted way, together with courses of mercury and the iodides, is the logical first procedure. If the nervous system then is proven by laboratory and clinical scrutiny to be intact, all is well. However, when the proper amount of energy with intravenous treatment has been displayed and the nervous system shows itself yet to be not free from attack, then a wide divergence of opinion arises as to the best method of further procedure. This disagreement in opinions revolves largely about the question of the permeability of the blood vessels and choroid plexus to compounds of complex molecular structure like arsphenamine. Therefore, arise the questions: Does intensive treatment by intravenous injection produce all the possible desired results? Likewise does intravenous treatment with spinal drainage produce these results? (Spinal drainage is supposed by some to increase the permeability of the choroid plexus.) Or is it necessary for the spirocheticidal substance to be introduced into the cerebrospinal fluid by way of the spinal canal. Intraventricular introduction is objectionable because quite impracticable. It is pretty well agreed that mercurialized serum is a less desirable and more potentially injurious substance than salvarsanized serum.

Furthermore, I believe it will help to clarify much that follows if we consider briefly the known and accepted facts regarding the physiology of the cerebrospinal fluid. It is accepted that this fluid is produced only above the aqueduct of Sylvius, probably by the choroid plexus; likewise that it is slowly formed and gradually absorbed but the rate of formation and absorption, under normal conditions, is unknown. Physiologists also agree that this fluid has a circulation; it is believed, though not absolutely proven, that this circulation is from the ventricles to the subcerebellar cisterna, then to the cerebral and spinal subarachnoid spaces. In the spinal subarachnoid the circulation is downward posteriorly and upward anteriorly, the circulation is least complete in the lower spinal regions. It is known that the choroid plexus is not permeable under normal conditions.

It is believed by Halliburton[1] and some others that the cerebrospinal fluid comes into close contact with the cells of the nervous system by means of the perineuronal spaces and that it has the function here of lymph in other tissues, that is, it maintains osmotic pressure, nourishes the cells, and carries away waste.

It would not be possible within the limits of this article to discuss in detail conditions in the pathology of central nervous syphilis which would be related to the problem of intraspinal therapy. However, I believe it will be valuable to review briefly some of the changes brought about by syphilis in this system.

According to Nonne these pathological changes may be grouped under three great divisions, that is: (1) Syphilitic new growth. (2) Chronic hyperplastic inflammation. (3) Disease of the blood vessels.

The favorite locations of syphilitic new growths or gummata are in the dura, upon the convexity or at the base, but more often at the base where small tumors develop in the neighborhood of arterial trunks. Gummata sometimes appear in the cortex of the brain, most often in the region of the central convolution.

They also occur in proximity to the large ganglia, optic thalamus, lenticular nucleus, etc. With the gummata there is usually an accompanying meningitis. Gummatous tumors begin their growth in the meninges and connective tissues, and have no relationship to the nerve tissue, except in a secondary manner.

Syphilitic meningitis occurs in all three coverings but it most frequently starts in the pia, especially of the base. Virchow believed simple meningitis was a doubtful condition. Oppenheim on the other hand thinks it is not uncommon. The favored location of the meningitis at the base is in the interpeduncular space and about the optic chiasm.

As regards the arteries, it is the generally accepted view now that the primary inflammatory process is in the vasa vasorum and the perivascular or Virchow-Robin spaces, and from here spreads to the endothelium, which proliferates and gradually obliterates the vascular lumen. In the veins, the walls are involved in various ways, the result being obliteration of the lumen. The results of syphilitic disease of the blood vessels are not diagnostic, for they are the consequences of diminished or suspended nutrition to an area. Nonne says also that besides the three forms of nervous syphilis above mentioned, there is in addition a degenerative process of varied type "to which, for clinical reasons, syphilis must be regarded as standing in causative relationship," that is, a primary parenchymatous degeneration.

Barrett and Danvers have also described an acute inflammatory process which they designated "disseminated syphilitic encephalitis."

The same general processes occur in syphilis of the spinal cord, clinical manifestations depending upon the type of the pathology and its location.

It will be seen that in the first two types of process, the meninges are primarily involved and in the last a part of the initial process is outside of the vessel in the perivascular spaces. The perivascular spaces are probably in direct communication with the subarachnoid space, as is evidenced by the appearance of lymphoid and polynuclear cells in the spinal fluid in inflammatory conditions of the meninges, and also because the vessels carry pia into the cortex with them as they dip down within it. For these reasons it would seem essential, in most cases, that our therapeutic agent reach the meninges, therefore the importance of the question of the permeability of the blood vessels to our agent.

Let me submit now the material from which the above condensations have been made.

In February, 1919, P. Fildes[2] of the Royal Naval Hospital, Haslar, England, reported the following conclusions from a series of 624 unselected cases of syphilis in all stages of the disease:

1. Eighteen per cent. had 10 cells or over per c.mm. in the cerebrospinal fluid.
2. Eighty per cent. of these showed no clinical signs of the nervous disease, altnough the spinal fluid showed as high as 1,000 cells per c.mm.
3. Some cases of pleocytosis occur soon after infection, and before the Wassermann reaction in the serum becomes positive.
4. In cases having no active signs of syphilis over 6 months from infection 35 per cent. had 10 cells or over per c.mm. in the cerebrospinal fluid.
5. That the changes in the cerebrospinal fluid were due to syphilitic disease of the central nervous system was demonstrated by the increase of cells mostly lymphocytes; by the presence of a positive Wassermann reaction; and by the fact that treponema pallida was demonstrated in the cerebrospinal fluid.
6. A negative Wassermann reaction in the serum does not in every instance exclude the possibility of active syphilitic disease in the central nervous system.
7. Previous treatment has had no effect on the number or the severity of the abnormalities in our series.
8. In nearly all cases intravenous treatment has had a beneficial effect, but in a few cases the pathological processes in the central nervous system have not been checked even by repeated courses of this treatment.

Examination of the cerebrospinal fluid is indicated in every case of syphilis. Swift in December, 1917, said[1]:

To neglect either clinical or laboratory signs is not in accord with modern tendency in clinical medicine. To disregard the laboratory picture of disease is at least reactionary. In syphilis, laboratory evidences of disease are of paramount importance and changes give us a valuable measure of the efficacy of our therapeutic measures. It is always well to separate, as far as possible, the symptoms that are the result of active disease from those the result of scars. The elimination of active syphilitic foci and the arrest of progressive degeneration are objects of our therapy.

In a large majority of the tabetics in whom the Wassermann reaction has been rendered negative in blood and spinal fluid there has been no progressive downward course as determined by periodic clinical examination. On the other hand in those cases (of tabetics) in whom it was impossible to influence appreciably the abnormal laboratory findings the disease was often progressive. These often showed a paretic gold curve. In paresis, increase in number of remissions and their length is all that can be expected (from intraspinal treatment).

We must differentiate sharply between concentrations of arsenic that are injurious and the injection of a serum reenforced by a fraction of a milligram of salvarsan, which is practically never followed by any bladder disturbance. Although the serum contains only minute quantities of salvarsan, it has been established as spirocheticidal by several workers. I have shown that injection of normal serum decreases the Wassermann and cells. In some cases that were stationary under this treatment, there was further improvement when "salvarsanized serum" was used. Hence we have two favorable factors at work which do no injury to delicate central nervous tissues.

While there has been an occasional report of finding of arsenic in spinal fluid after intravenous administration, the majority of investigations show negative results. We are, therefore, justified in concluding that the choroid plexus and the capillaries are usually effective barriers to the passage of arsenic into cerebrospinal fluid.

Blackfan and Dandy showed that after intraspinous injection of finely divided carbon there was a rapid distribution of the particles throughout the subarachnoid space.

Not infrequently intraspinous injections are not advised in all cases because general treatment is alone sufficient.

Sachs[4] opposes the use of intraspinal treatment and says:

Let me state briefly why we pinned our faith to the intravenous use of salvarsan, neosalvarsan or arsphenamine and why we are ready to reject the more dangerous intraspinous method of treatment.

If the intraspinal methods were to be adopted and heralded as the only effective treatment of syphilis of central nervous system, the greater harm would be done, because the intravenous method would not then be energetically pursued by the hundreds of physicians who have become skillful in its use and which brings results comparable with those obtained in the treatment of early specific lesions in other organs. If there is the slightest suspicion that syphilis has invaded the nervous system, let doctors give intravenous treatment and give it to the extent that we have found safe. In general paresis and tabes the chief lesions are deep within the substance of the brain far removed from the cerebrospinal fluid. It is for that reason almost impossible to bring the spirocheticidal remedy into immediate contact with the foci of disease unless these remedies can be introduced through the blood stream. It is only in the earliest stages of tabes that the disease, as we have long known, involves the meninges and spinal ganglia; later on it sets up marked changes in the spinal tissue and these secondary changes are entirely beyond the reach of the cerebrospinal fluid. In the remaining processes . . . we would suppose that spirocheticidal substances introduced into the cerebrospinal fluid might have an active therapeutic effect if such substances could course freely in the cerebrospinal fluid and if it could be shown that they were retained in the fluid any satisfactory period of time. (He also refers to his demonstration, with assistance of Professor Benedict, in 1914, that salvarsan introduced in the usual quantities into blood current appeared in the cerebrospinal fluid in appreciable quantities.) It has also been shown that the cerebrospinal fluid circulates imperfectly and that there is little absorption of this fluid by the cortical spinal cells. (He gives no reference.)

Stoner[5] of Cleveland in February, 1917, discusses his experience in seventy-two cases who had 252 treatments by the Swift-Ellis-Ogilvie* method. The cases included all types of neurosyphilitics. Of patients made clinically well two had had intensive treatment previously and were not completely relieved, but intraspinous treatment gave complete relief. Seven cases getting clinically well were treated simultaneously, intravenous alternating with intraspinous. Experience shows that intraspinous treatment cannot supersede the general treatment, but must be used as an adjunct to it. It is not his belief that intraspinous treatment is indicated in early neurosyphilis unless general treatment has failed. As long as involvement is meningeal in character, because of blood supply we have a right to believe general treatment is sufficient. The proof however of sufficient treatment should be negative cerebrospinal fluid findings. No patient with early syphilis should be dismissed on a blood negative to the Wassermann reaction. A positive spinal fluid then is indication for intraspinal treatment, even though clinical signs are absent.

It is striking how much relief one intraspinal treatment will give in an early neurosyphilitic not responding to general treatment. The tabetics, if intensely treated, become less ataxic, lose lan-

*The use of salvarsanized or arsphenamized serum intraspinally with the addition of a fraction of a milligram of salvarsan or arsphenamine directly to it.

cinating pain, and crises disappear. The relief is so great, they solicit further treatment. Clinical improvement does not always parallel laboratory improvement, however, nor is it always in the negative laboratory cases that the greatest clinical improvement is seen.

"Syphilis, like tuberculosis, is everywhere—it is present often with no history of infection. A positive Wassermann or lumbar puncture is the only manifestation. A neurosyphilitic involvement rarely gives negative lumbar puncture findings."

Drs. Goodwin and Scott of St. Luke's Hospital, New York, in July, 1919, reported the results in 214 treatments on twenty-one cases.[6] They found that lost knee-jerks or sluggish pupils are not changed. There is frequent improvement in ataxia and cases almost uniformly show improvement in weight from sixteen to thirty-one pounds. The most gratifying results from the treatment have been shown by its effect on the subjective symptoms. In spite of the fact that the intraspinal treatments often cause severe reactions, they found these patients more anxious to continue treatments than any other class. Also they were struck by the fact that in most cases there was a very marked and sustained diminution in the amount of discomfort from which they suffered before the institution of treatment. In almost every one of the cases recorded there was relief to a great extent from pain and frequent improvement in bladder function. Of two cases of spastic type of tabes one recovered from spasticity and reflexes returned, the other showed moderate improvement.

Dr. Fordyce,[7] whose wide experience in the treatment of syphilis is well known and whose ability as a clinician can be little questioned, though by some considered an enthusiast, reports his latest studies and convictions in July, 1919. He says:

> The pathological studies of Warthin in visceral syphilis which show that spirochetæ may be harbored for years with slight or no reactive phenomena support the theory of the persistence of the infection *in loco*. It does not require a great tax on our reason to suppose that the spirochetæ behave much the same way in all organs which they invade. We may, therefore, transfer our experiment to the central nervous system. With its more specialized centers and tracts spirochetal attacks may cause marked subjective or objective symptoms and signs like headache, delirium or paralysis of most varied types. On the other hand an individual so infected may remain free from all symptoms for years until some important center or tract is compromised. In some of these cases, however, where slight character defects are the only deviation from the normal the physical signs are practically nil, the blood and spinal fluid reveal the formula which speaks for paresis. "Paresis sine paresi" may exist for years without the well-known stigmata and in my opinion is not a sudden invasion leading to the patient's death in two or three years.
>
> If we admit, as I think we must, that neurosyphilis, like its prototype in other organs, may have long periods of latency, it is not difficult to believe that the spirochetæ gained entrance to the nervous system in their period of greatest dissemination, *i.e.* the florid stage. Since attention has been directed to early neurosyphilis, careful clinical examination has uncovered a large number of cases. More definite knowledge has been acquired by spinal fluid examination at this time.
>
> Assuming the early implication of the nervous system to be correct the vast importance to the individual of early recognition of such an involvement is self-evident. The Wassermann reaction is our guide and as long as the test continues positive the future of the patient is menaced. A positive Wassermann reaction which remains for years uninfluenced by intensive treatment or which returns after treatment is discontinued is not infrequently caused by neurosyphilis. The blood (reaction) becomes negative for a time, but it is reinfected by the spinal fluid.
>
> In order to make my position quite clear regarding the indication for intraspinal therapy, I desire to emphasize the statement often made that the method is of value in certain types of neurosyphilis which *fail* to respond to treatment by other channels and in which the spinal fluid reveals an *active* syphilitic lesion. If a patient, after intensive treatment with salvarsan, mercury and potassium iodide, shows little or no improvement in his symptoms, blood or fluid reactions, some other method of therapeutic attack would be clearly indicated. Rapid and decided clinical and serologic improvement following the introduction of a new factor, even though the original procedure might be continued would strongly suggest to a mind free from prejudice that the new factor was responsible for that change.
>
> I have demonstrated again and again in my laboratory the persistence of positive phases in the spinal fluid in patients treated in the most intensive manner by the orthodox methods over long periods with little or no change except in the cell count and slight clinical improvement. Intraspinal therapy has been followed by persistent negative phases and clinical improvement or cure. I am, therefore, becoming more and more convinced of its value and believe the failure of others to obtain like results to be largely dependent upon imperfect technique and early discouragement because of slow results.

(The article also describes in graphic form twenty-six cases of the various types of neurosyphilis in early stages which were benefited or cured as regards clinical and laboratory manifestations.)

In another article Dr. Fordyce says "It would be hard to convince most of my patients on theoretical grounds that they had derived no benefits from the treatment."

Dr. Fordyce is so convinced of the possibility of limiting syphilis by treatment with present day methods well carried out that I have heard him say "Syphilis can be as thoroughly controlled as typhoid fever."

Other methods of treatment by means of the cerebrospinal fluid have been tried and advocated. One, the use of mercurialized serum, advocated by Byrnes, has been found by Haller[8] of Boston and Neyman[9] and Brush of Baltimore, though having certain advantages in preparation, to produce more severe reactions than salvarsanized serum and to have greater potential danger.

Dercum[10] of Philadelphia, in an article published in December, 1919, advocated complete spinal drainage once in ten days to two weeks. He bases his belief in this method on the theory that the beneficial results obtained in the Swift-Ellis treatment are from the necessary spinal drainage practiced in it; also on the theoretical proposition that the drainage results in an increased pressure in the blood vessels of the nervous system producing a hyperemia, "a parallel to the Bier method in surgery"; and a replacement of old fluid by new which produces a lavage of the subdural space. His explanation of the basis for the treatment rests upon a physiology of the cerebrospinal fluid largely of his own conception and at variance, I found, with many of the ideas of such men as Halliburton, Weed, and Mestrezat. These latter base their ideas or hypotheses upon experimental evidence. Dercum

lays no claim to experimental experience but bases his reasons upon analogy from known facts regarding other tissues and upon purely theoretical conceptions.

It is well here to call attention to the fact that spinal drainage results frequently in great pain, which does not often occur when the fluid withdrawn is replaced by serum. I might say that I believe Drs. Fordyce and Cornwall have been unable to reproduce the results claimed for spinal drainage whether or not salvarsan was previously given intravenously.

It seems hardly necessary to speak of the objections to intraventricular injections, especially in incipient neurosyphilis.

Now let us consider briefly what conclusions we can safely accept. It would appear that they are these.

1. The central nervous system is early invaded by the *Treponema pallidum*, and without necessarily giving clinical signs.

2. Vigorous intravenous salvarsan treatment associated with mercury and the iodides removes the danger in a larger number of cases. This must be confirmed by negative findings in the cerebrospinal fluid.

3. Certain cases do not respond to this treatment alone.

4. For these cases the best treatment so far devised, but not ideal, is by the Swift-Ellis-Ogilvie method because various observers agree that clinical evidence shows it to be beneficial and the laboratory evidence is that in all but potential paretics the signs become negative if thoroughly carried out, and because both avenues of approach are employed.

5. That the method of Byrnes (mercurialized serum) is more dangerous and produces severe reactions.

6. That the drainage method of Dercum is not without danger, is extremely painful, and the results obtained by observers are not in agreement.

REFERENCES.

1. Halliburton, W. D.: "The Possible Functions of the Cerebrospinal Fluid," *Brain*, 39-214, October, 1916.
2. Fildes, P., *et al.*: "Unsuspected Involvement of Central Nervous System in Syphilis,"—A study of 624 unselected cases, *Arch. Neur. and Psych.*, 1-231, February, 1919.
3. Swift, Homer F.: "Intraspinal Treatment of Syphilis of the Central Nervous System—Another View., *J. A. M. A.*, December 22, 1917.
4. Sachs, Bernard: "On the Intravenous, not the Intraspinous use of Arsphenamine in Syphilis of the Nervous System," *Arch. Neur. and Psych.*, 1-277, March. 1919.
5. Stoner, Willard: "Intraspinal Treatment of Neurosyphilis with Standardized Salvarsanized Serum," *J. A. M. A.*, February 24, 1917.
6. Goodwin, Geo. W., and Scott, J. R.: "Treatment of Neurosyphilis by Arsphenamine Intravenously and Auto Arsphenaminized Serum Intraspinally," *Arch. Neur. and Psych.*, 2-59, July, 1919.
7. Fordyce, John A: "Intraspinal Therapy in Neurosyphilis," *Amer. Jour. Syph.*, iii. 3, July, 1919.
8. Haller, David A.: (Peter Bent Brigham Hosp.) "The Treatment of Syphilis of the Central Nervous System, A Comparison of Mercurialized Serum and Salvarsanized Serum," *Arch. Int. Med.*, xix, 997, June, 1917.
9. Neyman, Clarence A., and Brush, Nathan H.: "Treatment of General Paralysis," *Arch. Int. Med.*, xxii, 245, August, 1918.
10. Dercum, Francis X.: "The Functions of the Cerebrospinal Fluid, with a Special Consideration of Spinal Drainage and of Intraspinal Injections of Arsphenaminized Serum," *Arch. Neur. and Psych.*, iii, 230, March, 1920.
11. Levinson, Abraham: The Cerebrospinal Fluid.

305 PHYSICIANS' BUILDING

THE USE OF THICK CEREAL MIXTURES IN DIFFICULT FEEDING CASES.*

BY HENRY DWIGHT CHAPIN, M.D.,
NEW YORK

DURING the past few years a number of observers have reported striking results from the use of thick cereals in a number of abnormal conditions that may occur during early infancy. Dr. Sauer[1] got good results in various types of neurotic vomiting and in pyloric stenosis. Dr. Helmholz also obtained relief in cases of pyelospasm. Dr. Mixsell,[2] in two series of cases, succeeded in checking malnutrition in infants who could not be made to gain on ordinary feedings. Dr. L. Porter[3] obtained good results from this feeding in idiopathic vomiting and in certain cases of wasting by restoring nutritional balance.

The cases here reported consisted of infants who were suffering from obstinate indigestion which resulted in distinct malnutrition and pointed to the hopeless marasmus that finally resists all aid.

Twenty of the infants were inmates of the Alice Chapin Adoption Nursery. This nursery accepts abandoned infants and prepares them for adoption. Some of these infants are exceedingly difficult to manage. Most of them are illegitimate and have been removed from the mother immediately or shortly after birth. Various bottle feedings are then tried and, after a few weeks shifting about, the infant is received at the nursery with apthous patches in the mouth, excoriated buttocks, and all the evidences of faulty digestion. In passing, it may be remarked that only a few weeks at the breast at the very beginning of life would make the handling of such cases much easier, as a fair nutritional start is very essential to the welfare of these infants. Some of the infants cannot digest or assimilate normal feedings for their age. Accordingly, weak mixtures must be given to suit their digestion. Loss of weight follows, and the digestive power grows still weaker. This vicious circle, unless relieved, soon ends in death. Any form of food that will check this wasting until the infant has time to adjust itself to a normal food is worthy of trial. As many of our nursery infants do not increase in weight, and frequently lose on a formula normal to the age, it was determined to try the cereal feedings in selected cases.

Three mixtures were employed, prepared as follows:

I.

Boil one-half hour { Remove top 4 oz. from 1 qt. milk. / Skim milk, 11 oz. / Water, 7 oz. / Farina, 3 level tablespoonsful / Add granulated sugar, 1 level tablespoonful

Feed 3 oz. every 4 hours, and water every 4 hours, alternating.

II.

Boil one-half hour { Remove top 4 oz. from 1 qt. of milk. / Skim milk, 15 oz. / Water, 6 oz. / Farina, 3 level tablespoonsful / Add granulated sugar, 1 level tablespoonful.

Feed 3½ oz. every 4 hours, and water every four hours, alternating.

*Read on June 2, 1921, before the American Pediatric Society at Swampscott, Mass. (See page 568.)

III

Remove top 4 oz. from 1 qt. of milk

Boil one-half hour { Skim milk, 28 oz.
Water, 9 oz.
Farina, 4½ level tablespoonsful.

Add granulated sugar, 1 level tablespoonful, and malt sugar, 1 level tablespoonful

Feed 4 to 6 oz. every 4 hours, and water every 4 hours, alternating.

Most of the cases thus fed were vomiting as well as losing weight when the paste was started. Some of the infants took the cereal best through a nipple. In these cases a large hole was made in the nipple and two level tablespoonsful of farina was used for formulas I and II, and two and a half tablespoonsful for formula III. When vomiting was an important feature, the thicker cereal did better, and they were always first tried with a spoon. The persistent vomiting in some of the cases was largely responsible for the loss of weight. The use of water seemed to be helpful in aiding to increase the bulk of tissue. We could usually get the very little babies to take from 4 to 5 ounces in the twenty-four hours, and the older ones 5 or 6 ounces. The water was given through a nipple, the same as ordinary milk feeding, and some infants took it with avidity, while others had to be coaxed. Whole milk was usually substituted for skim milk after the vomiting stopped. Several very large, yellow, fairly homogeneous stools were usually noted.

The effects of this feeding were occasionally uncertain, usually good, and sometimes remarkable. The babies seemed to like the taste afforded by the cane sugar, and the gelatinized starch appeared to prevent a laxative or fermentative effect from the sugar. Since starch is a complex carbohydrate, it is slowly converted and thus affords less opportunity for fermentation. The gelatinized starch also carries a high protein content for the age into the digestive tract in colloidal form. The mechanical splitting up of the coagulated protein and the ballast to the bowel afforded by mere bulk also seems to have a stabilizing influence. As starches and sugars are carriers of energized carbon and water, the gain in tissue may thus be explained. A low osmotic pressure of the starchy mass and a lessened stimulus of the food tends to inhibit glandular secretion. Daniels[4] believes that growth is stimulated in young infants by the addition of wheat embryo to food, supposed to be induced by an antineurotic vitamine.

The following table shows the age of the infants, the weight when the food was started, the weight when it was discontinued and the duration of the trial.

R. F.	3 weeks	5 lbs., 12 oz..	gained	2 lbs., 2 oz.	in	5 weeks
K. W.	7 weeks	7 lbs., 5 oz..	gained	3 oz.	in	4 days
W. P.	2 weeks	7 lbs., 2 oz..	gained	14 oz.	in	2 weeks
W. S.	7 weeks	6 lbs., 14 oz..	lost	3 oz.	in	5 days
R. A.	10 months	12 lbs., 9 oz..	gained	2 lbs., 10 oz.	in	3 weeks
R. M.	2 weeks	6 lbs., 6 oz..	gained	2 oz.	in	5 days
V. K.	3 weeks	5 lbs., 13 oz..	gained	1 oz.	in	6 days
W. B.	3 months	6 lbs., 5 oz..	gained	15 oz.	in	13 days
R. B.	3 months	6 lbs., 8 oz..	gained	1 lb., 6 oz.	in	13 days
D. T.	3 weeks	6 lbs..	lost	3 oz.	in	2 months
L. V.	2 months	8 lbs., 11 oz..	gained	5 oz.	in	13 days
L. A.	3 months	8 lbs., 4 oz..	gained	11 oz.	in	3 weeks
M. R.	3 weeks	5 lbs., 6 oz..	gained	1 lb., 6 oz.	in	3 weeks
R. C.	2 months	8 lbs., 1 oz..	lost	8 oz.	in	1 day
R. R.	18 days	5 lbs., 14 oz..	lost	6 oz.	in	5 days
R. W.	7 weeks	8 lbs., 3 oz..	gained	7 oz.	in	13 days
C. C.	5 weeks	7 lbs., 2 oz..	gained	1 lb.,	in	13 days
J. R.	3 months	8 lbs., 2 oz..	gained	3 oz.	in	1 day
L. R.	7 weeks	6 lbs., 6 oz..	gained	10 oz.	in	2 weeks

Peter S., 5 weeks, was admitted to the nursery on May 6 weighing 5 lbs. 15½ oz. He soon developed a diarrhea and was put on protein milk. The bowels gradually became normal, but he began to lose weight—on May 11 showing a loss of 2 ounces. On May 12 he was started on thick cereal and on May 20 he weighed 6 lbs. 13½ oz. We have had this experience in several other cases.

In two infants treated at the Babies' Wards at the Post-Graduate Hospital, an examination of the stools was made in the laboratory by Miss Hilda M. Croll to determine the carbohydrate utilization during the thick cereal feeding. One baby of five months gained 2 ounces, and one of eight months lost 2 ounces after three days of thick cereal feeding. In both cases the carbohydrate intake was weighed for the three consecutive days, and during this time all the stools were collected for examination. The results are shown in the following table:

Carbohydrate Intake and Carbohydrate Output in the Stools.

Patient	Age Mos.	Period Days	CHO Intake Grams	No. of Stools	Wt. of Moist Stools	Reaction to Litmus	Reducing Sugar Grams	Non-Red. Sugar Grams	Total CHO Grams	Percentage of CHO Utilized
A. S.	8	3	187	5	92	Acid	0.296	0	1.55	99.3
P. C.	5	3	101	9	102	Acid	0.461	0	2.39	97.6

The percentage utilization of the carbohydrate in this diet, consisting largely of farina and cane sugar, was 99.3 per cent. for one infant, and 97.6 per cent. for the second. Myers and Rose[5] found utilizations by adults of 98 to 99.8 per cent. of the carbohydrate of ordinary mixed diets. Pease and Rose[6] found utilizations by children of 97.2 to 99.5 per cent. of the carbohydrate of mixed diets. It is thus seen that in the two cases here examined the carbohydrate was utilized by these infants practically as well as the carbohydrate in an ordinary diet was utilized by adults and children.

The following was the method used by Miss Croll in determination of the carbohydrate in the stools:

The combined stools for the period are extracted by a thorough mixing of cold water and bringing the mixture to boiling in a flask. A small portion of this water extract is saturated with dry picric acid and 3 c.c. portions are heated with 1 c.c. 22 per cent. sodium carbonate in a test tube, in a boiling water bath for 20 minutes. After dilution, the red-brown color produced by the reduction of sodium picrate to sodium picramate is compared in a colorimeter with a standard glucose solution similarly treated. The soluble reducing sugar is thus determined in terms of glucose. Nonreducing soluble sugar is determined by heating 3 c.c. of the extract with picric acid alone for 10 minutes, and then heating with the sodium carbonate. The picric acid inverts any cane sugar to reducing sugar.

The original mixture of the stools with water is boiled with approximately .06 normal hydrochloric acid for 2 hours, cooled and neutralized, and a portion of the filtrate is saturated with dry picric acid; 1 to 3 c.c. are heated with sodium carbonate as for soluble reducing sugar. The total carbonate of the stool is changed to reducing sugar by this acid hydrolysis and is expressed as glucose.*

From a study of the cases here reported, we can confirm the view that thick cereal mixtures form a valuable resource in certain cases of persistent vomiting and will check wasting in some infants

*The procedure for this method is a modification of that used to determine the carbohydrate in vegetables and fruits, as described in a paper by Myers and Croll to appear in the *Journal of Biological Chemistry* for May, 1921.

that fail to hold their weight on ordinary food formulas.

REFERENCES.

1. *Archives Pediatrics*, July, 1918.
2. *Archives Pediatrics*, August, 1919, and August, 1920.
3. *Archives Pediatrics*, July, 1919.
4. *Amer. Jour. Diseases of Children*, December, 1919.
5. *Jour. American Med. Assoc'n*, lxviii, 1917.
6. *Amer. Jour Diseases of Children*, xiv, 1917.

51 WEST FIFTY-FIRST STREET.

THE HEMORRHAGES IN THE NEW-BORN.

BY J. R. LOSEE, M.D.

NEW YORK.

PATHOLOGIST TO THE NEW YORK LYING-IN HOSPITAL.

THE following remarks refer entirely to the more serious hemorrhages in the new-born and no mention will be made of the hemorrhages associated with asphyxia. Of those cases where the life of the infant is often in danger, we have for our consideration the so-called idiopathic hemorrhage and hemorrhage due to injury. These babies are not suffering from hemophilia, but their condition is peculiar to the first few days of life, and whereas in the spontaneous variety we are ignorant of the cause I believe that the hemorrhage persists because the hematopoietic system is not complete when born and their blood does not contain the necessary substances to promote clotting. This condition is present in both males and females and several have been seen from one to two years after birth without any history of a recurrence. In a large series of autopsies I have observed that the more premature the infant the greater the danger of hemorrhage. I am convinced after the clinical observation of many of these cases in the past few years that regardless of the cause the treatment is the same for both types.

On account of the difficulty in obtaining a sufficient quantity of blood from an infant it is impossible to carry out the more accurate methods for determining the coagulation time, the prothrombin time and other investigations necessary for a complete study of the fluid. Observers have reported both a prolonged coagulation time and bleeding time in some cases, in others the same observers have found a prolonged bleeding time and a normal coagulation time, and there is a third type of case where neither the coagulation time nor the bleeding time was increased. Hurwitz[1] has placed this disease in that group which shows lack of prothrombin, yet we have seen cases manifest typical symptoms without a delayed coagulation time. The prothrombin time in three cases that returned after one year was normal. It was not estimated during the course of the disease. Rodda[2] has reported two cases with both a delayed coagulation time and bleeding time that developed definite symptoms of hemorrhagic disease and two others with a delayed coagulation time and a normal bleeding time that showed no signs of it. It is apparent, therefore, that these cases do not all lack the same element in the blood and it is quite impossible to classify them on that basis.

Hemorrhage is the chief symptom observed. It may be mild, moderate and occasionally the initial bleeding is severe enough to endanger life. The bleeding may occur in any tissue, but it is most frequently observed in the subcutaneous tissues, the gastrointestinal tract, from the umbilicus and in the central nervous system. It has been noticed that after an extensive hemorrhage in one system a very slight or no hemorrhage is found in the others. These symptoms generally occur before the fifth day and they are sometimes associated with fever, absence of nursing and the general appearance of the infant is suggestive that it is not doing well. In some the entire subcutaneous tissues of the back are infiltrated with blood, in others there is an extensive hemorrhage beneath the dura mater, in others nearly all the blood in the infant's body is in a cephalohematoma and I have seen cases of gastrointestinal hemorrhage where a complete blood cast of the small intestine was observed at autopsy.

Inasmuch as this is a constitutional disease there is little advantage gained and considerable time wasted by applying local measures, even in those cases where it is possible to do so by reason of an external bleeding point, and, in spite of the numerous articles on the value of whole blood therapy, the majority of these cases continue to be treated with horse serum, thromboplastin, and calcium. It has been shown by Hurwitz[1] that old serum retards rather than hastens the clotting of blood both in normal animals and in those suffering from hemorrhagic disease. He also attributes little value to the use of fresh serum in this condition, and says after carefully controlled experiments that it has little effect on the coagulability of the blood. On the contrary our experience at the New York Lying-In Hospital has shown very good results with fresh normal human serum ever since it was introduced by Dr. J. E. Welch ten years ago. There are certain cases in which even serum or whole blood in large amounts subcutaneously will not control the hemorrhage and in these we must resort to whole blood intravenously. With this method we not only supply the therapeutic agent necessary to check the bleeding in any part of the body, but also overcome the acute anemia which is threatening life. Even after introducing blood directly into the circulation of these babies I have seen one in a series of sixteen cases recur after twenty-four hours. In this case we were dealing with a type which not only did not have the substances to produce clotting but possibly had sufficient anti-clotting substance in its blood to neutralize that introduced, or it may be that in the cases which do well the introduction of blood stimulates the production of the clotting substances, and in those in which bleeding recurs it does not produce such stimulation. It is our routine at the hospital to treat these cases early with fresh normal human serum or whole blood subcutaneously, but if the hemorrhage is not controlled by this method transfusion is performed and is followed by subcutaneous injections of serum for two or three days in the endeavor to avoid a recurrence. If the condition should recur and life be endangered another transfusion from a different donor is indicated. In those cases where the initial symptom is a profuse hemorrhage and the general condition of the patient is grave or if the case has been admitted

after bleeding sometimes at home radical treatment is at once instituted.

In the consideration of blood transfusion in these cases the question is repeatedly asked if it is necessary to make the compatibility tests on the infant. The presence of isoagglutinins in the serum and receptors in the red corpuscles of the infant have been very thoroughly observed by Happ.[3] He has concluded after making 67 tests on 49 infants, from one to twenty-one days old, that at birth the group is established in very few instances; that the serum of a newly born infant may contain no agglutinins and his corpuscles be inagglutinable; that the corpuscles become agglutinable before agglutinin is present in the serum; that in only 7 of the 49 infants tested was agglutinin present in the serum, though the corpuscles were agglutinated in 32 cases, and that it was possible to place only 8 of the 49 cases tested into a definite group. From his observations he says that he has not seen the serum give up an agglutinin or cells give up receptors which have once been acquired, and he does not believe that this occurs. He says that it is possible for an infant to acquire further agglutinins in his corpuscles and serum as he grows older, which places him in a different group from the one he apparently belonged to in the first few days of life. In twenty-three cases the grouping of the mother was determined simultaneously with that of the infant and on account of the difference between the agglutination reactions of the mother and child he concluded that it was not a safe practice to transfuse the infant from its mother without making the preliminary test.

I have been interested for some time in the demonstration of agglutinin and receptors in the blood of babies from one to ten days old because it has been in this type of case that I have found its practical application most valuable. The Moss method was followed in the same way as we use it for adults and the sera of one hundred newborns were examined. Of this number 32 showed the presence of agglutinins for II or III cells or for both. Six contained agglutinins for II cells, 12 for III cells, and 14 had agglutinins for both. Therefore, according to Happ, fourteen of these cases could be permanently classified as belonging to type IV, but inasmuch as the other two classes may develop agglutinins later for either III or II cells respectively, it was impossible to place them in a definite group. The corpuscles of 134 babies were examined for the presence of receptors and 15 contained receptors for agglutinins in serum II, 50 had receptors for the agglutinins in serum III, and one held receptors for both. It was possible to place only one in a definite group from this series of examinations on account of the possibility of the other 65 forming receptors for III and II agglutinins. It is true, however, that only one or two of this number would do this on account of the low percentage of cases in type I. I concluded, therefore, that, inasmuch as 32 per cent. of one series contained agglutinins and 50 per cent. of another series contained cell receptors, it was advisable always to make our preliminary compatibility tests regardless of the fact that many of these agglutinins are weak and would be diluted somewhat in the process of transfusion.

Both modified and unmodified blood have been used in this series of cases with equally good results. The blood was injected into one of the superficial veins in the cubital fossa of the arm after cutting down and this was accomplished even after cases had been almost completely exsanguinated. I am well aware that the longitudinal sinus route is the most popular at the present time for all varieties of intravenous therapy, but I am certain that it is not without its dangers in a definite proportion of cases. I have been successful in placing the blood beneath the dura on more than one occasion and have observed others supposed to be proficient in the art do likewise. The final results of such a procedure will not be apparent until early childhood. From 40 to 120 c.c. of blood have been injected, depending upon whether it is done for the therapeutic effect or whether we are also treating the anemia produced by the loss of blood. In cases where external bleeding is present, as from the cord or skin, the result is very apparent, for in most cases the bleeding stopped before the transfusion was completed. A reaction, if present, in these cases is manifested by a slight rise in temperature from one-half to two hours afterward, which promptly subsides and the general condition is noticeably improved.

The following is a brief clinical history of sixteen cases treated by blood transfusion. Eight of these had been treated with normal human serum without any result and in one the hemorrhage recurred after blood transfusion. There are seven cases of subcutaneous hemorrhage, three of cerebral hemorrhage following operative delivery, three of hemorrhage from the ubilicus, two with gastrointestinal hemorrhage, and one from the wound following circumcision. Two of the babies with cerebral hemorrhage have been reported by their attending physician to be well one year after birth. No neurological examination has been made on these cases however.

Baby G. Delivered by high forceps and the following day a bilateral cephalohematoma was observed in the occipital region. During the following forty-eight hours numerous subcutaneous hemorrhages were observed over the back and face and there were symptoms of cerebral irritation. Two hundred and fifty c.c. of normal human serum were injected subcutaneously during the first two days but as the hematomata were increasing in size and as the general condition of the child was worse seventy-five c.c. of blood were injected into the arm vein. Following the transfusion the hematomata gradually became smaller, the general condition improved, nursing was reestablished and no more subcutaneous hemorrhages were noticed. Its weight at birth was 4,170 grams, when transfused it was 3,820 grams and on the eleventh day it was 4,005 grams. The child was discharged in good condition on the twenty-first day. The physician reported twelve months later that the baby had been well since leaving the hospital and that it weighs twenty-two pounds.

Baby G. Was circumsized on the ninth day by a rabbi. It was admitted to the hospital bleeding from operative wound and all local attempts to control the hemorrhage were unsuccessful. At two A M. the following morning the child was pale, the general condition was poor, and transfusion was performed. One hundred and twenty c.c. of citrated blood was injected and the bleeding stopped at once. The patient was discharged four days after transfusion. The mother

reported to the hospital with the baby fifteen months later and said that the baby was well and that there had been no recurrence of the hemorrhage.

Baby B. Was delivered May 26 after a long labor by a medium forceps operation. On the second day it began to show symptoms of cerebral irritation. On the third day there was some hemorrhage observed beneath the scalp which extended downwards into the neck, at which time the temperature was 99.8° and the general condition was bad. Transfusion was done on the third day and sixty-five c.c. of citrated blood was injected. The following day the condition improved and the baby was discharged two weeks after delivery weighing 3,440 grams. It weighed 3,100 grams at birth. The physician reported eleven months later that the infant had been well since leaving the hospital.

Baby D. Was a difficult forceps delivery and definite symptoms of cerebral hemorrhage manifested by tense fontanelles, muscle spasm and convulsions developed during the first twenty-four hours. For the following thirty-six hours it was treated with normal human serum, at the end of which time it bled from the mouth, stomach and rectum. General condition became worse, transfusion was performed on the fourth day and eighty c.c. of citrated blood was injected. The coagulation time was twenty-five minutes before transfusion and four minutes following the transfusion. The baby was discharged well on the twelfth day.

Baby G. Was delivered March 1 by forceps. Extensive subcutaneous hemorrhages were observed in the back and neck on the third day. Serum was immediately administered early in the morning but the general condition of the infant grew rapidly worse. It was transfused with sixty c.c. of unmodified blood. The temperature on the morning of the transfusion was 101° and after transfusion it was normal. Sixty c.c. of serum was given in two doses on two successive days following transfusion. Its weight at birth was 3,150 grams and it was discharged on March 20 in good condition with its birth weight. The mother reported fourteen months later that the baby had been well since leaving the hospital.

Baby M. was a normal delivery. Hemorrhage began in the first twenty-four hours and it was very extensive from the mouth and rectum. Three hours from the time the first bleeding was observed transfusion was performed and one hundred c.c. of citrated blood was given. The following day twenty-five c.c. of serum was given subcutaneously. The baby lost little weight and was discharged on the tenth day in good condition. It was seen fifteen months later and the mother reports that it has been well since leaving the hospital.

Baby A. Was admitted to the hospital four days post partum with extensive hemorrhage from the umbilicus and marked anæmia secondary to this hemorrhage. It was at once transfused with one hundred c.c. of citrated blood and the hemorrhage from the cord ceased as soon as transfusion was completed. The cord came off without any further hemorrhage on the eighth day. The baby was discharged on the tenth day weighing 3,500 grams which weight it had when admitted. The infant also showed some jaundice on admission but this had almost completely disappeared when discharged.

Baby A. Was delivered by low forceps February 29. There was a small forceps abrasion on the forehead. The infant bled slowly from this abrasion and on the first and second days numerous increasing subcutaneous hemorrhages were observed in the neck, back, and face. The baby was transfused on the afternoon of the second day with sixty c.c. of citrated blood. Bleeding ceased while transfusion was going on. Twenty-five c.c. of normal human serum was injected on each of the following days for two doses. The baby continued to do well and was discharged from the hospital seventeen days after birth in good condition. A report twelve months later from the mother showed that the baby was well and had had no recurrence of its condition.

Baby K. Was a normal delivery on March 2. On March 3 it vomited considerable fresh blood. Two hundred c.c. of human serum was given on the third and fourth day but the hemorrhage continued from the stomach. On the fifth day seventy-five c.c. of citrated blood was given intravenously. It ceased bleeding, continued to nurse, and was discharged sixteen days postpartum in good condition.

Baby H. Male, colored, presented a cephalohematoma and multiple subcutaneous hemorrhages on the second day following a normal delivery. The general condition of the infant was poor and it was transfused at once with one hundred and fifteen c.c. of citrated blood. Twenty c.c. of human serum was given on each of the following two days. The infant weighed 3,780 grams at birth and was discharged on the fourteenth day weighing 3,910 grams. The mother one year later states that the baby died when seven months old from bronchopneumonia and up to that time there had been no recurrence of the hemorrhage.

Baby F. Was a normal delivery, showed numerous subcutaneous hemorrhages on the sixth day which continued to increase in spite of treatment with human serum. It was transfused with eighty c.c. of blood by the citrate method on the eighth day and it was discharged on the twelfth day in good condition.

Baby R. Was a normal delivery and six days later it began to bleed from the umbilicus. Forty-eight hours afterwards it showed marked anemia, some jaundice and the general condition was bad. It was transfused at this time with 100 c.c. of citrated blood. The baby did very well on the following day but on the second day it began to develop symptoms of cerebral hemorrhage. Subcutaneous injections of whole blood were administered at that time and were repeated, but in spite of this treatment the child died four days after transfusion from cerebral hemorrhage and anemia.

Baby W. Was a normal delivery and developed a large cephalohematoma which increased in size regardless of treatment by normal human serum for six days. The general condition of the baby grew worse and it was transfused with eighty c.c. of citrated blood. Normal human serum was injected subcutaneously after transfusion. It was discharged on the tenth day. Five months later the baby was in good condition and gave no history of a recurrence.

Baby K. Began to bleed ten days postpartum from the umbilical stump. It was treated with normal human serum for twelve hours but the general condition grew worse and it was transfused at once with eighty c.c. of unmodified blood. The bleeding stopped and the infant was discharged in three days. The baby returned two months later in good condition.

Baby D. Was a colored male infant and showed an extensive subcutaneous hemorrhage in the back on the second day. It was very anemic and sixty c.c. of citrated blood was given on the third day by transfusion. There was some febrile reaction two hours after transfusion. Baby was discharged eleven days postpartum.

Baby S. Presented a large cephalohematoma which gradually increased in size until the ninth day. There were also some small subcutaneouss hemorrhages. It was markedly anemic and the general condition was poor. It was transfused with one hundred c.c. of citrated blood after it had been treated with human serum for two days. The hematoma became smaller and the patient was discharged eighteen days postpartum.

Conclusions.—1. There is no definite etiology for the spontaneous hemorrhages of the new born, but both in this type and in the traumatic type bleeding persists because the blood system is not complete at birth. The addition of normal adult blood is rational therapeutics because it supplies the substances that are necessary to promote clotting.

2. The blood of both the infant and the donor must be examined for isoagglutinin before transfusion, with the same precision that is customary in transfusing an adult.

3. Sixteen cases of serious hemorrhage in the newborn have been reported with one death, and whereas in a large series of cases there would still be a definite mortality, the former percentage

has been greatly reduced by the intravenous administration of whole blood.

REFERENCES.

1. Hurwitz: *American Journal Medical Sciences*, cliv, p. 689.
2. Rodda: *American Journal Diseases of Children*, April, 1920, p. 269.
3. Happ: *Journal of Experimental Medicine*, xxxi, p. 313.

114 East Fifty-fourth Street.

POST-PARTUM HEMORRHAGE (CERVICAL).*

By H. D. Fair, M.D.,

Muncie, Ind.

I do not intend to cast reflections upon the intelligence of this audience by quoting paragraphs from the various authors with which you are as familiar as I, neither will I copy from the pages of textbooks to be found upon your shelves, for you have access to these, and can consult them whenever you wish to do so, and should not be compelled, out of courtesy to the essayist or the occasion itself, to listen to quotations when you may not feel so inclined.

I do not know whether my early impressions received from instructors differed materially from yours or not. I see no good reason why they should, but for years the picture thrown on my mental screen by the suggestion "post-partum hemorrhage" was that of blood oozing or gushing, as the case might be, from the interior of the uterus, necessarily the placental site. As I recall the literature coming to my table fifteen to twenty years ago I remember that I was further impressed that the large number of case reports dealing with post-partum hemorrhage handled it as a uterine flux and nothing else. Of course some of those patients died and some are still dying, even though the uterine contractions would seem capable of closing any open uterine sinuses, yet we are led to infer that in some way or another the uterus was at fault.

At this time I want to call your attention to a type of post-partum hemorrhage in which the placental site plays no part; a serious type of hemorrhage made doubly so because its source was in times past and is occasionally today allowed to pass unrecognized and, as a consequence, untreated. I refer to damage done to the cervix, lower uterine segment, or some portion of the uterine canal known as the "soft parts."

I wish here to repeat an assertion made before this society in connection with one of my other papers, namely, the gods must have been particularly good to me, for during the first ten years of my practice I never took a stitch in a torn cervix and never lost a woman because of post-partum hemorrhage. Now take this record into consideration with the fact that during the past year I have seen five cases where prompt repair of the cervix was necessary, in fact the only thing that could save the woman's life, and furthermore the available time for effective action was limited to five or less minutes.

It now looks as if the gods had withdrawn their protection and are expecting me to recognize my responsibilities and make good without any providential help. If it is expected of me, why not of each of you who are doing obstetrics? Thus warned, we should go prepared to meet and care for any emergency. Some of us may argue and inquire, "What is the use of burdening ourselves with equipment and costly supplies which we may seldom need when we have capable surgeons within thirty minutes' distance?" It is true we may carry an instrument with us day after day for years and never have occasion to use it, yet the next trip it may become a life-saving implement. We may also go forth confident in the willingness of our able colleagues to come to our assistance at any time, yet the occasion may arrive when the necessary thirty minutes is a span that will be bridged by the death of our patient. In order to get this matter before you in a cogent manner I will take the liberty of reporting a recent experience.

This girl was a little past 17. She had reached full term for the third time; her first baby (now living) having been born a few days before she was 14. I had never seen her before the hour of her confinement on this date. When my assistant and I arrived the first stage was completed and the head was at the perineum. We worked rapidly but did not have time to make our usual preparations. The room was scantily furnished and the patient was on a low bed with sagging springs. A neighboring woman who had been present an hour or more kept insisting that the patient "bear down" although I instructed her not to do so. Following the expulsion of the fetus, which occurred about ten minutes after we reached the house, the hemorrhage was profuse so I hurried the third stage by the employment of Credé's maneuver, but the hemorrhage continued in spite of good contractions. Blood was spurting through the vulva in a jet. I put my fingers into the vagina and found a deep tear in the cervix; put my whole hand in and followed the rent up through the internal os into the lower uterine segment, where a branch of the uterine artery had been severed. I pinched the edges into as nearly an approximation as possible, and the hemorrhage lessened somewhat but whenever I released my grip the stream of blood shot out past my wrist, so I held fast while my assistant prepared suture, retractor, tenaculum, and Mayo clamps. With my hand still in position I reached in with a tenaculum directed by the other hand and grasped the torn edges, best I could, exposed the cervix all it would safely stand, then withdrew my hand. I inferred by this time that my patient was pulseless, for she had passed the point of resistance although I had not given either opiates or anesthesia, but I did not have time to verify my suspician for the hemorrhage still continued. By touch rather than by sight, for the vagina was full of blood, I placed a deep suture far up as possible in the apex of the wound, drew the knot tightly and had the satisfaction of seeing the hemorrhage practically cease. Now I felt that I could take a few seconds to estimate the condition of my patient who was apparently lifeless. The pulse was not perceptible at the wrist and the facial aspect was ghastly. I applied my ear to the chest and could hear but one heart sound and that faintly. I instructed my assistant to administer 15 minims of adrenalin solution while I finished the repair which required seven stitches. We then put the woman back in bed, elevated its foot, applied warmth, and began pouring hot milk betwen the patient's lips with a spoon. We kept this and other procedures up till there was a wrist pulse, but when we left the house we realized that we had a badly shocked patient. To shorten what might be made a long story I will simply say that this woman made a good recovery; but we all know she would have succumbed if I had not been prepared to meet the emergency promptly. There was no time to send for help. There was not one minute to spare.

Now to the point—what happened to me may

*Read before the Muncie (Ind.) Academy of Medicine.

happen to you. Every labor causes some damage to the cervix. Fortunately for our patients the tendency in small tears is toward spontaneous repair, although there always follows a material change in the shape of the external os. We all know that nature fails many times, and that our patients would be in much better position had we taken a few stitches, even though the damage was not extensive enough to result in hemorrhage.

The conditions favoring extensive laceration of the cervix may be grouped under five heads, the first ranking above all others in frequency and importance: (1) Rapid manual or mechanical dilatation; or forcible delivery before dilatation is complete. (2) Precipitate labor (involving the principles mentioned in 1). (3) Elderly primiparity. (4) Diseases of the cervix. (5) Disproportion between the passage and the passenger. The anterior lip may be caught between the fetal head and the pubis and be sheared off. Sometimes a portion of the cervix is dragged off the uterine body at the vaginal junction, and rarely the whole cervix may be amputated in the form of a ring.

The blood supply of the uterus, as you well know, is generous, the uterine artery itself crossing in front of the uterus less than one-half inch from the cervix. The cervical branch springs from the main branch as it crosses the ureter, passing directly inward and dividing into four or five branches, one of which anastomoses with its fellow of the opposite side, forming the circular artery of the cervix. Other branches unite with the arteries of the vagina which run along the median line of the vaginal wall, one anterior and one posterior. Why is it not good practice to ligate an exposed artery in this region when our surgeons are so careful to notice every little bleeder when doing any other operation? Good work on the cervix and vaginal vault requires skill and should be done by an operator who is careful of his technique; but in the event a laceration of serious degree occurs when the general practitioner who happens to be the accoucheur does not have time to get help, how is he to deal with the situation? He certainly does not wish to lose his patient.

The first essentials, of course, are the instruments necessary to meet the needs, such as a retractor of some sort, a vulsellum, clamps that will hold without severely bruising the tissues, needles, holder, suture material, scissors, and plenty of gauze sponges. If you do not have sterile towels, those freshly ironed may be substituted.

Many other things may be added to this list increasing the ease and efficiency of the operation, but in an emergency an operator might get along with a needle, linen thread, and pocket knife. I certainly would make the attempt before I would allow a woman's life blood to ebb away.

If possible have everything in readiness and your needle threaded before beginning the operation, for if you do not there is sure to be confusion, and the field of operation will stand a good chance to be contaminated. If short of assistance a sling can be easily made from a bed sheet that will hold the patient steadily in the lithotomy position. Every physician should know how to make this sling quickly. One of the important considerations is the placing of the patient. For any obstetric operation she should be placed on a table, or high reinforced bed, where a good light plays on the field of operation. It is presupposed that the patient has received the cleansing and preparation good obstetrics requires *before such an accident occurs*. The technique is simple but important. With the retractor expose the cervix if possible, then seize the presenting lip with the vulsellum and bring the injured surfaces into view, placing one pair of clamps on each torn edge in a way most likely to serve the purpose later on. If a bleeder comes into view, which is possible but not likely, it should be picked up and tied before the suturing proper is begun. The catgut should be a No. 2 chromic and the needle a short curved one, rather heavy and with a cutting edge or trochar point. The first stitch is by far the most important and should close the apex of the wound without leaving any dead space. The remainder of the operation is easy, but it may be later advisable to remove this first stitch and take another before satisfactory results are obtained.

The after care is simple. If it is a clean job the less subsequent attention the better the chances for a good recovery. If unfortunately the patient be infected she should be kept clean and as free from odor as consistent.

Once in a while some practitioner recommends packing the vagina as a treatment for hemorrhage due to laceration of the cervix. I consider this only a makeshift, for the lesion still exists and as long as it does exist is a menace, and a menace should not be tolerated.

Western Reserve Life Building

ORAL FOCI-PHOBIA.

By JOHN J. A. O'REILLY, M.D.,

Brooklyn, N. Y.

"INCREASE in function predisposes to disease" and decrease in function must tend to degeneration. It is true that babies are born toothless but if there be not some arrest to the tendency to rip out perfectly good teeth on the theory that they are foci of infection, "which send the pus all through the system" as Sairey Gamp tells us, I fear that coming generations will have to dispense with strong meat as we tailless ones have dispensed with limbs of trees as resting places, according to the Darwinists; therefore I wish to suggest some special team-work between the doctor and the dentist as a means of preserving and conserving teeth for toothsome tidbits.

The lower animals have no Riggs' disease—Why? Because Nature provides a way for maintaining the integrity of their body-chemistry and insures efficient economy of food-intake as to quantity and quality, provides for a high percentage of nourishment and a low percentage of waste and the prompt assimilation of nutriment and disposal of waste; with the lower animals vomiting is the corollary of over-eating, and abstinence the complement of satiety; they eat to live, while we live to eat or eat from habit. To be sure the lower animals are without mental anxiety concerning the butcher, the baker and the candlestick maker and rent-day means nothing in their young lives; but, with all the cares which civilized human existence

imposes upon us, we can still attain a measure of perfection in body-chemistry which will make for general health and oral cleanliness if we apply to the factory called the body a modicum of the attention which a corporation gives to the minimizing of waste and increase in output of a purely commercial institution.

The red cells of the blood have a dual function,—to bring oxygen, etc., to the tissues for their constructive chemistry and to utilize some of that oxygen for the destructive chemistry or dry-cleaning process which converts the dead meat of the tissues into an ultimate urea for elimination by way of the kidneys. But a red cell cannot be in two places at one time, "barrin' it is twins," and doubling its work halves its efficiency, so that imperfect end-product manufacture means greater by-product accumulation.

The small intestine may be compared to a freight railroad with a station for every letter of the alphabet; imagine a train, laden with food stuffs, served at Station A by two careless freight handlers, Bile and Pancreatin, so that a box of choice melons, for instance, is not digested off at Station A; apart from the malnutrition of the business of the consignee at Station A, that box of melons embarrasses the freight agents along the line and, getting in their way, impairs efficiency. When that train passes beyond Station Z and rolls into the terminal freight yards (colon) it should contain only legitimate waste,—empty barrels, boxes, broken crates, excelsior, paper, and twine; the neglected box of melons is extravagant and will be demoralizing because the 'cleaners-up' in that terminus (colon bacilli) are only human and will neglect the duty of moving the legitimate waste and indulge in the pleasure of a banquet upon the illegitimate waste (undigested and partly digested foods): This feasting results in the release of food gases which by expansion impair heart and lung action, and the development of toxins which threaten life and require blood-activity and oxidation to render them inert. You cannot have a battle of the Marne, and win it, without losing some soldiers, and you cannot have the battle of the colon, and win it, without losing some red cells; this means actual reduction in the quantity-oxidizing-power of the body and, by reason of overwork, a reduction in the quality-oxidizing-power which makes it necessary for the red cells to apostrophize the tissue cells, dying in the performance of their functions, thus:

"I am sorry, I would like to do my full duty by you and oxidize you to an ultimate urea but a riot threatens in the colon; I will digest you to a salt and stick you away in the interstices of passive white fibrous tissue; in sheaths of muscles, tendons, nerves, and blood vessels; in the sarcolemma of voluntary and involuntary muscles; in the capsules of joints; in the scalp; in the tonsils; in the gums and linings of alveolar cavities, and I will come back tomorrow and complete my work of oxidizing you to an ultimate gas-urea."

But to-morrow's story is the same as to-day's and instead of redeeming these promissory notes, more and more are issued with a resulting rheumatism or acidosis (call it what you will—the pain is the same to the sufferer), or a maddening scalp headache, a tonsillitis, or a Riggs' disease: It is not difficult to understand that the presence of this foreign material in the oral tissues not only impairs the chemistry of the saliva and reduces its germicidal power, but it supplies the physical irritation with its resulting insidious inflammation and contraction which accounts for the retraction of the gums at the base of the teeth (and the loss of the cosmetic festoon of gum and its practical 'hug') with a consequent exposure of a greater area of tooth surface and the boring of germ-life into the alveolar cavity where the microorganisms thrive prodigiously and well up their pus-products for absorption by the blood, for the lessened alkalinity of the mouth juices, with its attendant impairment of beginning starch digestion and its subsequent inhibition of the gastric fluids, thus sending food material into the small intestine imperfectly prepared for digestion by the already inefficient freight-handlers, Bile and Pancreatin, and the vicious cycle is complete.

Obviously, treatment limited to the mouth is treatment of a symptom, not a cause. Here, it would seem, that the blend of medical and dental citizenship might properly be expanded to embrace a blend of medical and dental scientific cooperation, and wherever a dentist is called upon to treat such a mouth condition or a doctor to treat such a constitutional condition of bad body-chemistry, each, in justice to the patient and to himself, should recommend a blend of medical and dental care, precisely as we would wish a mechanic, grinding the valves of our auto, to direct our attention to some ignition defect which might be remedied by one who knows, to the greater efficiency of the machine as a whole.

Obviously, too, the routine use of cathartics by a patient merely empties the colon but makes no appreciable impression upon the existing defect in the organ "higher up."

It would seem that the systematic exhibition of cholagogues plus diminishing cathartics with suitable tonic treatment and recommendations with regard to the quantity, quality, and regularity of food, work, recreation, and rest, in so far as practicable and reasonable, with the urgent recommendation that the local condition in the mouth receive the attention of the family dentist is the doctor's duty and the patient's right; then it becomes the patient's duty to do his part in preventive medicine and, seeking out his dentist transfer to him the duty of improving the mouth condition. In like manner where the initial observation is with the dentist he should warn his patient of the constitutional element. Because of the element of personal interest which endears the family doctor and dentist to the people and forms the basis of their non-partisan endorsement of our Campaign of Education, it is not difficult to imagine a phone conversation between them with the patient as the subject which in a few moments sets the stage for true cooperationism and real Preventive Medicine.

This is just one facet of the solution of the sickness problem which in all humility I offer you.

405 Union Street.

Digestive Ferments in Ozena.—Pepsin and trypsin have been used to dissolve the crusts of ozena, the former in combination with boric acid and the latter with sodium bicarbonate and lactose. Pepsin is said to give the better results.—*La Riforma Medica.*

TONSIL HEMORRHAGE:

WITH A NEW PROCEDURE FOR THE CONTROL THEREOF

By ALFRED KAHN, M.D.,

NEW YORK.

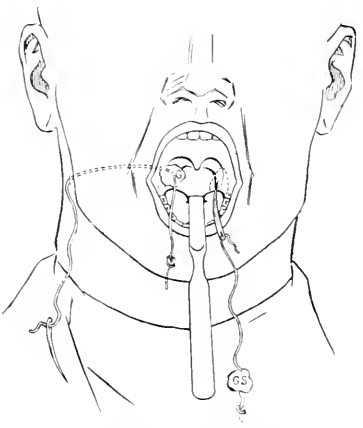
THE human mind is possibly the most changeable thing in the world. The mind of the individual is contradicting itself every second. The fundamental laws of to-day are the errors of to-morrow. Opinions vibrate from one extreme to another. In short, right is wrong and wrong is right.

Ten years ago tonsil removal was easy. It was the easiest operation in the category of surgery. Anyone not able to do a tonsil operation with his eyes closed was not considered deft, but was considered below par. He was a surgeon of the eighth degree of inefficiency.

To-day the pendulum has swung the other way and the tonsil operation is considered serious—to be done with the greatest of caution, under the most favorable surroundings, by the most skilful of specialists. The tonsil is not to be trifled with. It can almost be said that every case offers a different angle. Or rather, the exceptions to the rule make careful observation and keen judgment an absolute necessity to a successful ending. The average operation, the average tonsil removal, is easy, and nine cases in ten will not cause any trouble. But occasionally the exceptional case comes to hand, and this is the case that tries the soul of the surgeon. The complications are innumerable, and often they may come so fast and unexpectedly that the surgeon is almost thrown into a state of shock. Perhaps the most serious complication is severe hemorrhage, and it is of this complication I desire to speak a few firm words, which I think will be of value to others doing this class of work.

Argument to the contrary notwithstanding, removal of tonsils under local anesthesia is more dangerous ten to one than under general anesthesia. On this point I have completely reversed my former opinion. In the past I was an advocate of removal under local anesthesia. If adrenalin is used in the local injection, the danger from secondary hemorrhage is increased perhaps another 10 per cent. Removal of tonsils under local anesthesia in the presence of an infection increases the liability of secondary hemorrhage. It may happen in the presence of long standing infection in the region of the tonsil that the surgeon cannot estimate how deep or widespread the infection is. This class of infection (although very rare) often burrows deeply and now and then, once in a number of cases, necroses the large vessels in the neighborhood. These rare cases are extremely dangerous. The patients suffer from a chronic toxemia and are often quite anemic. They often show glandular involvement and they may die before they come into the hands of the surgeon. When they reach the surgeon, the usual inflammatory signs are wanting. In fact, the surface markings in the throat are almost nil. The tonsil may be pushed forward as in a peritonsillar abscess, or there may be some edema in the tonsil region; but the actual red, heated appearance of an acute inflammation is not present. If the tonsil is removed a process of necrosis (of sloughing) will be found back of the tonsil. Very little or no pus may be found. The infecting germ is perhaps of the streptococcus class. In this type of case, hemorrhage is apt to occur primarily at the time of the operation, if done under a general anesthetic; or if done under a local anesthetic, it may occur secondarily during the process of reorganization. If the hemorrhage is of an oozing character, it can be controlled by fastening a gauze sponge in the cavity, after the tonsil is removed, by the following original method.*

A gauze sponge is attached to one end of a strong piece of silk or kangaroo tendon. At the other end of the silk or tendon is a needle as per illustration. The needle is passed through the mouth to the tonsil wound, through the tonsil cavity, through muscle and skin to the outside. The gauze sponge is pulled into the tonsil cavity, until it fits it snugly and firmly. The string is fastened on the outside of the neck over a button or gauze pledget, or it may be carried around the back of the neck, where it meets a similar string passing from the opposite tonsil; and they are both attached together at the back of the neck. The gauze sponges in the tonsillar cavities give the larger vessels support (acting as a splint),



at the same time presenting a meshed supporting surface to aid the process of coagulation. When the patient swallows, the coagulum is not each time swallowed, but sufficient coagulative blood is held in the sponge to stop the bleeding. Of course, if there are any large individual vessels spurting, they should be tied. This method is recommended only in cases of oozing over a large surface, and to support the reorganizing tissues until all danger is passed.

Again the rare case. Recently several cases of cavernous sinus thrombosis have been reported following tonsil enucleation. Recently cases have been reported of disease involving the large venous channels of the neck following enucleation. Meningitis has been reported, metastases in distant portions of the body have been reported, following tonsil enucleation. A remark in this regard. Do not manipulate roughly, or to any extent, in a tonsil cavity after the tonsil is removed. Remember that a squeezed tonsil before its removal is still attached

*This method was described at a meeting of the New York Physicians' Association, April 28, 1921.

to its blood supply. Remember that nearly all tonsils are a focus of infectious organisms and that they can be squeezed into the blood stream. Especially bear in mind in the presence of infection, not to manipulate the tonsil any more than necessary, nor the wound after the tonsil is removed. When a bad hemorrhage occurs, especially in the presence of an infection, do not manipulate the wound at all. If the bleeding vessel or vessels are deep in, high up, where they cannot be tied off, or where if they can be tied off only by a great deal of manipulation, and where there is a possible chance of the ligature slipping away and allowing the hemorrhage to occur again, the surgeon should make up his mind quickly, decidedly, and firmly, he should immediately tie off the carotid.

This last statement will make my surgical friends shudder. But I am firmly convinced a scar on the neck is better than a dead patient; I am firmly convinced and I say it unhesitatingly, that ligating of the carotid is one of our best instruments of attack in this type of case. The throat surgeon should be able to do a carotid ligation as readily as a tonsil enucleation. No man likes to incise the neck of a patient on whom he has performed a tonsil operation. The public should be taught that tonsil enucleation is an operation of the first degree, and that complications occasionally arise. It is well to teach them this early. They can then sensibly cooperate with the surgeon. They would then realize, with good judgment, that the surgeon occasionally finds it necessary to do unexpected things, which he could not foresee at the time of the original operation. The public will eventually learn for themselves, and they are beginning to learn more and more each day, that accidents do happen, and it is far better for them to learn the subject in a clean, manly way from the surgeon than in a vulgar, critical light.

Finally, as a last parting word, in the face of the hemorrhage, in line with the conditions and surroundings mentioned, I want to emphasize that most effective procedure, easily done—the tying of the carotid.

18 East Forty-ninth Street

THE THERAPEUTIC APPLICATION OF GALVANO- AND FARADOPALPATION.

By MAX KAHANE, M.D.

VIENNA.

The want of definite rules in the practice of electrotherapy is due to the fact that no given principle as to the application of the electric current has found general acceptance; and consequently there has been the widest difference of opinion as to the intensity of current to be employed and as to the duration of the applications; extreme differences, also, as to the technique have led to the opinion that electrotherapy lacks real efficiency and that any curative effects that may be obtained are due solely to suggestion. And recently even the differences in the effects of the anode and the cathode, on which the indications for galvanotherapy are based, have been called in question; so that now uncertainty invests something as to which there has heretofore been a certain amount of agreement.

A favorable development of electrotherapy can be attained only on the assumption of certain fundamentals. Personal experience extending over thirty years has convinced me that the attainment of cures is essentially dependent on current density and that current intensity (strength) is of little significance. Maximum current density is obtained by a minimum of electrode surface. It is therefore necessary to employ an extremely sharp-pointed electrode, either in the shape of needles or very sharp-pointed button electrodes. An ordinary sewing needle mounted in the needle holders employed in electrolysis will answer the purpose admirably. One who has seen the powerful effect produced by a needle electrode even with the application of such a weak current as 1 milliampère becomes convinced that maximum current density corresponds to the requirement of maximum energy of effect. All that can be accomplished with large electrodes, strong currents and long applications, can be attained by the use of the principle of maximum current density, weak currents and short periods of application; the principle is therefore economical as to time as well as to energy.

The intensity of the effect achieved by this principle of maximum current density may be augmented by a second principle: palpatory application. Palpatory application consists essentially in applying the current by a frequently interrupted tapping motion at the site of the application. It is essential to this method of treatment that the current be applied suddenly; contrary to the ordinary procedure, the current is not made and broken; the desired current is obtained by first applying the treatment electrode to an indifferent area, turning on the current, and then applying this electrode to the desired area (*i.e.* the area to be treated) after the desired current intensity has been obtained. Maximum current density, palpatory application and suddenness in the application of the current increase to the maximum the intensity of the effect produced by the current, this being due to the fact that currents of 4 or 5 milliampères evoke very intense reactions. The principle applies to the galvanic current as to the faradic current—to galvanopalpation as to faradopalpation.

The application of galvanopalpation for diagnostic purposes was described by me in the Medical Record, Dec. 18, 1920. Faradopalpation has only therapeutic interest.

Galvano- and faradopalpation are therapeutically indicated in those conditions in which a powerful stimulation by electricity has proved of service above all in paralyses and neuralgias, *i.e.* in the two most important electrotherapeutic domains. As regards rapidity and intensity of effects the best results in these maladies are obtained if both galvano- and faradopalpation are applied at the same session. This method is of value even in those cases in which the usual methods of treatment have failed, *e.g.* paralysis with reactions of degeneration, inveterate neuralgias (trigeminal neuralgia, neuralgia after herpes zoster), etc. By long continued galvano- and faradopalpation it is possible to cure cases of even well advanced muscular atrophies. In cases of pruritus vulvæ and pruritus ani the application of faradopalpation (spark discharges from a needle electrode) has a curative effect which may be designated as specific.

One of the most important features of this principle of treatment by maximum current density is the fact that any desired spot can be treated with full energy. This is of special value in the treatment of facial paralysis, inasmuch as each single muscle bundle can be made to contract separately. In the treatment of neuralgias it is essential first to determine the locus effectus by a galvanopalpatory exploration and to apply the therapeutically effective current in the right situation and under the guidance of the vascular reaction. This applies especially to the peripheral neuralgias where galvanopalpation enables us to determine with certainty whether an existent neuralgia is located in the spinal roots, in the plexus or in the peripheral nerves. One who treats a neuralgia without having first investigated it by galvanopalpation is substituting pure accident for success-ensuring scientific technique. We have already mentioned it that even the most difficult neuralgias, trigeminal neuralgia and neuralgia following herpeszoster, such quick and satisfactory results can be obtained from combined galvano- and faradopalpation as can be obtained from no other method of treatment. It is especially noteworthy that in these neuralgias the patients are relieved at once by the treatment, are freed from pain for several hours and are able to eat and sleep. As the treatment is continued the attacks of pain come less and less frequently, get milder and milder in intensity, and essential improvement is obtained even in cases in which, owing to the nature of the malady, a complete cure is unattainable.

In the treatment of neuralgias and paralyses applications of a few minutes' duration suffice; two to three minutes at first, and five to six minutes later on. An average current intensity of one to two milliampères is all that is required; in very severe neuralgias three to four milliampères may be employed. Particularly strong effects are produced by the sparks discharged from the needle electrode in faradopalpation; as to this the distance between the coils is to be such that the patient may be able to endure the sparks. The use of a needle for faradopalpation is indicated in neuralgias especially; in the treatment of paralyses it is best to employ a very sharp pointed button electrode covered with canvas or leather—an electrode which also works energetically and is better borne than the needle electrode.

In my opinion the superior therapeutic efficacy of palpatory electrotherapy is chiefly due to the strong cutaneous reaction which manifests itself in the form of an intense and long lasting active hyperemia. By galvano- and faradopalpation degrees of hyperemia may be obtained which can otherwise be obtained with the same rapidity only by strong mechanical, thermic or chemical stimulation. The assumption is probably justified that electropalpation is indicated everywhere where a local active hyperemia is desirable, so that the sphere of its usefulness ought to be considerably enlarged. In addition to the hyperemia the immediate strong stimulation of the cutaneous nerve endings is probably also of significance. Experienced observers are of the opinion that the electrochemical effect of the galvanic current is an important factor in the curative effects it accomplishes.

Medicolegal Notes.

Food and Drugs Act—Inducement to Violate by Government Agent.—The Federal district court for the District of Colorado holds that a manufacturer of a medicinal preparation was not chargeable with violation of section 8 of the Federal Food and Drugs Act, as amended, by the shipment of a misbranded article in interstate commerce, where the only shipment of this character shown was on an order sent from another State for the purpose of entrapment by a Government agent, who had no reason to suppose that the defendant had ever previously made such a shipment.—United States v. Eman Mfg. Co., 271 Fed. 353.

Consideration for Check for Hospital Expenses Paid in Advance.—Where a husband, at the solicitation of his wife, executes a bank check, payable to "Cash," and delivers it to her, for the express purpose of paying in advance a week's expenses of her father at a hospital where the father is then lying critically ill, the rules of the hospital requiring such payment to be made in advance, and she delivers it to the owner of the hospital for the purpose stated, and the father is cared for in the institution until his death, which occurs after her delivery of the check, but upon the same day, the Georgia Court of Appeals holds that the check is not without a valid consideration. And where the owner of the hospital presents the check to the drawee for payment, and payment is refused because of an order of the husband to stop payment, the owner of the hospital is entitled to recover from the husband the face value of the check. The court considered the check was based on at least two valid considerations: (1) The agreement to keep the defendant's father-in-law in the hospital for another week, and (2) the benefit flowing to the defendant from the granting of his wife's request to pay her father's hospital expenses for another week.—Lingo v. White (Ga.), 106 S. E. 312.

Minnesota Statute Regulating Dispensation of Habit-Forming Drugs Held Not to Conflict with Harrison Act.—The Supreme Court of the United States holds that a State, in the exercise of its police power, has authority to regulate the administration, sale, prescription and use of dangerous and habit-forming drugs in the interest of public health and welfare. Section 2 of the Minnesota statute of 1915, c. 260 (sections 8965-2), prohibiting a physician from furnishing drugs to habitual users, though authorizing him to give prescriptions therefor in good faith, does not interfere with the enforcement of the Harrison Act, and there is no conflict between the enactments such as will prevent the State from enforcing its own law on the subject. The provisions regulating the sale, dispensation and disposition of the prohibited drugs are somewhat different in the two acts. The prohibitory measures of the Federal statute do not apply to the disposition and dispensation of drugs by physicians registered under the act in the regular course of professional practice provided records are kept for official inspection. Under the State law physicians can furnish only prescriptions to addicts, and may not dispense the drugs to such persons at pleasure from stocks of their own.—State of Minnesota v. Martinson, 41 Sup. Ct. 425.

Consideration for Subscription to Charitable Hospital.—In an action against a residuary legatee upon a subscription to a charitable hospital, the New Jersey Court of Errors and Appeals holds that, while such a subscription stands on the same footing as any ordinary contract in requiring a legal consideration and acceptance to support it, in this class of cases, the courts lean toward sustaining such contracts. And where, as in this case, the jury might have found that the subscriber to a charitable hospital stipulated as a condition of the promise to contribute to the building fund that her subscription was to be applied to the building of an operating room to be named by her, and that the hospital authorities were to obtain the waiver in her favor of a similar privilege held by another subscriber, there was evidence of a legal consideration, and it was error to nonsuit because no consideration appeared. Judgment for the defendant was therefore reversed.—New Jersey Orthopaedic Hospital and Dispensary v. Wright (N. J., 115 Atl. 144).

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, September 24, 1921.

THE OYSTER.

MEDICAL zoology is one of the newer studies of the curriculum of the modern medical school, but thus far has been limited to medical entomology, with special reference to disease-bearing insects and to the larger parasites, chiefly worms, which cause disease. That in time this branch of medicine will be studied along the broadest of lines is apparent to any one who covers current medical literature. Here would most assuredly belong the part played by the domesticated animals in the causation of human disease, and one may think of the oyster as domesticated, and as an occasional cause of disease as well as an immune carrier. The *Journal de Médecine* de Bordeaux for May 25, 1921, xcii, 10, reproduces a lecture on the oyster by Dr. Llaguet in which the mollusk was considered from the biological, alimentary, medical, and economic angles. Of the two principal divisions of the oyster family, one known as the Portuguese or non-edible oyster need not be specially discussed. The belief that the latter had been made edible at times in the past by crossing with the edible oyster is no longer held. The oyster is an hermaphrodite but is not self-fecundating. The male principle dies first, leaving the mollusk female for the rest of its life; and crossing is indispensable for the conservation of the race. Each oyster may give birth to not less than a million embryos. These swim about until the shell appears and the age of the oyster may always be told accurately by the thickness of the latter, as well as by its length. Complete maturity is reached at ten years, but the duration of life may be from twenty to twenty-five years. If left to itself the oyster forms beds, and before 1850 all beds, at least in France, were natural. Artificial beds are intended of course to increase the supply for food purposes.

Of the numerous enemies of the oyster its cousin the Portuguese is one of the worst. It is far more fertile and noted for its voracity. Its extreme fertility is due to the fact that it breeds two or three times a year instead of once, like its edible cousin. The antagonism of the Portuguese oyster to the development of the edible oyster is due to the fact that it deprives the latter of some of its natural food and this is also true of the mussel and other shell-fish. Other mollusks like the starfish prey directly on the oyster, perforating the shells of the younger members, while the latter are also vulnerable to the attack of crabs. Certain flatfish make terrible havoc among oysters, destroying them by thousands in a single night. The mollusk is also subject to a number of diseases, being the object of attack by fungi and bacteria. Strange to state, however, these proper diseases of the oyster do not render it unfit for human consumption. The author states that he has eaten technically diseased oysters without experiencing the least inconvenience, and has fed them repeatedly to cats which also showed immunity. Yet the germ diseases are sufficient to have destroyed in certain years as high as 60 per cent. of the crop. Not all biologists, however, admit that a germ disease is involved in this mortality, and some have invoked meteorological conditions in explanation. High mortality has also been imputed to a recent tendency to spawn twice a year instead of once, which has always been the rule with the edible bivalve. Spawning thereby occurs in the late spring and early fall instead of in the summer, and this for one or another unexplained reason appears to be disastrous to the embryo.

Llaguet describes at length the artificial culture of the oyster, which must be passed over, coming to the problems of most interest to the medical man. The oyster does not appear in the market during the summer, not because it is inedible but because it is the reproductive season. It is true that they are less savory during the hot weather but that they can be eaten to any extent during this period with perfect impunity is well known to all authorities. At rare intervals and in response to special demands they have been eaten freely by the public during the hot months, as in 1900 when there was a World's Exposition at Paris.

The oyster is a stimulant to the stomach, a true stomachic, which can increase the flow of pepsin and HCl in those who are below par in this respect. It contains iodine, iron, phosphorus, and lecithin and the medical practitioners near the great oyster industry of Archachon prescribe them in habitual dyspepsia and tuberculosis. Oyster shell is also given in affections characterized by decalcification. The two great practical subjects in connection with oyster consumption are oyster poisoning and typhoid fever. In regard to the first named there is no doubt that decomposed oysters can give rise to a form of ptomaine poisoning. But fresh living oysters cannot possibly give rise to poisoning (except as they are carriers) and it is simple enough to determine their freshness and viability. Oyster typhoid is a well known fact and is combated either by flushing or irrigating the mollusks with disinfectants or by placing them in clean running water. The use of beds inaccessible to sewage is of course the ideal preventive, and in the great French industry at the Basin of Archachon the conditions are said to be ideal in this respect.

PATHOGENESIS AND SYMPTOMATOLOGY OF INTERLOBAR PURULENT PLEURISY IN CHILDREN.

PURULENT interlobar pleurisy may be a primary or secondary process. The pleura belongs to the system of serosæ and can react on its own account, hence primary pleurisy is more common, according to Dieulafoy, than the secondary. Netter, however, says that it is probable that pleurisy, idiopathic in appearance, is often preceded by an unrecognized pulmonary lesion, like apical or central pneumonia. Interlobar purulent pleurisy with Koch's bacillus is rare, although cases of pleurotuberculosis with a parietal onset in which the collection becomes encysted have been reported. The secondary forms follow pulmonary lesions or those in neighboring organs and general infections. Pneumonia is the commonest cause and the pleurisy will arise from direct extension of the infection or through the circulation. Bronchopneumonia is more prone to give rise to generalized pleurisy. Partial pleurisy may result from tuberculosis or pulmonary gangrene, although this is very rare. Lesions of the ribs, esophagus, tracheobronchial lymphnodes, and abdominal viscera have been incriminated and also certain general infections—typhoid fever, influenza, eruptive fevers, septicemia and pyemia; the bacteria of the primary process or an associated infection have been known to cause interlobar suppuration of the pleura, but the predominating fact is that whether primary or secondary, interlobar purulent pleurisy is usually pneumococcal. The pneumococcal collection becomes readily encysted because false membranes are deposited on the edges of the interlobar clefts, isolating them from the general pleural cavity, and thus a favorable nidus is created for the development of the pneumococcus. The cavity thus formed is usually single, but it may be irregular, formed by several pockets opening into one another, the amount of pus contained being often very considerable.

The symptomatology of interlobar pleurisy is rather varied; the process may remain latent and suddenly reveal itself by purulent expectoration. In other cases, after a pneumonia or other infectious process, the thoracic pain and bad general condition of the patient call the physician's attention to the lungs. Or the process may have a sudden onset. The patient, who was in good health, is seized with chills and a temperature around 103° F.; dyspnea and pain in the chest add to the symptoms of a general affection the characters of a pulmonary process; the cough is dry without expectoration. At the onset, when the collection is still small, the pulmonary phenomena present overshadow the lesion. Diminution of resonance, moist and sonorous rales, and a sibilant respiration indicate pulmonary congestion, and only a few friction sounds indicate the participation of the pleura. It is only after the collection has increased that the characteristic physical signs appear, but the classical signs of a fluid collection are not complete, because the fluid is separated from the stethoscope by a certain thickness of pulmonary parenchyma which weakens the sounds. Vesicular murmur is diminished and absolute respiratory silence may be met with. In cases of left sided interlobar pleurisy Traube's space remains sonorous. The collection which dips deeply down toward the mediastinum explains why, when on the left, the heart is pushed to the right as if the amount of fluid were considerable, whereas in children it rarely reaches 200 c.c. Dieulafoy thought that dyspnea was greater in this interlobar form than in ordinary pleurisy.

Hemoptysis may occur in interlobar pleurisy; the loss of blood may be severe or recur at more or less long intervals; it may precede or follow cavity formation, and in the latter case is due to an ulcerative process attacking the walls of the cavity. Purulent expectoration is the rule in interlobar collections, exceptional in ordinary pleurisy, and occurs two or more weeks after the onset of the disease. The fetid odor of the breath and sputum are the precursory signs indicating the formation of a pleuropulmonary sinus. After an abundant expectoration the ordinary stethoscopic signs of a cavity will be found, and Mery has pointed out that as the interlobar cavity fills a progressive decrease of the physical signs is noted, while the maximum of signs of a cavity, much more distinct than what might have been expected on account of sclerosis of the walls and pleura, indicates the emptying of the cavity. The rise of temperature, sweating, and chills become more marked as a cavity formation is nearing. Then after this has occurred all the symptoms progressively subside. The cavity is a reaction of the defense of the organism which brings about recovery, but if the cavity is not completely emptied the patient becomes infected and surgical interference may be indicated, the indications for operation being derived from the gravity of the patient's general condition.

HERNIAL APPENDICITIS.

ALTHOUGH the presence of a normal appendix in a hernial sac does not offer any pathognomonic sign, the same cannot be said when the organ is the seat of an inflammatory process. The patient will be suddenly seized with pain in the hernia which is increased by pressure. Some observers regard the character of this pain as having a considerable diagnostic value; it is not, as in ordinary strangulated hernia, even and without exacerbation, but on the contrary presents paroxysmal attacks superadded to the constant pain complained of, and this sign should invariably lead one to suspect hernial appendicitis. The pain is rarely localized and according to the site of the hernia, shoots in different directions. In umbilical hernial appendicitis there are diaphragmatic and intercostal neuralgic pains, lumbar and femoral pains as in inguinal and femoral hernia. There is also cutaneous hyperesthesia as in ordinary appendicitis. The size of the hernia increases and it becomes very hard to the feel;

there is also dullness on percussion. Bilious vomiting ensues, the pulse is rapid and the temperature oscillates between 101° and 103° Fahr. When nothing but the appendix is in the sac, no phenomena of general peritoneal reaction are observed, and this is a fact which it is important to bear in mind.

The appendicular process may subside, but should it progress serious complications arise in a few days. The skin becomes red, hot, edematous, offering the aspect of an abscess, and soon ulcerates, giving issue to pus and bits of sloughing appendix. The resulting stercoral fistula may persist or close spontaneously. There is yet another much more serious complication which will ensue if early operation is not resorted to. Given the symptoms, strangulation may be suspected and if taxis be attempted instead of operation a high grade peritonitis results. In the case of umbilical hernia a phlegmon may develop, followed or not by stercoral fistula. In femoral hernia with phlegmon, perforation of the femoral vessels has resulted followed by general infection.

When the sac contains the appendix with other portions of the intestine the local symptoms will be those of strangulated hernia, but the phenomena of peritonal reaction will be marked, manifested by vomiting, abdominal distention, and incomplete occlusion. When left alone, if adhesions have had time to develop at the neck of the sac, the process becomes walled off from the peritoneal cavity, so that an abscess develops in the sac, followed by stercoral fistula. When adhesions do not develop the septic products invade the peritoneal cavity, followed by general peritonitis and usually death. Strangulation of an appendix contained in a hernial sac is a rare event, but although denied by some, it does occur.

The lesions found are those met with in strangulated gut. In two cases recorded by Polloson a furrow was found in the appendix at the level of the ring while the organ was turgescent like a strangulated coil of intestine. The local and general signs of strangulation of an appendix in a hernial sac are those of ordinary hernial strangulation; but the abdominal phenomena are less marked; complete intestinal occlusion never ensues and vomiting never becomes fecaloid. The general symptoms vary in their appearance but are less pronounced than in intestinal strangulation, and in general, the aspect of the case seldom assumes the gravity of intestinal strangulation.

There is a peculiar form of strangulation of the appendix which should be mentioned, namely, retrograde strangulation, the pathology of which is far from clear. If the appendix, when once seated in a hernial sac, should fold upon itself, a loop will be formed which will be contained in the sac, while the proximal end and distal end of the appendix will remain in the inguinal or femoral canal. Should strangulation occur at the distal end it will be retrograde.

A New Calomel Treatment of Typhoid Fever.

A quarter century ago the treatment of typhoid fever by the calomel method of Woodbury was being freely discussed and applied, although with the death of its advocate it fell completely into oblivion. The theory upon which the drug was given was sound enough—the attempted sterilization of the intestine, and danger from hemorrhage, such as might conceivably follow the use of a purgative, was apparently not to be feared. The results were equivocal and unconvincing for the majority of those who tested the remedy. The technique for giving the drug was complicated and burdensome. In *Il Policlinico* for July 11, 1921, xxviii, 28, Galata, a physician in the Italian naval reserve, recapitulates his original experience with intramuscular injections of calomel in nine cases of typhoid during the year 1917, and adds considerable new material. His total now amounts to more than 300 cases, including those of several colleagues who tried out the method. The number analyzed is limited to 234 cases seen in thirteen hospitals with the very low mortality of four, or 1.7 per cent. Of the four fatal cases, bronchopneumonia was present in three. In addition to the preceding figures there were sixty-two cases treated at Trieste in which no mortality is mentioned, although it is apparent that in fourteen there was no marked response to the treatment. The author made his diagnosis in every case by seroreaction and hemoculture. He noted improvement after the second injection and a rapid and notable abbreviation of the usual course of the fever, so that defervescence followed the fourth and sometimes even the third injection. The drug was well borne with only a few cases of soreness of the gums and no other evidence of overaction. Intervals between injections were three or two days according to circumstances. The dose per injection was ten cgm. for adults in liquid vaseline, the calomel being associated with a like amount of equal parts of camphor and guaiacol.

Rhinopharyngitis in Kidney Disease

We do not recall that stress has ever been laid in native literature on this disease-association, for owing to the great frequency of postnasal catarrh in the United States it would hardly occur to any of us to associate it with particular types of constitutional disease unless there was some obvious reason for the coincidence. A recent article by Flurin, noted in *Le Progrès Médical* for July 2, 1921, xlix, 27, is devoted to the subject. He finds the association sufficiently common for diagnostic significance—that is, the presence of the nasopharyngeal lesions suggests to him that a renal lesion is also present. Necessarily this nasopharyngitis is of special types, associated with hypertension, chloruremia, or azotemia. It appears that pioneer rhinologists like Fauvel reported a reddened pharynx as highly suspicious, and they at once caused the urine to be examined in all such patients. One French specialist, Garet, made important contributions to the subject. This lesion has apparently no necessary connection with pharyngeal edema seen in anasarca with chlorine retention, in which condition edema of the glottis is a more

striking and serious symptom. However, Widal, a leading authority on chloruremia, mentions the existence of a rhinopharyngitis with hypersecretion as a forerunner of edema. It is believed that the extreme rhinorrhea sometimes seen at this period in compensatory, like other excretion in excess, for the inactivity of the kidneys. An analogous lesion is the so-called albuminuric bronchitis. In regard to a possible rationale for nasopharyngitis in Bright's disease, it has been attributed to the irritating action of eliminated chlorides on the mucosa. Finally in actual uremia the nasopharyngeal region is unnaturally dry and shiny with a sense of heat and burning.

Role of the Phlebotomus in Disease.

This insect, known to Anglo-Saxons as the sandfly, attained prominence at the outset of the influenza pandemic of 1918, which was supposed on its initial appearance in parts of Italy to be pappataci fever, a mild affection known to be due to the activities of the insect in question. In *La Presse Médicale* for July 13, 1921, xxix, 56, Joyeux, an authority on tropical disease, gives some space to the latter. There are at least thirty-two species and eight varieties known throughout the entire world. They sting during the summer months in temperate zones and in the tropics for a much longer period. Although in addition to man they sting other mammals, their predilection appears to be for the cold blooded animals and notably certain species of lizard. Like mosquitos they are nightfliers by preference. As breeding places they prefer old walls, especially when covered with vegetation. Despite the fact that the sandfly is frequently mentioned as a possible carrier of other diseases, thus far the only one for which it is known to be responsible is the three-day or pappataci fever. It does not carry malaria under any circumstances, and as for dengue, Joyeux states that he regards the latter malady as due to the activities of a *Stegomyia*—no other in fact than the one known to carry yellow fever, the *S. calopus*. In passing, the author quotes the recent theory that dengue is only an attenuated form of the more deadly malady. He also acquits the phlebotomus of transmitting forms of leishmaniasis and verruga peruana, as no direct evidence of such pathogenicity has ever been adduced.

News of the Week.

Smallpox Epidemic in Chili.—Santiago, Chili, is suffering from an epidemic of smallpox which is reported to be growing in intensity. The ratio of infection is about two to each 1000 inhabitants. The authorities are making strong efforts to prevent the spread of the disease by a campaign of vaccination.

A New Career for Medical Men.—A Royal Air Force Medical Service has been organized in Great Britain and general regulations governing it have been formulated. This opens up a career for medical men which should prove both attractive and interesting, and one which will provide much scope for research. The establishment consists partly of permanent and partly of short-service officers. Short-service officers who are approved for permanent commissions, but for whom there are no vacancies in the Royal Air Force Medical Service, may, under certain conditions, transfer to the Royal Army Medical Corps, counting the time served in the Royal Air Force Medical Service towards increments in pay and retired pay in the Royal Army Medical Corps. The rates of pay rise from 24s. a day on joining as flying officer to 60s. a day on promotion to group captain. The maximum retired pay for captains retiring at fifty-five is £900. For service in India the pay rises from 650 rupees per mensem as flying officer to 1950 as principal medical officer. Certain gratuities and the usual allowances granted to officers of other branches of the Royal Air Force are provided for.

Antiprohibition Vote in Quebec.—Ninety per cent. of those who voted in Quebec on September 13 favored the abolition of the Scott temperance act, which for the last three years has prevented the purchase of liquor without a doctor's certificate. Three years ago the Scott act was adopted by 4000 majority. The new Taschereau law which will go into effect in November abolishes the open bar, but permits the sale of alcoholic liquors in stores of the Government Liquor Commission, and beer and wines in the taverns, restaurants, clubs, etc., duly licensed by the commission. The clergy made no fight to retain the prohibition law.

Harvard Infantile Paralysis Commission Needs Funds.—The Harvard Infantile Paralysis Commission, which has conducted a clinic for crippled children since 1916, is soliciting contributions for continuation of its work. At present 1107 patients are receiving treatment under the direction of the commission. Of these 331 have been under treatment for five years. The value of the commission was shown in the outbreak of infantile paralysis in the summer of 1920, when it demonstrated that a large percentage of the children afflicted last summer have been saved from considerable deformity in comparison with those of the 1916 group. The cost of the work for one year is $25,000.

Dedication Exercises of Peking Union Medical College.—The formal dedication exercises of the Peking Union Medical College, which has been erected by the China Medical Board of the Rockefeller Foundation, were held on September 19. Ceremonies in connection with the dedication began on Thursday, the 15th, and included an international medical conference attended by government representatives and delegates from universities and other medical schools. The formal installation of Dr. Henry S. Houghton as Director of the College was one of the important events of the week. For the first time the Board of Trustees, composed of representatives of the Rockefeller Foundation and the six missionary societies which founded an earlier medical college in Peking, held one of its regular sessions there.

Lower East Side District Healthiest in New York.—A report recently made public by Dr. William H. Guilfoy, Registrar of Records of the New York City Health Department, shows that Sanitary District 26 has the lowest mortality in the city. This district consists of ten square blocks from Third to Ninth streets between Avenue A and Avenue B. The population of this district is 33,373.

or more than 3000 persons to a block. Here the mortality rate is 6.44 for each 1000 inhabitants, while the city's average mortality rate is 12.93 per 1000. The infant mortality rate in this district is 52 a 1000, and the infant mortality rate of the city as a whole is 85 per 1000. In commenting on these figures, Health Commissioner Dr. Royal S. Copeland says the people in this section have been accustomed to governmental control in the countries from which they came, and when they come here place themselves under the regulations of the Health Department, patronize baby health stations and follow the Board of Health teachings. He says it is a sad commentary on our citizenship when the children of well-to-do Americans are not as well cared for as those of the foreign born.

Drive for New Jewish Hospital.—The United Israel-Zion Hospital which is being erected on Tenth Avenue, between Forty-eighth and Forty-ninth streets, Brooklyn, is conducting a campaign to raise $100,000 toward the completion of its $1,000,000 building. A drive is also being planned to obtain funds for the erection of a nurses' home in connection with the new hospital.

Return of Polyclinic Hospital Demanded.—Five hundred graduate and student nurses of the Polyclinic Hospital in West Fiftieth Street, New York, have started to circulate a petition demanding the return of the hospital by the United States Public Health Service. The petition reads in part as follows:

> The continued occupancy of this hospital by the Government is unjust, un-American and akin to confiscation. The trustees, medical staff and women's auxiliary board and graduate nurses of the Polyclinic Hospital requests the citizens of New York, especially those who reside in or are engaged in business within the district allotted to the ambulance service of this hospital, to join with them in the demand that their property now unjustly held by the Treasury Department be restored to the owners and that the mayor and aldermen of New York City, our Senators and Representatives in Congress take such action as will enforce the immediate return of this great hospital to the service of the people of New York.

Commenting on the action of the Trustees of the Polyclinic Hospital, Surgeon General Hugh S. Cumming states that the Polyclinic Hospital is not particularly well suited to the care of ex-service men, and that the United States Public Health Service has been trying for a year to get a suitable institution in this city. This he thinks they will be able to do in a short time, and then they will also be able to move out of the Fox Hills Hospital. The Public Health Service has just taken over the large naval hospital at Las Animas, Col., which it will use for tuberculous ex-service men.

The Cincinnati Health Exposition.—An exposition that promises to be of great interest and practical value, is the Cincinnati Health Exposition, to be held in Music Hall, Cincinnati, Ohio, October 15 to 22. One of the main features of this exposition is Rural Sanitation Day. A program of special interest to farmers and their families has been prepared and many attractions of vital importance to those who live in rural communities will be displayed. A definite program for the safeguarding of the health of those who live where doctors and nurses are not available at a few minutes notice, as in cities, will be outlined, and special stress will be laid on the prevention and treatment of the diseases and ailments which frequently present a tremendous problem to those who live in rural communities. The exposition has received the endorsement of President Harding, Governor Harry L. Davis, of Ohio, and the mayors and health commissioners of cities throughout the whole country. Many health experts have accepted invitations to lecture on various health matters during the exposition. The program will be varied by showing motion pictures depicting the simplest methods of safeguarding the public health and interesting pageants prepared by members of local health expositions. The medical division of the Board of Health will have the complete equipment of a school physician's office with a doctor and nurse in attendance to examine children attending the exposition. The joint exhibit will consist of an *x*-ray room, private room, operating room, children's department, dietetic department, and handicraft department. Demonstrations of the work actually carried out in Cincinnati's hospitals will be given by some of the most prominent surgeons.

Public Health Institute Courses.—In response to a preliminary announcement of the Public Health Institute, which the Public Health Service had planned to hold in Washington next fall (but which has been postponed indefinitely), a large number of city and county health officers, physicians, nurses, and others replied indicating a definite intention or hope of attending. The Public Health Service has felt that it could not ignore this widespread interest in institute work, and after correspondence with the various State Boards of Health, has decided to hold a series of twenty-four institutes at various population centers throughout the country. It is expected that most of the well-known specialists announced for the two-weeks' institute in Washington will be on the faculties of two or more of the various local institutes. No tuition will be charged. The following are the cities where the Institute courses will be held: Hot Springs, Jacksonville, New Orleans, Columbia, S. C., Dallas, Birmingham, Memphis, Louisville, Indianapolis, Pittsburgh, Lansing, Chicago, Minneapolis, Los Angeles, San Francisco, Portland, Ore., Kansas City, Kans., Spokane, Newark, Helena, Albany, N. Y., Denver, A New England City, Washington, D. C. The Hot Springs, Ark., and Chicago institutes will deal only with problems of venereal disease control.

State Health Department Has New Films.—Three new motion picture films have recently been purchased by the State Department of Health and are now available to public health workers. The first one is a film on mouth hygiene and shows the necessity of caring for the teeth, the causes of decay and proper methods of cleansing the teeth. The second, "Saving the Eyes of Youth," deals with the prevention of blindness in newborn babies and emphasizes the need of precautionary measures. "Swat the Fly" is the name of the third film but does not fully describe it, for this film shows the anatomy and life history of the fly and depicts its peculiarities and many incidents in its life. Each of these films is in one reel and takes about twenty minutes to run and they are all of them of a nontechnical character and well adapted to general use. Besides these films the Department is co-

operating in the production of a film on water supply in the farm home. This is to be in two reels and shows how the rural resident, deprived of city facilities, may himself install a complete plumbing system in his home.

Failure to Report Cases of Venereal Disease.—The *Weekly Bulletin* of the New York City Department of Health for September 10, calls attention to the fact that the number of cases of venereal disease reported to the Health Department is so small that one is not justified in drawing any conclusions from the figures as to the prevalence of venereal diseases in the city. It is noted that a very small number of cases are reported by genitourinary specialists as a class. During the year 1920, the total number of venereal cases reported, from all sources, was 23,977, a decrease of 1142 cases, as compared with the total number reported in 1919. The principal cause of this difference is due to the falling off in the number of cases of gonorrhea reported in 1920. During this period the various hospitals and dispensaries reported 2572 cases of syphilis, as contrasted with 6096 cases reported by them during the preceding year.

Dr. Robert L. Moorhead has removed his office to 142 Joralemon Street, Brooklyn, N. Y.

Dr. Frederick W. McSorley, formerly Supervisor of Tuberculosis Hospitals, Clinics and Dispensaries in the New York State Department of Health, has been appointed Director of the Division of Tuberculosis, to succeed Dr. Malcolm F. Lent, resigned.

Gifts and Bequests.—By the will of the late Louis Mark of Philadelphia, the following bequests are made: Sinai Hospital, $3,000; Jewish Hospital, $2,000; Hebrew Sheltering Home, Hebrew Orphans' Home, Downtown Consumptives' Institute, Juvenile Aid Society, each $1,000.

By the will of the late Jennie M. Shoemaker of Philadelphia, one half of the residuary estate is bequeathed to the trustees of Jefferson Medical College as a memorial to her husband, the late Dr. John V. Shoemaker, to be used in assisting poor, deserving students of the college in paying their tuition and board, the amount payable to any one student not to exceed $300 annually.

Medical Society Elections. — THE AMERICAN ELECTROTHERAPEUTIC ASSOCIATION, at its annual meeting held in Washington, D. C., Sept. 7-10, 1921, elected the following officers for the ensuing year: *President*, Dr. Virgil C. Kinney, Wellsville, N. Y.; *Vice-presidents*, Dr. Christian M. Sampson, New Brighton, N. Y., Dr. Elmira C. Folkmar, Washington, D. C., Dr. Charles Reed Collina, Washington, D. C., Dr. Howard T. Plank, Chicago, and Dr. William T. Johnson, Philadelphia; *Treasurer*, Dr. Williard Travell, New York; *Secretary*, Dr. A. Berne Hirsch, New York; *Trustees*, Dr. Byron Sprague Price, New York, and Dr. Frederick H. Morse, Boston.

Obituary Notes.—Dr. RICHARD B. COUTANT of Tarrytown, N. Y., died after a long illness on September 13, at the age of seventy-six years. He was graduated from the College of Physicians and Surgeons, New York, in 1872. He was consulting physician to the State Hospital for Crippled and Deformed Children and chief of staff of the Tarrytown Hospital.

Dr. FRANKLIN PIERCE WARNER of Canandaigua, N. Y., a graduate of New York University Medical College in 1881, died on August 30, at the age of sixty-nine years.

Dr. SAMUEL T. LIPSITZ of St. Louis, Mo., a graduate of Washington University Medical College in 1906, died in a local hospital on September 2, at the age of thirty-six years. He was on the staffs of the Jewish and City Hospitals.

Dr. THEODORE A. MCGRAW of Detroit, Mich., one of the founders of the Detroit College of Medicine and for forty-three years head of the department of surgery, died on September 6, at the age of eighty-one years. He was a former president of the American Surgical Association.

Dr. STEPHEN COOPER AYRES of Cincinnati, Ohio, died on September 2, at the age of eighty-one years. He was graduated from the Medical College of Ohio, Cincinnati, in 1864. He served in the Civil War and at the end of the war had charge of the United States Barracks Hospital in New Orleans. Later he served on the staff of various Cincinnati hospitals.

Dr. JOHN MARKER, superintendent of the Eloise County (Mich.) Hospital, was killed in an automobile accident on September 2. He was graduated from the University of Michigan Medical College in 1890, and was fifty-nine years of age.

Dr. OSCAR A. KING of Lake Geneva, Wis., died on September 12, at the age of seventy years. He was graduated from Bellevue Hospital Medical College in 1878, and studied at the University of Vienna. He was for a time assistant physician in the Wisconsin State Hospital for the Insane, and since 1900 Vice-dean of the College of Physicians and Surgeons of the University of Illinois. In 1883 he founded a private sanatorium at Lake Geneva.

Correspondence.

THE MEDICAL REFEREE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The World War created many unique positions and titles and the Medical Referee was one of those born after this manner. The Civil Service Commission listed the "Referee" and also "Physician" under the examination as given by the board. Several have been sworn in and accepted under Civil Service rules and many good Referees are at work after special training, not under Civil Service. The work of the Referee in Washington, D. C., and elsewhere is now with the Veterans Bureau and it consists in examining the contents of folders covering individual cases and giving ratings on the various disabilities presented.

The idea prevails generally among the medical profession that the rating of a man's disability is a simple procedure. In a few cases it is, but in others it is not. In each case history, there may be as many as six physical examinations, by one or several doctors (often giving as many separate diagnoses), with 25 to 150 pages or reports from specialists, inspectors, buddies, hospitals, congressmen, and if an old case, a number of previous ratings, then one will scarcely appreciate the detail of which this work consists. In the rating of a disability the man's *previous principal occupation* must

be taken into earnest consideration and *if he is able to resume it or not*. For instance, if a pianist lost a finger in service, the disability is plain and he is rated accordingly; again any claimant with a clear history of service origin and straight diagnosis such as the loss of one leg or rheumatism following tonsillar infection in service, that is not a difficult matter to adjust.

When, however, a series of physical examinations are found in the folder with frequently conflicting surgical and medical diagnoses, the rating becomes more complicated and when to the above conditions are added the refusal of the claimant to accept hospital treatment (though strongly advised to do so) and specialists and hospital reports are attached with urgent requests from the Red Cross, American Legion, church societies, congressmen, etc., etc., the amount of labor and thought expended on each individual case is little appreciated by the various organizations and much less by the suffering claimant who awaits the award.

It was easily understood by the painstaking medical Referees in Washington, D. C., but not by the thousands of applicants why, on May 1, last, the new Director of the War Risk Bureau, Col. Charles R. Forbes, through the chief Medical Advisor, called for additional physicians from the various districts throughout the country. At this time over 60,000 cases were awaiting adjustment, the Bureau having become overwhelmed with work. It was only after two and one-half months that conditions became normal, each man receiving attention.

Under Col. Charles R. Forbes's far-sighted policy and direction, clean-up squads are operating throughout the country at present. These consist of examining physicians, a medical referee, clerks, etc., the idea being to reach every person who has a claim, investigate it, examine the individual, give a rating and immediate hospitalization if necessary, and also make a full report on every case. Many pathetic and worthy cases are thus discovered while other types are observed.

I have refrained from being led into discussion of the psychoses, hospitalizations, rehabilitation, vocational education, though these are closely linked up with the referee's work and wish to suggest a thought in closing to the medical examiner of claimants.

There is one thing most desirable from the medical referees point of view: It is that you examine carefully each case and visualize on paper your physical findings and particularly your impressions of the claimant in clear language. Keep in mind the referee can see the liability and the type of man only as you can describe it on your examination.

The lack of appreciation of the foregoing by the medical examiner has undoubtedly been the cause of much delay in the prompt settlement of claims.

E. C. CHAMBERLIN, M.D.

4 WEST EIGHTY-FOURTH STREET,
NEW YORK CITY.

Vitamines of Cooked Meat.—Briand concludes from a research that cooked meat contains little or no antineuritis vitamine, while the loss in other vitamine is less marked. The antineuritic component is not a loss outright as it merely passes into the cooking liquor. Even fresh meat contains but relatively little fat soluble vitamine and it is doubtful if cooking reduces this much.—*La Presse Médicale.*

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, September 1, 1921.

A Warning Against Extravagant Claims for the X-Ray Treatment of Cancer.—The Council of the British Association for the Advancement of Radiology and Physiotherapy have issued a statement to the effect that in view of the publicity that has been given to radiotherapy in the treatment of cancer by the publication of laudatory articles in the medical and lay press, and the extraordinary claims that have been put forward by the authorities of the West London Hospital, it seems advisable that a considered statement on the use of these agents should be made. The treatment referred to has not yet been thoroughly tested. It possesses great potential dangers, and may not prove as efficacious as the claims now made would suggest. In the nature of the case, however, no certainty can be arrived at for some years. The unwarranted laudation of this change in technique will probably lead to a reaction, and bring discredit upon *x*-ray treatment in general. The claim put forward by the Erlangen School is that by means of their special method it is possible to administer a dose of *x*-rays which will cure cancer in one application. The *Lancet*, in a leading article in its issue of July 2, commented in somewhat caustic but well-advised terms on these distinctly premature statements, concluding in these words, "We wish to say once more how much it is to be regretted that hasty opinions on medical matters should be given wide publicity. Such pronouncements, unless authoritatively traversed, could not fail to be harmful to the future of radiology, in that they raise hopes which are far from certain of realization. *X*-rays have already relieved suffering and prolonged active life in thousands of cancer victims. They have even effected a few apparent cures; and their value in helping to prevent return after operation is now generally recognized. It would, therefore, be neither more nor less than a calamity if public disappointment resulting from unfulfilled promises were to bring discredit on radiation therapy, which is in reality a powerful agent in the warfare against disease." This expression of opinion is very much to the point. A great many of the reputed cancer cures and most of the widely heralded consumption cures hail from Germany. Of course, *x*-rays have proved themselves of great value, and the merit of the much-discussed Erlangen apparatus consists mainly of its greater penetrating powers. However, that is no valid reason why preposterous assertions should be made concerning its curative effects, bringing ofttimes calamitous results on the sufferers and to the great detriment of a means of treatment which, judiciously employed, promises to become of the greatest service to diseased humanity.

Lessons of the Census.—In the decade just gone by the population of Great Britain has increased by 1,936,134, a fair showing when the happenings of the past few years are taken into consideration. The increase is about half of what it was in the previous ten years' period. The slackening of the growth of population is due mainly to the

war, for in addition to the number of men killed, 560,000, of course, many fewer children were born, owing to the absence of men at the front. Other causes of this diminished increase of population were perhaps the severe epidemic of influenza and the slightly heavier flow of emigration during the decade, although during the war emigration was practically suspended. The population of Great Britain at the present time is 42,767,530, compared with a total in 1911 of 40,831,396. For the whole of Great Britain the increase was at the rate of 4.7 per cent., the lowest rate of increase yet recorded. In the preceding intercensal period the increase was 10.4 per cent., and this was lower than the rate in any previous decade. The excess of females over males in Great Britain is close upon 2,000,000. While males increased in number by 676,000, the increase in females was over 1,250,000, and the proportion of females to males in Great Britain rose from 1,066 in 1911 to 1,093 in 1921. Thus one of the direct legacies of the war, as demonstrated by the British census returns just published, is the increased preponderance of females over males. The influence of war conditions on the birth of boys appears to have received further confirmation by the facts revealed by the census. Since the first quarter of 1915 the ratio of male to female births in Great Britain has been steadily above the average. German authorities, and Dusing in particular, stated some time ago that the accentuation of the excess in war time was a well-known and undoubted fact. Cold water has been thrown on this theory by others; but it remains true that, so far as this country is concerned, an abnormal increase of boy over girl babies has, with a certain amount of fluctuation, continued since 1915 until the present time. The ratio in the past quarter being 1,057 births of boys to every thousand births of girls. In this connection there is another interesting fact worthy of mention, that England has long been remarkable for the low excess of male over female births, not only as compared with the countries of the continent of Europe, but also with the other parts of the United Kingdom. It must also be borne in mind that, while more boys than girls are born, female infants are more tenacious of life than males. Yet if the increase in the ratio of male births continues, it should, in time, aid in counteracting the present surplus of females. Sir Bernard Malet, the late Registrar General, in a recent interview deplored the fact that, owing to the inclusion of new questions, such a valuable feature as the fertility inquiry—that is, the number of existing marriages and the number of children born to them in different social classes—had to be omitted. This was inserted for the first time in 1911, and, as Malet said, it is to be hoped that the results of that inquiry, which was delayed by the war, will not be lost to statistical science and that the expert comment on the figures to which Doctor Stevenson is known to have devoted much labor will see the light in due time. It is pointed out that it is the first investigation of the problem which has been made on a large scale.

The Size of a "Panel Doctor's" Practice.—The Minister of Health was asked the other day in the House of Commons what was the maximum number of patients a doctor might have on his panel. Sir A. Mond, the Minister of Health, in his reply said the limit of the number of insured persons whom an insurance practitioner may have on his list is determined by a scheme made for each area by the Insurance Committee and the Panel Committee jointly, and the extent to which the limit may be increased where the doctor engages one or more permanent assistants is determined by the Insurance Committee, which is required to have regard to the particular circumstances of the doctor's practice. No doctor working single-handed may have more than 3,000 persons on his list; the maximum has been fixed in a large number of areas at 2,000 to 2,500, and the average number per doctor is approximately 1,000.

North-East London Postgraduate College.—A special postgraduate course will be held at the Prince of Wales' General Hospital, Tottenham, London, N., from Sept. 26 to Oct. 8. It will include practical demonstration on clinical and laboratory methods each morning, demonstrations on groups of selected cases, general hospital work, and a clinical lecture each afternoon. Practical demonstrations will also be given in associated special hospitals. A good deal of progress has been made lately in Great Britain in arrangements for postgraduate teaching and training, but, so far as London is concerned, the big scheme for making of that city a world's postgraduate center, initiated and fostered by Sir John Macalister and Sir Arbuthnot Lane, does not advance so rapidly as might be desired.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, Sept. 1, 1921.

Increase of Population in France.—Statistics relating to the growth of the population of France show that last year the excess of births over deaths was 159,790, as against 58,914 in 1913, while the number of marriages has doubled. It is the first time since the war that statistics have been available for the whole of France, including the three departments of Alsace-Lorraine. The births were 834,411 last year, compared with 790,355 in 1913—an increase of 44,056. The deaths were 674,621, against 731,441 in 1913—a decrease of 56,820. The marriages numbered 623,869 last year, against 302,036 in 1913.

Smallpox.—For many years Switzerland has not been visited by an epidemic of smallpox, but this year there have been two outbreaks, as usual imported from Germany. Bâle and Zurich were the foci of the epidemics. That of Bâle was imported from Frankfort, the disease presenting its customary characters, viz.: serious, with some deaths, in the non-vaccinated, much lighter in vaccinated subjects even when the last vaccination dated back from twenty to forty years. Immediate isolation of the patients and members of their household, vaccination of persons dwelling in the infected houses and those having come in contact with "suspects" at once controlled the

spread of the epidemic. The source of the Zurich-Oerlikon epidemic has not as yet been discovered; it offered quite a different aspect from the Bâle episode. Among the 120 persons infected there were hardly half a dozen serious cases, although the majority of the patients had never been vaccinated or were old people who had been vaccinated from thirty to sixty years previously. In many the disease was mild and atypical. The cornea reaction or the cuti-reaction had to be carried out in order to certify the diagnosis. For this reason it is obvious why the search for the source of the epidemic has so far led to no results, but it was probably "made in Germany." Switzerland is more than sufficiently supplied with vaccine furnished by the Vaccine Institute at Berne and the Vaccinogenous Institute at Lausanne. The superior quality of the vaccine furnished by either of these establishments is well known outside of Switzerland, so that in this respect the profession has everything to be desired.

Regulation of the Sale of Milk.—The Swiss Federal Council has, among other laws respecting the sale of foodstuffs, published the following on the regulation of the sale of milk: "Whoever wishes to place on the market a milk having a special denomination, such as milk for infants, invalids, etc., must make application to the local sanitary authorities. Authorization can only be accorded to persons, companies, and manufacturers who can give sufficient guarantee that they are so placed that they can furnish a milk possessing the special qualities claimed for it. When a manufacturer does not conform to the articles regulating the manufacture of specially prepared milks or refuses to introduce those improvements in its manufacture that may be required of him, the authorization above given may be withdrawn at any time and for such withdrawal no action for damages can be brought in the courts of law."

Transmission of Foot-and-Mouth Disease to Man.—At a recent meeting of the Academy of Science of Paris a highly important paper by Le Bailly of Caen, on the transmission of foot-and-mouth disease from cattle to man was read. For over half a century this transmission has been admitted to take place by the milk of infected animals and numerous facts seemed to have demonstrated the frequency of this contagion. Le Bailly has not succeeded in producing foot-and-mouth disease by inoculating healthy animals with the saliva obtained from a child and two adults suffering from stomatitis due to aphhæ epizooticæ. He also attempted, without success, to contaminate human beings with foot-and-mouth disease by inoculating three persons with from two to eight cubic centimeters of virulent blood-serum. These results are interesting but rather unexpected and should be submitted to experimental control.

Syphilitic Mongolism.—Lhermitte performed an autopsy on a "Mongolian" child dead of some acute enteric disorder. The lesions were those of congenital syphilis, which condition had also been recognized during life. There were alterations in the cerebrum (corpus callosum), spinal marrow, liver, kidneys, thyroid, and adrenals. No light was thrown on the nature of essential mongolism.—*Gazette des Hôpitaux.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 8, 1921, clxxxv, 10.

1. President's Address at the Annual Meeting of the Massachusetts Tuberculosis League, May 13, 1921. Edward O. Otis.
2. The Reduction of Hypertension in an Unusually Difficult Case by Means of a "Salt-Free" Diet. M. J. Konikow and Millard Smith.
3. Unrecognized Syphilis. Malcolm Seymour.
4. Remarks on the Differential Diagnosis Between Tuberculosis and Certain Other Chronic Pulmonary Infections, with Special Reference to the Late Effects of Gas and Influenza. John B. Hawes, 2nd.

2. The Reduction of Hypertension in an Unusually Difficult Case by Means of a "Salt-Free" Diet.—M. J. Konikow and Millard Smith report this case of hypertension in a woman of 54 years, upon whom careful observations were made over a period of 115 days. A salt-free diet, as outlined by Dr. F. M. Allen, was employed, and chemical examinations of the blood and urine made at suitable intervals. Their experience with this case supports the view that lessened intake of salt is a lowering factor in hypertension cases. This case was unusually difficult, little benefit being noted from the diet until almost the end of the experiment, which had covered many weeks. As a rule hypertension cases secure relief from their distressing symptoms within a short period after the introduction of the "salt-free" diet, and with this relief there is a reduction of hypertension. The fact that this patient was so slow to respond to the diet emphasizes the need for prolonged treatment in some cases before results can be secured. Another point to be noted is that the diet must be carefully followed with urine examinations to be sure the patient is keeping the salt intake at a very minimum. It is desirable to keep the salt excretion below 1.0 gram of sodium chloride, and better below 0.5 of a gram. Though this was not possible in the case reported, the hypertension was definitely lowered and an improvement in symptoms was noted. The writers agree with Allen that this dietetic treatment is only palliative and that it does not reach the real cause of faulty metabolism of chloride. In this patient it was possible that there was an endocrine basis for the hypertension, as she had outspoken symptoms of disturbed function of the thyroid gland, induced possibly by the early removal of the ovaries. The therapy in such cases should perhaps not be limited to a salt-free diet alone, but should be followed by organotherapy.

4. Remarks on the Differential Diagnosis between Tuberculosis and Certain Other Chronic Pulmonary Infections with Special Reference to the Late Effects of Gas and Influenza.—John B. Hawes, 2nd, summarizes the important points in differentiating tuberculosis from the late effects of influenza as follows: (1) There is usually a train of symptoms definitely related to and following an attack of influenza. (2) There are marked constitutional symptoms, such as shortness of breath, weakness, lack of strength and energy, and (3) in contrast to this, usually a normal temperature and pulse, blood and blood pressure, and but little loss of weight. (4) There usually is some cough and sputum which is often bloody. (5) There is rarely any evidence of consolidation in the lungs, but about everything else may be present, especially at the bases. The pathology in the lungs of the men who were gassed consists of a diffuse fibrosis not localized at the apex, base, or hilus, but found in any region in the lung. Fever, rapid pulse, loss of weight, anemia, and other symptoms of tuberculosis are conspicuous by their absence. In differentiating the effects of gassing from tuberculosis the points that it is important to remember are as follows: (1) Do not take it for granted that a given process is tuberculous even with a suggestive *x*-ray. (2) Do not do the reverse. (3) A general appearance of robust health with marked symptoms is against tuberculosis. (4) Remember that the lung complications resulting from gas are usually found at the base and not at the apices; (5) and that the usual signs found are those of a thickened pleura and often a localized bronchitis, although in many instances little or nothing is found in the lungs. (6) Bear in mind that following gas there is apt to be a marked increase

in nervous symptoms of every kind. (7) Do not take for granted that those men who have been gassed are *not sick* and do not need treatment. (8) Treat the man who has been gassed and not his lungs. In the diagnosis of primary carcinoma at the root of the lung, the writer has been impressed by three points, namely, that the fact that the patient is not older than 30-35 years does not mean that cancer is not present; that almost every sign and symptom suggestive of pulmonary tuberculosis may be present, and that a negative *x*-ray, as far as cancer is concerned, is not necessarily conclusive evidence against a new growth, at least when the disease is in its early stages. The gradual onset of symptoms is a point favoring the diagnosis of new growth.

New York Medical Journal.

September 7, 1921, cxiv, 5.

1. Peritonitis. John B. Deaver.
2. Surgery of the Stomach. John J. Gilbride.
3. The Action of Various Salts and Other Substances on the Liver After Their Introduction into the Duodenum. Max Einhorn.
4. Clinical Gastric Analysis with Detail of Method and a Consideration of the Maximum Information to Be Obtained. B. B. Vincent Lyon, Henry J. Bartle, and Richard T. Ellison.
5. Personal Experience with Nonsurgical Biliary Drainage. Julius Friedenwald and Theodore H. Morrison.
6. Gastroenterological Gleanings from the Mayo, Sippy and Boston Clinics. S. Wendkos.
7. Some Interesting Gastric Cases. Henry Flack Graham.
8. A Report of Some Abdominal Cases. Vertner Kenerson.
9. Spontaneous Pneumoperitoneum Demonstrated by the *X*-Ray in Acute Gastrointestinal Perforations. William A. Kellogg.
10. The Diagnosis and Treatment of Gallbladder Disease. Abraham O. Wilensky.
11. The Nonsurgical Drainage of the Gallbladder as an Aid in the *X*-Ray Diagnosis of Gallstone Disease. Samuel Weiss.
12. Carcinoma of the Stomach Simulating Pernicious Anemia. A. E. Oliensis.

3. The Action of Various Salts and Other Substances on the Liver After Their Introduction into the Duodenum.—Max Einhorn presents further studies on the action of salts other than magnesium sulphate on the liver after their introduction into the duodenum. He used sodium sulphate, sodium citrate, bicarbonate of sodium, chloride of sodium, calomel, mercurochrome, and other substances, the method used being identical with that described in former papers. From these experiments it is shown, as in a former paper, that Lyon's assumption of the different sources of bile, as judged by the color, does not seem to be correct. In regard to the question as to what are the best conditions for the examination of the bile in gallbladder lesions, he states that inasmuch as the magnesium sulphate and other liver stimulants increase the flow of bile from the liver and drive it, so to say, quickly and directly into the duodenum, there will be after these substances a bile product from the liver direct containing very little if any bile from the gallbladder. In the fasting condition, and without any previous stimulation, the aspiration succeeds in obtaining what little bile there is in the duodenum from the liver and gallbladder, or there seems to be more chance for the appearance of some gallbladder bile when the flow of liver bile is not extensive. In practising bile examinations in the fasting state of the patient, for the past ten years or so, he has found this to be the case. Diagnostically, then, we can find many more valuable hints regarding gallbladder lesions from the examination of the natural fasting bile than from the bile obtained after stimulation by magnesium sulphate. In cases of jaundice, however, in which no bile is found in the fasting state, a liver stimulant may be injected into the duodenum, in order to ascertain whether the increased flow of bile from the liver is still able to push through some of its products into the duodenum. In fact, in a number of such cases of chronic jaundice with no bile in the duodenum while fasting, the magnesium sulphate caused the appearance of some bile after a short time, thus showing that the common duct occlusion was not complete. In these cases the magnesium sulphate or peptone or glucose test is of diagnostic aid.

5. Personal Experience with Nonsurgical Biliary Drainage.—Julius Friedenwald and Theodore H. Morrison have employed the Lyon method of diagnosis and biliary drainage, with slight modifications, in 315 observations. They find the technic simple. In many instances it has been carried out by nurses and later on by the patients themselves. In this series 120 cases were due to biliary stasis, the bile being thick and tarry and requiring many attempts before the gallbladder could be thoroughly cleared. It is also infected with many microorganisms. With daily treatments, often extending over many weeks, such cases can be greatly benefited, the bile assuming after a time a more normal appearance, the microorganisms gradually decreasing in numbers, and the patient then presenting a marked improvement in his condition. It is quite probable that in many of these cases the formation of gallstones can be prevented by this form of treatment. In a large series of cases grouped under the term biliousness, a rapid change in the appearance of the patient and an improvement in digestion and constipation, with complete relief from acute attacks of sick headache and migraine, has followed the institution of this form of biliary drainage. The authors conclude as follows: (1) The method of biliary drainage, as instituted by Lyon, furnishes a valuable aid in the diagnosis of gallbladder affection. It is particularly valuable in that it enables us to diagnose these conditions early before evidences of complications have manifested themselves. (2) It presents an important means of determining the presence of focal infection in the gallbladder, a condition which may be of the greatest therapeutic and diagnostic value in obscure conditions. (3) While this method of treatment is still in its infancy, and it is as yet too new to draw conclusions regarding its end results, there can be no question that it furnishes a means of affording definite relief in certain biliary affections for which hitherto radical measures have been required. It is an extremely valuable aid in treatment of catarrhal jaundice, biliary stasis, and gallbladder infections, and is helpful in relieving the infection which may still remain following gallbladder operations. The writers also describe a bacteriological study carried out by Dr. Charles E. Simon showing clearly that bacterial infections of the gallbladder are much more common than has hitherto been supposed, and that infections with pyogenic cocci are much more frequent than bacillary infections. It would seem that no search for foci of infection can hereafter be regarded as complete which does not include an examination of the bile.

Journal of the American Medical Association.

September 10, 1921, lxxvii, 11.

1. Imperative Need of Union of the Medical Profession and and Health Authorities. John D. McLean.
2. Unrecognized Infections in Production of Carriers of Pathogenic Organisms. Charles F. Craig.
3. Urology and the General Practitioner. E. O. Smith.
4. Diphtheria Prevention Work in the Public Schools of New York City. Abraham Zingher.
5. Factors Which Influence Results and Mortality Rate in Kidney Surgery: Analytic Study of Two Hundred and Sixty-three Operations. John R. Caulk.
6. Intestinal and Hepatic Reactions in Anaphylaxis. W. H. Manwaring.
7. A New Nonoperative Technic for Removal of Impacted Calculus in Urethra. P. A. Jacobs.
8. The Iliosacral Joint. H. R. Allen.
9. Fracture of the Spine of the Tibia. Joseph J. Kurlander.
10. An Etiological Factor in Angioneurotic Edema: Preliminary Report. Frederick Myles Turnbull.
11. Chronic Poisoning from Mixture of Potassium Nitrate and Sulphur: Report of a Case. Emil Windmueller.
12. The Pad for Pseudoscience: Pertinent Queries and Musings. George De Tarnowsky.
13. Blood Sugar and Basal Metabolism Findings in Chronic Pulmonary Tuberculosis and Hyperthyroidism. R. A. McBrayer.

2. Unrecognized Infections in Production of Carriers of Pathogenic Organisms.—Charles F. Craig emphasizes the enormous importance of the unrecognized carrier in the transmission of bacterial and protozoal disease. He discusses two types of carriers, namely, "convalescent carriers" and "contact carriers," the latter being the most important source of endemic and epidemic infections. The idea that contact carriers have never suffered from the diseases due to the parasites they carry is erroneous; a very considerable proportion of them have presented, at one time or another, symptoms which were undoubtedly due to the parasite

they carry. This type of carriers originates from unrecognized and atypical cases of contagious or infectious disease. This fact should lead the physician to a more careful consideration of apparently trivial symptoms and to a greater utilization of laboratory aids in the diagnosis of their cause. Most of these cases would be recognized if physicians were on the outlook for them. After calling attention to the large number of missed cases of diphtheria and typhoid fever, Craig discusses unrecognized malarial infections, and states that about 50 per cent. of those infected with malaria develop gametes and thus become carriers. Inquiry into the history of malaria carriers almost invariably shows that they have at some time had mild symptoms which, while not those of the typical malarial paroxysm, would have been regarded as suspicious by the trained physician. Early recognition and treatment of malaria prevents the development of gametes. Another infection which physicians through the United States should be on the lookout for is amebiasis. On the basis of the percentage of infections with *Endamœba histolytica* among troops on the western front during the war, there must have been returned to this country at least 500,000 men who were carriers of the cause of amebic dysentery and potential agents for scattering the infection throughout the United States. Most of these carriers have had symptoms due to their infection, though a history of dysentery is denied. However, if questioned with reference to slight attacks of diarrhea, generally lasting only a few hours, the vast majority will admit the occurrence of this symptom, stating that these attacks frequently occur at night and subside after the passage of one or more profuse stools accompanied by more or less abdominal pain. These carriers also suffer from intestinal indigestion, a feeling of malaise, and periods of loss of weight, especially in hot weather. Though these patients frequently consult a physician for the relief of these symptoms, it is but rarely that amebic infection is suspected and a microscopic examination of the feces requested. The medical profession should realize that amebic diarrhea is very common in this country and is becoming more so.

4. Diphtheria Prevention Work in the Public Schools of New York City.—Abraham Zingher. (See MEDICAL RECORD, July 2, 1921, c. 1.)

10. An Etiological Factor in Angioneurotic Edema.—Frederick Myles Turnbull presents a preliminary report in which he describes two cases of angioneurotic edema in which the condition was entirely relieved after radical sinus operation. In both instances the sinuses not only contained pus, but there was marked polypoid degeneration of the lining membrane. He calls attention to a great similarity between angioneurotic edema and certain anaphylactic reactions. We know that asthma and certain bronchitic conditions may be merely anaphylactic reactions, and likewise that sinus infections and nasal polyps may result in a respiratory picture very similar to the ordinary anaphylactic reactions. It is quite conceivable, and these cases indicate very strongly that there may exist an etiological factor in these chronic nasal sinus infections, with the accompanying polypoid change, which may cast much light on anaphylactic manifestations in general. Certain experimental work is being conducted along this line.

13. Blood Sugar and Basal Metabolism Findings in Chronic Pulmonary Tuberculosis and Hyperthroidism.—R. A. McBrayer has studied the basal metabolism of 23 incipient, 17 moderately advanced, and four far advanced cases of pulmonary tuberculosis, making 100 determinations. In 59 per cent., three cases of which are suspicious hyperthyroids, the basal metabolism was increased over 10 per cent.; in 36 per cent., one of which was definitely hyperthyroid, there was a normal basal metabolic rate, and in 5 per cent. there was a decreased metabolic rate. An analysis of the blood sugar curve in 74 tuberculous cases showed the blood sugar increased in 58 per cent., normal in 27 per cent., and decreased in 15 per cent. Remembering that hyperthyroidism consistently shows both an increased basal metabolic rate and an increased blood sugar, it is impossible to draw from this work any other conclusion than that the determinations of basal metabolic rate and blood sugar are of no practical value in the differential diagnosis of pulmonary tuberculosis and hyperthyroidism.

The Lancet.

August 20, 1921, cci, 5112.

1. Croonian Lectures on the Objective Study of Neurosis. F. L. Golla.
2. The Treatment of Imperfectly Descended Testicle. Charles A. Pannett.
3. Gastric Operations: A Note on 100 Consecutive Cases. L. E. Barrington-Ward.
4. An Experimental Study of Prophylactic Inoculation in Typhus Fever. A. Kusama.
5. Some Observations on Basal Metabolism in Menstruation. Marion O. B. Wiltshire.
6. The Course of Summer Diarrhea in London, 1856-1920. John Brownlee.

1. An Experimental Study of Prophylactic Inoculation in Typhus Fever.—A. Kusama has conducted further experiments with the invisible virus of typhus fever, using the Macacus monkey. It has been observed that the incubation period differs according to the site of inoculation of the virus, the virulence, and the quantity of virus or blood. The incubation period is shortest when the virus is inoculated into a vein, or is very strong, or is given in large quantity. The incubation period is directly proportional to the pyrexial period. If the symptoms develop after a longer period of incubation, the days of the disease are fewer, and vice versa. As to the amount of dosage, it has been found that monkeys which received injections, either hypodermic or intravenous, of one-tenth or less of the minimal morbid dose of virus, had a febrile attack. It was found that the same degree of immunization was possible, obtained by the use of very different doses (1/10 to 1 100,000 of the minimal morbid dose). The outstanding fact presented is that the use of a minute quantity of typhus virus, not attenuated by a special method, can harmlessly confer upon an animal a prophylactic power against the virus. The practical application of this fact must, however, be postponed until the virulence of the prevailing virus, the individual differences in susceptibility, and the degree of immunization are fully established. These problems must be settled by future research.

5. Some Observations on Basal Metabolism in Menstruation.—Marion O. B. Wiltshire reports a series of experiments comparing the physiological processes in the menstrual and intermenstrual periods. The points chosen for determination were: (1) The basal metabolic rate of normal women during menstruation, and between the menstrual periods. (2) the cost to the organism, at these times, of a definite piece of work, and (3) the rate of recovery from that work. Observations were made on five subjects, in whom it was found that the intermenstrual values varied considerably in different subjects, although the mean value, 37.2, agrees with that given by Benedict as an average value for women. The variations during the different phases of the sexual cycle are so small that they cannot be regarded as showing any marked effect due to menstruation; the fluctuations which normally occur are often greater than these variations. In regard to the second and third points investigated the results seem to indicate that the cost of work and the rate of recovery from work are the same during the menstrual and intermenstrual periods. In both cases there is a sharp rise in the carbon dioxide output and the oxygen intake during exercise, followed by a gradual return to the resting value when work ceases.

British Medical Journal.

August 20, 1921, No. 3164.

1. Introductory Remarks Before the Section of Radiology and Electrotherapeutics. Robert Knox.
2. Some Contrasts in the Effects of *X*-Rays and Radium upon Blood Cells. Sidney Russ.
3. The Use of Blood Counts to Indicate the Efficiency of *X*-Ray and Radium Protection. J. C. Mottram.
4. Conditions in Which Radiation May Be Beneficial. G. Lovell Gulland.
5. Value of Radiation in Leucemia. James Metcalfe.
6. Discussion on Surgical Diathermy. E. P. Cumberbatch, C. W. Scott Saberton, and F. Howard Humphris.
7. The Claim of "First Aid" to Be Regarded as a Special Branch of Practical Surgery. James Cantlie.
8. A Case of Trypanosomiasis Treated by Intrathecal Serum. L. W. H. Eyre.
9. Glycosuria of Malarial Origin. Aldo Castellani and J. Graham Willmore.
10. Sloughing of the Lower Uterine Segment Following Placenta Praevia: Laparotomy: Recovery. J. R. C. Cannev.

2. Some Contrasts in the Effects of X-Rays and Radium Upon Blood Cells.—Sidney Russ states that a study of the effects of *x*-rays upon the circulating leucocytes of the rat has shown that for a certain measured dose of *x*-rays the effects upon the lymphocytes are regular and can be repeated, but the polynuclear leucocytes show quite irregular changes, for an increase or a decrease in their numbers may occur as a result of the exposures. Observations as to the effect of exposures on man to rather large quantities of gamma radiation were made in thirty-one cases. A reduction in the number of circulating lymphocytes was observed in twenty, and increase in five, and no change in six. The figures for the polynuclear cells for the same thirty-one cases showed that an increase, a decrease, or no change in their numbers was of very nearly the same probability. These subjects were not normal and a septic condition was the rule rather than the exception. Both the experimental and the observational data show that both *x*-rays and gamma rays may be expected to cause lymphocytes to disappear from the circulation. Changes in the red blood cells have also occurred after a single gamma ray exposure; they are not of a pronounced character, however, unless the radiation is very prolonged.

5. The Value of Radiation in Leucemia.—James Metcalfe says the chief point to be determined in connection with the treatment of pathological conditions in which the blood elements are among those chiefly attacked is whether the mobile elements absorb more rays with extremely high penetration than they do those of more moderate power. This is a matter which has not been settled and which requires most careful observation. The results of his experience in regard to the effect of radiations on the blood are: (1) That they produce remarkable improvement in the blood count and general health, and reduce the splenic enlargement and other hyperplastic tissues; and (2) that they are especially useful in some leucemias, splenic anemia, and Banti's disease. The earlier improvement is frequently not maintained; but there is great hope that with improved technique this will prove feasible. Radiation is certainly of no use in secondary anemias, and in the writer's opinion it is not useful in pernicious anemia. In connection with *x*-ray workers we should take into consideration the facts that, if healthy, they are much less susceptible to radiations then those of poor physique; and that the bad effects produced by exposure to radiations are much diminished by working in well ventilated rooms; by thorough protection of all apparatus by lead covering; by limited hours of work; by drinking a good deal of fluid (water or light lemonade) during the day; by being out in the fresh air as much as possible when not working.

9. Glycosuria of Malarial Origin.—Aldo Castellani and J. Graham Willmore record two cases in which glycosuria followed malarial attacks. The observations made in these cases tends to show that there is a form of glycosuria of malarial origin, and that the condition may at times, as in one of these cases, become so severe as to simulate true diabetes, the patient losing flesh, becoming very weak, complaining of thirst and hunger, and passing a large amount of saccharine urine. The glycosuria in these two cases was cured by the administration of quinine in full doses without any dietetic treatment.

Long Island Medical Journal.

July, 1921, xv, 7

1. Non-Tuberculous Pulmonary Infections. Notes [illegible]. Glentworth R. Butler.
2. Surgical Aspect of Diabetes. Joseph P. Murphy.
3. Severe Diabetes with Acidosis: Case Illustrating the Management of. Frank Bethel Cross.
4. Sugar Tolerance in Gastrointestinal Carcinoma. Henry M. Feinblatt.
5. Eclampsia, Case Reports of. Robert E. Coughlin.
6. The Pelvic Appendix. Frank D. Jennings.
7. Radium in Gynecologic Practice. A Conservative Estimate of. Chester Ford Dunyea.

4. Sugar Tolerance Curve in Gastrointestinal Carcinoma.—Henry M. Feinblatt has made observations in regard to the sugar tolerance test in carcinoma which confirm the work of Rhodenberg and Friedenwald. The technique of the test consisted in giving the patient 100 grams of glucose in black coffee after a night's fast. Venous puncture was made five minutes before giving the sugar, 45 minutes after ingestion, and again two hours after the intake. In each instance 5 c.c. of blood was withdrawn into a tube containing a few crystals of oxylate, and then promptly analyzed according to Folin's new microchemical method. Using this technique, sugar tolerance tests were made on 56 patients, from which it is concluded (1) that lowered sugar tolerance may be present in many diseases other than gastrointestinal carcinoma. These generally do not give the clinical symptoms or physical signs of carcinoma and may easily be ruled out. The sugar tolerance test is of distinct value as a means of differential diagnosis between carcinoma and other gastrointestinal diseases. The patients having carcinoma of the stomach or alimentary tract invariably showed hyperglycemia.

The Practitioner.

July, 1921, civ, 1

1. Pleurisy. W. Hale-White.
2. On Fits, Epileptic and Others. Anthony Feiling.
3. The Significance of Albuminuria. F. G. Chandler.
4. Cardiology, Old and New: Some Contrasts. Gordon Lambert.
5. The Cardiographic Diagnosis and Prognosis. I. Harris.
6. Treatment of Piles Without Operation. James Eadie.

1. Pleurisy.—W. Hale-White calls attention to pains due to other causes that may be attributed to pleurisy. Such pains are those due to fibrosities in the back of the pectoralis major and neuralgic pains, both of which may be relieved by a liniment made of equal parts of menthol and chloroform to double the quantity of olive oil. Tubercle of the ribs, gumma of the ribs, and growth in the ribs have been mistaken for pleurisy. Not all pleuritic rubs are heard at inspiration and expiration, as the books tell us. There is no golden rule for telling one. Diaphragmatic pleurisy is difficult to recognize. If there is any pain, it is low down, usually somewhere about the tenth rib. Next you can often observe that the patient does not move his diaphragm properly. When he inspires the diaphragm does not descend on the side of the pleurisy, with the result that at the end of deep inspiration, the other side of the chest expands and the abdominal muscles come out, and it is easy to notice the drawing in of the ribs on the side of the pleurisy. Very often this evidence is not present, but if you suspect it, you will be surprised how often your suspicions are confirmed by noticing a rub low down. Another position of pleurisy difficult of detection is when it occurs between the perieardium and the lung. A common way to differentiate an exocardial murmur from an endocardial is to have the patient hold his breath, when you will not hear the rub if it is caused by inspiration and expiration. With regard to the treatment of pleurisy, there are two things to bear in mind. If it is a dry pleurisy you want to get the visceral and parietal pleura to adhere; therefore, you strap the chest. If there is fluid, but not sufficient in amount to make you wish to take it out, it is most likely to be absorbed if the patient is opening out his lung and his lymphatic spaces; therefore, if there is fluid do not strap the chest. Perhaps 75 per cent. of all serous effusions in the pleural cavity are tuberculosis. Medical men do not warn the patients enough that simple pleuritic effusion is most often tuberculosis. It is always worth while to see whether the fluid you remove is albuminous or not. All ordinary pleuritic effusion is albuminous, but hydatid fluid is not. Many physicians do not estimate enough the value of the skodiac resonance in pleural effusion. It is an extraordinarily valuable sign, quite impossible to mistake. Depression of the diaphragm is sometimes given as a sign of fluid; that is exeeedingly rare. If blood-stained fluid is caused by a growth, do not aspirate it, as the sudden release of pressure may cause further hemorrhage. It is a striking fact that the frequency of empyema has increased in recent years. In the presence of a continuing high temperature in pneumonia one should not comfort himself with the idea that he has a case of delayed resolution until he has definitely put out of court the possibility of empyema. There is no doubt whatever that a patient can get perfectly well if an empyema is coughed up. The writer has seen thirty such cases. As a rule, however, it is

wrong to leave the empyema to be coughed up. The *x*-rays are of very little use in the location of empyemata. A blood count is of much help in the diagnosis. If you cannot find an empyema and yet from the signs and symptoms think there is a fair probability that an empyema is there, don't go needling to find it between the pericardium and pleura; call a surgeon and let him open the chest freely and look for the empyema, find it, and drain it. When fluid has been evacuated get the lung to work again as quickly as possible.

Le Bulletin Medical.

June 8-11, 1921, xxxv, 24.

Inoperable Cancer of the Stomach Treated with Electroselenium.—Blumenthal-Jacquet reports the following case: The diagnosis of cancer of the lesser curvature was made by the ordinary resources with the aid of biopsy in connection with attempted operation. Patient was a woman of 52 who had never had any illness, up to 1913, when she began to complain of epigastric pain two hours after meals with slow and painful digestion. There was no vomiting. This state of affairs had continued unchanged for 5 years, when the woman began to lose flesh rapidly and show profound anemia. Jaundice and hematemesis then supervened. A biopsy was made of some tissue in the vomitus and adenocarcinomatous tissue was recognizable. The bowel discharges were melanic. Deep palpation revealed a hard tumor of the lesser curvature. Operation was at once begun and a growth the size of a pigeon's egg was seen high up on the lesser curvature. The regional lymphnodes were enlarged and there were numerous adhesions with probable secondary implication of the liver. It was, therefore, decided to abandon the intervention. The patient returned home after having passed through a postoperative pneumonia. The author did not give up the case, but obtained from Holland at much trouble a quantity of electroselenium (it should be stated that the author is a Belgian and that this episode occurred before the armistice). A series of nine intravenous injections was practised at intervals of 2 to 4 days. The first was followed by a typical colloidal shock. At the close of the period the subject was able to take nourishment and ate practically everything, although she complained of the postprandial pain. After a second series of injections the latter symptom also disappeared. The patient did well, until, in 1919, there was a suggestion of recurrence, which led to a third series of injections, with a fourth in 1920 and a fifth later in the same year. Invariably a course of injections was at once followed by improvement. The patient is 66 pounds heavier than at the time of the operation. In November, 1920, after her last injections, she was presented before the Brabant Medical Society. She appeared in the best of health, and an *x*-ray showed that the tumor had been replaced by a double notch in the curvature. The case is considered most remarkable in view of the inoperability and presence of metastases and cachexia, to say nothing of the nature of the remedy, which in this one case has at least duplicated the best results of radiation. In case any reader would like to duplicate the treatment he is advised to make the first injection intramuscular to avoid the severe reaction, which, as the author soon learned, was not essential to the cure. The colloidal selenium should be mixed with an equal part of saline infusion or distilled water. The intravenous injections are to be made very slowly. That the selenium had any specific action may perhaps be doubted, as the author apparently found colloidal gold of the same value, although he is not explicit on this point and may refer to laboratory experiments made after the operation. The author believes that electroselenium and radium used in concert might give better results than any thus far obtained.

Le Bulletin Médical.

June 15-18, 1921, xxxv, 25.

Cure of Suppurating Typhoid Spondylitis by Autovaccination.—Bureau and Marchand refer to the first description of typhoid spine by Gibney of New York. Osler was an early contributor to the literature of this subject. But at this period the nature of the process was unknown and it was not regarded as a specific lesion due to Eberth's bacillus, but rather as a postinfectious neurosis. Suppurative cases were originally so rare that for many years the affection was looked on as "dry." In 1919 Weil reported a suppurative case cured by autovaccination; and the authors have recently duplicated this success. Their patient was a woman of 47 who went through a seven weeks' typhoid fever in 1913. Among her symptoms were violent pains in the loins. Convalescence was tedious, backache being present off and on. After recovery there were pains in the loins, sacrum and right hip, without impairment of the gait. These became aggravated and at last patient took to bed. The pains had from the first been worse at night. The focus seemed to be the region of the third-fourth lumbar vertebrae, and they were radiated in all directions downward. The condition became very complicated, with fever and great disturbance of general health, in part explained by the formation of pus which pointed at the right groin. During several years there was a total of six of these abscesses. The pus contained Eberth's bacillus and a trial of autovaccination led to complete recovery. The exact period of pus formation was seventeen months after the fever. The authors suggest the use of a stock vaccine in the ordinary nonsuppurating case of typhoid spine.

Wiener klinische Wochenschrift.

July 7, 1921, xxxiv, 27.

American School Diet in Austria.—Von Pirquet, or Pirquet as he now signs himself, relates the visit of Dr. Alonzo Taylor to Vienna in 1919 as the representative of Herbert Hoover in the interest of feeding the Austrian children. Collaborating with Taylor were the author, as the representative of Austria, and several other Americans. Assisting Pirquet were Nobel and Mayerhofer, recognized experts in dietetics. Vienna and the provinces were alike included in the movement. It was intended to give out daily from 60,000 to 400,000 meals, beginning with the low figure, with the high one as objective. Hoover controlled $33,000,000 to feed the suffering children of the whole of Europe, and the headquarters for Middle Europe were in London. America furnished food only and the problem of distribution and preparation was entirely up to the governments, central and local, of the countries benefited. The provinces paid for freight and preparation. The cost of the entire meal when served was about 1 kronen, equal to from 3 to 6 mills of United States money, at the current rates of exchange; but during the feeding period further depreciation made the figure 2 kronen per meal. The cost of the food alone was six cents a meal, which with the overhead made the total about 6.5 cents. The fact seems to have been established that ignorance and indifference on the part of parents, not less than food scarcity, were responsible for the state of undernourishment which prevailed throughout the Austrian child population.

The "Second Wind" of Runners.—This term originated in England many years ago to denote the primary shortness of breath on effort which is followed soon after by easy breathing without any intermission of effort. To explain the phenomenon there are only theories. Chaillé-Bert and two others who have studied the behavior of runners on the revolving carpet discard all theories hitherto advanced and see only a process of adaptation of mechanism to effort in which with labor constant the rate of exchanges of gas is lowered.—*Gazette des Hôpitaux.*

Coming French Congresses at Strasbourg.—Next October will see the holding of three medical congresses at the metropolis of French Alsace-Lorraine. These are respectively the Surgical, Urological, and Orthopedic. Professor Boeckel, the veteran surgeon of that city, will preside over the Surgical Congress. The grand questions for discussion comprise the treatment of epilepsy following cranial injuries, serum and vaccine treatment of osteo-arthrites, analgesia in urinary surgery, bloodless treatment of congenital dislocation of the hip, arthrodesis of the foot, and operative treatment of ankyloses of the knee.—*La Presse Médicale.*

Book Reviews.

A Primer for Diabetic Patients. A brief outline the Principles of Diabetic Treatment; Sample Menus, Recipes and Food Tables. By Russell M. Wilder, Ph.D., M.D.; Mary A. Foley, Dietician; Daisy Ellithorpe, Dietician, the Mayo Clinic. Philadelphia and London: W. B. Saunders Co., 1921.

The authors acknowledge free use of Joslin's "Diabetic Manual." There are sections on the Purpose of Diet, Measures and Weights, Food as Energy, the Urine, with special reference to sugar and diacetic acid, Composition of Foods, Dietary Treatment of Diabetics, Treatment of Impending Coma, Menus and Recipes and Food Values. The number of pages of this 12mo volume is 76.

On Diseases of the Lungs and Pleuræ. Including Tuberculosis and Mediastinal Growths. By Sir R. Douglas Powell, Bart., R.C.V.O., M.D. Lond., F.R.C.P., Hon. D.Sc. Oxon; M.D. Dublin; F.R.C.P.I., LL.D. Aberd. and Birm.; Physician in Ordinary to H.M. the King; Consul. Phys. and Emeritus Lecturer on Medicine to the Middlesex Hospital; and P. Horton-Smith Hartley, C.V.O., M.A., M.D. Cantab., F.R.C.P., Late Fellow of St. John's College, Cambridge; Physician with Charge of Out-Patients to St. Bartholomew's Hospital. Sixth Edition, 1921; pp. 798. Price $10. Philadelphia: P. Blakiston Son & Co.

The comprehensive heading of this book of nearly 800 pages is evidence of the vastness of the subjects covered, and the titles following the names of the authors may be taken as a guarantee of the value of the publication. To give a detailed review of the 54 chapters would require more space than any weekly medical journal could afford. The book is virtually a review of all that is known up to date of the anatomy, physiology, pathology, bacteriology, physical diagnosis and treatment of diseases of the chest, including not only, as the title indicates, tuberculosis and mediastinal growths, but also diseases which are usually not described in textbooks on tuberculosis. Thus, for example, an entire chapter is consecrated to each of the following diseases: Hydro- and Pyo-pneumothorax; Hemothorax in civil life as well as hemothorax following wounds of the chest; Chylothorax (pleuritic effusion, non-purulent, resembling milk in appearance); Bronchitis, narrowing and dilatation of the bronchi; Foreign bodies in the air passages; Asthma; Pulmonary vesicular emphysema; the various types of pneumonia covering four chapters. Edema, abscesses, gangrene and hydrated diseases of the lungs receive careful consideration; so does syphilis, actinomycosis, sporotrichosis, and aspergillosis.

Twenty-six chapters, covering 318 pages, are devoted to tuberculosis in all its phases, including etiology, pathology, symptomatology, complications, sanatorium treatment, specific treatment, artificial pneumothorax. In the chapter on etiology the reviewer found a statement of peculiar interest to tuberculosis workers in the United States. The mortality of grinders in England from all causes is not less than 30.9 per 1000 living, of pulmonary tuberculosis 15.0 and of other respiratory diseases 5.6. A similar though not quite so bad a condition in our own country prompted the National Tuberculosis Association to appoint a committee last year to study this problem with a view to diminishing the fearful death rate. A very satisfactory report was made at this year's meeting of the National Tuberculosis Association with suggestions for improvement by Dr. D. C. Jarvis of Barre, Vt., under the title, "A Clinical Study of Granite Dust Inhalation."

Because of our present situation regarding alcohol as contrasted with that in England, the following statement is not without interest. Here is what the distinguished authors have to say: "Alcohol is believed by many to be a potent factor in the etiology of the disease, and French statistics are quoted as showing a parallelism between the death rate from tuberculosis and the amount of alcohol consumed. In England, according to our experience, the majority of phthisical patients show no evidence or history of alcoholism, and for ourselves we doubt whether alcohol is *per se* a favoring agent to tubercle. There can be no question that, if taken in such excess as to produce the disease of chronic alcoholism—cirrhosis, alcoholic bronchitis, pharyngitis, or peripheral neuritis—it does beget a tendency to the acquisition of tubercle; even then, however, the disease is apt to run a chronic course."

It is regrettable that under treatment only sanatorium and climatic treatments are considered. The home treatment which had its origin in the excellent result obtained at Brompton, England, has not received any consideration at all, which, in view of the fact that the sanatorium is not available to all tuberculous patients, is an unfortunate omission in an otherwise so complete and excellent work. Printing, illustrations and binding are excellent, and the book can be recommended as one of the best textbooks on tuberculosis now in existence.

Treatise on Fractures in General, Industrial and Military Practice. By John B. Roberts, A.M., M.D., F.A.C.S., Emeritus Professor of Surgery in the University of Pennsylvania Graduate School of Medicine; President of the American Surgical Association; Membre de la Société Internationale de Chirurgie, and James A. Kelly, A.M., M.D., Associate Professor of Surgery in University of Pennsylvania Graduate School of Medicine; Attending Surgeon to St. Joseph's, St. Mary's, St. Timothy's and Misericordia Hospitals. Second Edition, Revised and Entirely Reset. Price $9.00. Philadelphia and London: J. B. Lippincott Company.

The first edition of this very practical treatise was published five years ago, since which time war experience has brought us many lessons of great value, especially in the treatment of compound fractures by projectiles, and has led us to revise some of our previously most cherished views. The knowledge so gained has been utilized by the authors in bringing their book fully up to date. The illustrations, of which there are more than nine hundred, most of them naturally roentgenograms, are excellent. The preface contains twenty-six axioms regarding the treatment of fractures, which the young practitioner may advantageously learn by heart, for they may save him, in case of emergency, from much trouble by starting him aright. The book is a capital and reliable guide to the diagnosis and treatment of fractures.

Therapeutique Clinique. Par Dr. Alfred Martinet. In Two Volumes. Paris: Masson & Cie., 1921.

The first volume of this commendable treatise comprises two sections which deal respectively with Therapeutic Agents and Therapeutic Techniques. The author is assisted by eight collaborators. The section on Therapeutic Agents is grouped by systems—the drugs most in vogue for the circulatory, respiratory, renal, nervous and other systems. In this plan cardiac stimulants and drugs which act on the peripheral circulation are followed by diuretics, urinary antiseptics, expectorants, purgatives, antispasmodics, hypnotics, etc. Ranked with drugs are diet, physiotherapy and psychotherapy. Under Therapeutic Techniques we find the resources of minor surgery, also grouped by the organ-systems. The author considers cutaneous (subcutaneous), circulatory or vascular, respiratory, urinary, digestive, and nervous system techniques. Under the last named we find lumbar puncture and spinal analgesia, under the digestive system gastric lavage and colonic irrigation, etc.

The second volume comprises two sections, viz., Treatment of Symptoms and Treatment of Diseases. The pages are so numbered that the two volumes can be found together in one book of 1340 pages containing over 300 illustrations. The section on Treatment of Symptoms is arranged alphabetically, beginning with Adenopathies and ending with Vomissements. The section on Treatment of Diseases begins with the Circulatory System, proceeding to the Respiratory System, and in succession the Urinary and Gastro-enteric Systems, Diseases of Nutrition, the Nervous System, Infectious Diseases, and so on. Some duplication is hardly avoidable. Thus under Treatment of Symptoms we find Edema, both cardiac and renal, which naturally is found again under Circulatory and Renal Disorders. It is, however, easy to make use of cross-references.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Thirty-third Annual Meeting, Held in Swampscott, Mass., June 2, 3 and 4, 1921.

THE PRESIDENT, DR. JOHN HOWLAND OF BALTIMORE, IN THE CHAIR.

President's Address.—Prolonged Intolerance to Carbohydrates.—Dr. JOHN HOWLAND of Baltimore delivered this address, in which he stated that many children with a prolonged sugar intolerance had a tendency to diarrhea even when taking woman's milk. It was apparently the sugar and not the fat that was responsible as was suggested by the fact that a diet deficient in sugar was borne even though it contained a considerable proportion of fat. Another important condition was the prolonged carbohydrate intolerance that developed after severe diarrhea, especially after numerous attacks of diarrhea. The first indication in these cases was to reduce the sugar to its lowest limits in a food which furnished the other requirements for adequate nutrition. Nothing could compare with protein milk in this respect. A polysaccharid such as farina was not only well borne at times but might even have a marked constipating effect. Young infants usually would not tolerate this, though with older infants it might be strikingly successful. These forms of carbohydrate intolerance were confined almost entirely to the first two years. Another form of carbohydrate intolerance occurred in children of all ages. It was commonly known as chronic indigestion or as intestinal infantilism of Herter. It had been found that, of all the elements of food, carbohydrate was the one that must be vigorously excluded. The dietary treatment might be divided into three stages: (1) That with protein milk alone which could be said to be more likely than any other food to bring satisfactory results. The protein milk stage should be continued until the stools were firm, distention slight, gas not in excess, and appetite good. (2) In this stage the diet should consist of protein milk as a basis reinforced by almost pure protein foods, such as curd without whey, scraped meat, certain forms of cheese, egg white, and eventually whole egg. The duration of this stage was many months; it might be years. This was not an ideal diet but it was an adequate diet. (3) In this stage carbohydrates were added very gradually with most careful observation of the digestive capacity. Bread, cereal, and potato were the last articles that could be allowed. The treatment was time-consuming but these patients repaid well the time spent upon them.

Blood Studies in the New Born.—Drs. WILLIAM PALMER LUCAS, BRADFORD FRENCH DEARING, and HAL R. HOOBLER of San Francisco presented this paper, in which they attempted to bring together the morphology, chemistry, coagulation, and pigment metabolism into a combined study of the blood of the normal newborn infant. The blood was obtained from a few hours after birth to the fourteenth day. Most of the figures represented serial studies obtained on alternate days from the same baby. In this way 150 babies were studied. The hemoglobin was high at birth, the average being 117, and gradually decreased thereafter. The hemoglobin of the sinus blood tended to be higher than that of the peripheral blood. The red blood cells were high during the first week and then gradually decreased, corresponding closely with the hemoglobin estimations. The same leucocytosis was observed as had been noticed by various authors, though it was by no means constant. The leucocytosis during the first week was definitely due to the polymorphonuclears. This continued to be so until the seventh day during which day the polymorphonuclears gradually declined, reaching the same level as the lymphocytes. The lymphocytes during the same period gradually increased and were still increasing at the close of these observations on the twelfth day. There was slight increase in the transitional cells which towards the end of the period of observation decreased slightly. The same was true of the eosinophiles. These counts in the sinus blood again showed a slight increase over those of the peripheral blood. The platelet counts during the first eight days corresponded very nearly to those of Dr. Mary E. Morse, who found immediately after birth, a blood count which varied from 412,000 to 100,000. They did not find any counts, however as low as the latter figure, the lowest figure being 195,000 on the eighth day. Neither were the platelets reduced in cases in which the coagulation was prolonged, nor was there any difference in cases that were markedly jaundiced and those that were slightly or not at all jaundiced. The estimations on nonprotein nitrogen, urea and uric acid, creatinine, sugar, and carbon dioxide had been repeated. They were unable to find any values on the carbon-dioxide combining power made on the blood of the newborn. Except for the low estimations which were found for sugar during the first four or five days their findings corresponded well with those of Sedgwick and others. Their explanation for the low sugar finding was that the infants were breast fed and received no supplementary food except water. Graphic curves showed a very definite drop in the nonprotein nitrogen, urea, and creatinine during the first few days and a definite rise in the carbon dioxide curve. During this period there was a high body metabolism. Forty-seven calcium determinations on twelve infants, ranging in age from one to twelve days, showed that the average calcium content of the plasma was higher in the new born than in older children. There was a constancy of the plasma volume throughout the series, each determination varying less than 1 mg. per 100 c.c. from the general average. Apparently in man a drop in plasma did not occur during the first twelve days in life. In general the corpuscle values tended to decrease slightly during the first few days. On the other hand there was a tendency for the whole blood values to increase. With reference to the coagulation time, any method which used a puncture wound must of necessity have certain inherent errors. The method used in these estimations was to obtain blood from the longitudinal sinus with an all-glass Luer syringe carefully sterilized. During the first five days there was a definite prolongation of the coagulation time. This showed clearly that during these first few days there was a definite and fairly constant condition in the blood of the newborn which favored the socalled hemorrhagic conditions of the newborn. During the period of prolonged coagulation time the serum-bilirubin curve was also increased, but it did not seem to affect the coagulation time in cases of marked jaundice. The prothrombin factor was investigated and it was proved that when the coagulation time was prolonged the prothrombin element was definitely diminished; after the fourth day the prothrombin apparently reached normal levels, though it might be delayed several days longer. The blood of the newborn did not show any defect in retractibility of the clot and there was no fibrolysis. This was exactly the condition that existed in hemophilia. They felt confident, therefore, that the factor involved in the ordinary case of hemorrhage of the newborn was due to diminution in the prothrombin element which was mainly derived from platelets and the defect was essentially a qualitative one of the platelets. So far as they had been unable to show the presence of any urobilin in the stools of newborn infants during the first twelve days of life, nor had they been able to demonstrate urobilin in the stools of infants up to ten weeks of age, although in older children it was easy to demonstrate its presence. Ninety cases were examined for bilirubin by a method which the writers proposed; of these 72 showed a positive reaction. At present they did not feel in a position to discuss what became of the red blood cells but they felt that this method of testing bilirubin gave a much better means than we had hitherto possessed of attacking this problem.

Dr. ALFRED F. HESS of New York said that the most remarkable thing about this study was the prolonged coagulation time of the blood in these newborn infants. This would indicate that they had latent hemophilia. These figures made one wonder that we did not see hemorrhage in the newborn more often. As these were normal figures the question came up as to what the figures would be in hemorrhage of the newborn.

Dr. FRITZ B. TALBOT of Boston said the blood-sugar studies were interesting compared with the respiratory quotient. The blood sugar was lowest at birth and rose on the third day and this was consistent with the respiratory quotient which went down and then on the third day began to rise. It shows that whatever sugar came into the world with the infant was used up quickly. These were very low figures compared with those of Folin.

Dr. LUCAS said that as to the question Dr. Hess had raised, that of potential hemophilia, they had found a coagulation time up to forty-five minutes without any bleeding at all. It was the same question that had come up in reference to hemophilia, namely, why the hemophiliac did not bleed all the time when the coagulation time was prolonged all the time. As to the sugar curves, they thought these very low and repeated the observations with the same results.

Some Observations on the Socalled Inanition Temperature of the Newborn.—Drs. CLIFFORD G. GRULEE and B. E. BONAR of Chicago presented this paper, which consisted of a study of 183 newborn infants with regard to transitory fever. They stated that for years it had been recognized that in a certain percentage of infants there occurred in the first few days of life a rise in temperature. This fever had not been accounted for satisfactorily. It offered an example of a febrile condition apparently simple in nature and it was thought that a careful clinical study of this condition might throw some light on the immediate factors that caused rise in temperature. The cases were divided into groups, according to weight. For normal cases the average weight loss was 6.2 per cent.; for 46 cases with a temperature between 99.2° and 100° F., the weight loss was 6.2 per cent.; for 16 cases with a temperature between 100.2° and 102° F., the average weight loss was 11.2 per cent. While at first glance this appeared to be significant, still if one examined carefully the individual cases it was found that among the cases with normal temperature the loss of weight was as great as 17.3 per cent., which was higher than in any case with fever. Their studies forced them to the conclusion that the temperature rise was not regularly to be explained on the basis of dehydration. The increased permeability of the intestinal mucosa for egg albumin during this period of life, the confirmation of the observation of von Reuss in regard to the finding of indican in the newborn, and the fact that the intestinal canal within twenty-four hours after birth was invaded by bacteria as far as the pylorus, suggested that the temperature elevation at this time might be ascribed to the absorption of some protein products, bacterial or otherwise, from the intestine of the newborn. With the stimulation of digestion and the flow of gastric and intestinal juices produced by taking in of foods, the meconium, which before contained small quantities of fluid and therefore a humidity too low for the growth of bacteria, was invaded by bacteria. The meconium consisted almost entirely of protein material, the destruction of which would most readily account for the presence of indican in such a large proportion of urines from newborn infants. With the introduction of breast milk the putrefactive processes in the intestines were reduced and there was a fall in temperature.

Dr. ROLAND G. FREEMAN of New York said he was disappointed with the results. It had seemed that dehydration did cause fever and that this would explain socalled inanition fever.

Dr. GRULEE said he shared Dr. Freeman's disappointment. He had hoped to be able to find that the fever in these cases was due to desiccation, but could find no such evidence in this investigation.

A Clinical Report of Simple Methods in the Care of Premature Babies.—Dr. WALTER LESTER CARR of New York presented this contribution, based on observations made at the Manhattan Maternity Hospital and Dispensary and the Woman's Hospital. The incubator room at the Manhattan Maternity was 6½ feet by 7, with a ceiling 12 feet high, and a single door opening from the main nursery. The air intake was from the window by means of a flue 9 by 2 inches. The air was carried back of a radiator. The room temperature was kept at 80° F. The incubator consisted of an aluminum tray with a hood which left the baby's head exposed. Over the open end there was a curtain to protect the baby's head and body. In the top of the incubator there were three openings for electric lights, placed on elbows so as not to interfere with the clothing. One 15 Watt light would give the incubator a temperature of 76° F.; two a temperature of 88° F., and three a temperature of 96° F. in three-quarters of an hour. A thermometer was placed inside the incubator where it could be observed by the nurse. A moderate heat was better than a constant high temperature. At the time of birth premature babies were anointed with oil but not bathed. The eyes were treated and an umbilical dressing applied. Diapers of cheesecloth and cotton were used. The more premature a baby the more feeble was its digestion. Breast milk should be given if it could be obtained. It should be drawn from the mother or wet nurse, diluted with equal parts of 5 per cent. milk sugar solution and fed with a medicine dropper or a Breck feeder. Premature babies did not bear high fat and this might give trouble even with mothers' milk. If cows' milk had to be given it should be boiled and diluted as ordered. Water must be given freely. Feeding intervals should be about two hours apart and should not exceed one or two drams each time. Whenever possible, feeding should be done without removing the baby from the incubator. Cane sugar was given to babies who had a persistent low temperature and it apparently helped heat production. Whatever methods of feeding were used it was essential to realize that the caloric requirements were high. Gavage and hypodermoclysis were sometimes employed. The administration of fluid through the longitudinal sinus was not a safe means of combating loss of weight as the sinus was small and pliable; other methods were less dangerous in babies under four pounds. Thirty premature babies were observed at the Manhattan Maternity, which was less than half of 1 per cent. of the number of confinements. The average weight of the babies on leaving the hospital was 4 pounds and ¾ ounces. The routine was to keep the baby in the hospital until the weight approximated 4 pounds. The average time the incubator babies were kept in the hospital was 36.8 days. Premature babies were prone to be rachitic.

Dr. HENRY DWIGHT CHAPIN of New York said that in the care of premature babies two things were of importance, the temperature of the incubator and the food, and of these the food was the more important. In his experience with several hundred incubator babies he had never been able to raise one without breast milk. In the exhibitions of incubator babies given for pay they always gave the babies breast milk and placed less importance on the temperature.

Dr. ISAAC ABT of Chicago said he had in mind just what Dr. Chapin had said with this addition, that ordinarily the temperature of the incubators was too high. These babies did not need a temperature of 80 degrees; 75 or a little over was enough. If the incubator was overheated the baby did poorly.

Dr. L. E. LA FETRA of New York said that in his experience a temperature of about 76° F. was best. If the temperature was higher the air became too dry and this caused the baby's lips to crack and exposed the child to infection. Feeding was very important and breast milk was desirable, but where it could not be obtained a modified milk which had been peptonized might be used with success.

Dr. FRITZ B. TALBOT of Boston said that temperature was almost equally as important as food. It did not make so much difference what the room temperature was, the important point was whether the baby's temperature was normal. The basal metabolism figures were important. A premature baby fell into the class of cold-blooded animals. The temperature was dependent upon the rate of metabolism in these babies. When the temperature was subnormal the basal metabolism was subnormal. The babies with subnormal temperatures did not gain until the temperature became normal, and when they began to gain the metabolism went up.

Dr. FREDERICK H. BARTLETT of New York emphasized the method of feeding. Not only the temperature and the kind of food were of importance, but the way in which the baby was fed often made a difference whether it remained stationary or gained in weight. It might be necessary to use a Breck feeder or gavage.

This was worth while insisting upon. The introduction of fluid would also help to establish a gain in weight and to prevent exhaustion.

Dr. J. P. Crozer Griffith of Philadelphia described an asbestos incubator which they were using. The baby was on a mattress placed on an asbestos tray which was over the lights. This worked well in the absence of a warm room. These babies required considerable heat. As soon as the temperature went down the babies did badly. The same thing was true of babies with malnutrition.

Malnutrition in Children of the Well-to-do.—Drs. Charles Gilmore Kerley, Edward J. Lorenza, Jr., and Roger DuBose presented this communication, in which they described a type of case of malnutrition which was referred by the family physician or brought independently, because the child remained persistently an inferior individual from a physical standpoint. These cases fell into groups. First there were those in which there was a maladjustment of the different food elements. Usually butter, cream, and 4 per cent. milk fat had been crowded. From the caloric standpoint the children had been fed above their requirements. The essential foods—meats, cereals, vegetables, and fruits were taken indifferently. In the management of these children the fact must be recognized that there must be a healthy desire for food and this was created by the withdrawal of fats and sugars in large measure. Three meals were given daily at five hour intervals, and nothing but water was allowed between meals. A low fat and sugar diet was given and skimmed milk, 16 to 20 ounces, only was allowed. In a second group hyperacidity of the stomach juices caused defective food intake and malnutrition, largely through the production of a poor appetite. The chief symptom of hyperacidity was a lack of desire for food. In cases of long standing nausea and vomiting were prominent symptoms. The pain and discomfort were greatest before meals. These patients usually responded to dietetic treatment. Three meals suitable for the age were given and usually nothing between meals but water. Extremes as regards temperature of foods and drinks were avoided. Condiments, candy, pastry, and raw fruits were excluded. A powder consisting of bicarbonate of sodium, 2 grains; bismuth subnitrate, 2 gr., and magnesium carbonate was given fifteen minutes before meals. A daily evacuation of the bowels was arranged for. A third group of cases were those in which defective intestinal mechanics delayed stomach emptying. For a child to have a normal desire for food there must be an interdigestive period of one hour. Retention was often due to pylorospasm occasioned by an anomaly or lesion lower down in the intestinal tract. In this group they had demonstrated ptosis, angulation, dilatation, sacculation. It was quite obviously impossible to outline a plan of management that would apply to all cases. A fourth group, comparatively small, contained the greatest number of failures. These were the underweight over-active, anemic, physically retarded, precocious children that one saw only occasionally before the third year. For this type of children Dr. Kerley said he had borrowed from the stock farmer the term "poor individual," and he marked them 50, 60, or 70 per cent. individuals. In conversation with Professor Lafayette Mendel he had suggested that the deficiency might relate to defective vitamine intake or defective vitamine utilization. In 125 cases they had used dried brewers' yeast, but a careful analysis of the histories failed to show that there was any benefit from the administration of the yeast. What favorable results they had had followed a plan of rest cure and a curtailment of activities, with school attendance delayed a year or two. Endocrine therapy, with the exception of the use of thyroid in the cretin, had been unsatisfactory.

Dr. L. Emmett Holt of New York said it seemed absurd to discuss in a society like this the abuse of over-feeding children, and yet he was glad Dr. Kerley had brought it up, since they still saw it practised not only by the general practitioner, but by the pediatrist. We still had a great deal to learn as to the amount of food a child could utilize. When a child refused to eat the food set before him, it should be taken away and nothing given him until the next meal time.

Dr. Henry Dwight Chapin of New York called attention to the interesting point that Dr. Kerley was one of the first to report results as to the use of yeast. It was time something was said about it. The newspapers were advertising yeast and saying "A yeast cake a day will keep the doctor away." He believed that if this society said something on this subject it would have an effect on these advertisers and would do some good.

Dr. Langley Porter of San Francisco spoke of fatigue as a factor in these forms of malnutrition. If one put these children to bed and saw that they rested they often improved very promptly.

Some Results of Studies of Anaerobic Bacteria in the Infant Intestine.—Dr. Langley Porter of San Francisco presented this contribution in which he recalled that at the 1919 meeting he had reported work done in the attempt to relate certain chemical intoxicative manifestations met with during infancy and childhood due to variations in the flora of the intestine. During this work evidence was encountered which led to the conclusion that some attacks of flatulence with abdominal distention were brought about by a preponderance of *B. welchii* in the intestines of the patient. An effective therapeutic plan for dealing with this condition was worked out and reported at the 1920 meeting. During the work they came upon certain refractory cases which made it seem that an intensive study of the anerobes to be found in the gut might aid in dealing with future cases of a like nature. In this study of anaerobes they had availed themselves of the methods developed by Dr. Hilda Heller of the Bacteriological Department of the Hooper Foundation. The attempt was made to test the influence of age, of varied diets, of the concomitant aerobic flora, and of abnormal intestinal conditions on the presence of individual anaerobes or groups of anaerobes, and evidence was sought which might relate anaerobes in the gut of the infants to clinical pictures or digestive or metabolic disturbances. The work indicated that anaerobic flora of the infant's stools was relatively simple, probably made up of a few types, the most prominent being *B. welchii, B. bifermentans, B. sporogenes*, and a terminal end sporulating organism of the tetanus amorphous group. Seventeen normal stools were studied, and so far as anaerobes were concerned 13 stools were negative and four showed the presence of *B. bifermentans*. This organism made its appearance on the fourth or fifth day. The results indicated that probably the first anaerobe to develop in the infantile intestinal tract was *B. bifermentans*. An experiment was carried out to determine the effect of a change of food and supplemental feeding on the anaerobic flora. One group of infants was kept on breast milk, using three supplements: (1) sterile water, (2) Ringer's solution, (3) saccharine water. Another group was kept on modified cows' milk, also using the three supplements. The aerobic flora was also studied to observe any change in the general type of organism present. Since there were fewer anaerobes in the infant's stool, it was not possible to note any effect of different foods or supplements. There was a change noted in the aerobic flora which had been noticed before by Eschner, namely, that the stools of the babies fed on breast milk showed the typical acidulic *B. bifidus* flora, while those fed on modified milk showed a flora of a more complex nature, approximating a semi-putrefactive flora. The three supplements had no noticeable effect on the aerobic or anaerobic flora of either group of babies. There seemed to be no relation between the flora of the mother and that of the child. Probably the child was not infected by the mother. The symbiotic relationship of aerobe to anaerobe was one of interest. It might be that certain symbioses promoted the growth of anaerobes whose by-products were harmful. In this connection the work of McIntosh on the toxicity of his "unidentified VIII," closely allied or similar to *B. bifermentans* was most suggestive. The high toxicity of this organism and the ease with which it might be overlooked led one to wonder if further investigation along this line might not throw light upon some of the obscure diseases that heretofore had been classified as intestinal intoxication.

Pneumococcus Peritonitis in Infancy and Childhood.—Dr. Henry Heiman of New York presented an analysis of five cases of pneumococcus peritonitis seen

at Mount Sinai Hospital within the past eight months. Pneumococcus peritonitis was a rare disease. During five years 125 cases of genuine peritonitis were admitted to the children's wards of Mt. Sinai Hospital, and the pneumococcus was present in but 15. The disease was more prevalent under 15 years of age. The majority of writers had noted the high incidence of the disease among females. In this series 13 were females and 2 males. The appearance of the peritoneal cavity was pathognomic. There was a diffuse inflammatory process characterized by the deposit of a large quantity of fibrin on the viscera, often matting together loops of intestine. The free pus was of a greenish yellow color, odorless, and containing flakes of fibrin. In some of the cases the process tended to become localized, adhesions developed, and abscesses formed, usually in the umbilical region. In nine cases in this series the type of disease was determined. In five cases it was Type I; in but one case it was Type II; in no case was it Tye III; in three cases Type IV. In five out of eight cases blood cultures were positive for the pneumococcus. A high leucocytosis was characteristic in these cases. The course of the disease was divided into three phases: (1) Sudden onset with severe abdominal pain, rising temperature, rapid pulse and prostration. The pain was usually generalized; it was most marked in the right lower quadrant. The degree of abdominal rigidity was not as marked as in other forms of peritonitis. Signs of fluid were not often elicited. (2) In this stage the condition improved. (3) This phase was characterized by the presence of a circumscribed mass in the abdomen, usually in the umbilical or hypogastric region. The temperature rise became intermittent and the patient gradually lost strength from the toxemia. Death ensued from toxemia or recovery might follow spontaneous rupture through the abdominal wall following operation. He did not agree with Mechant that diffuse and localized forms of the disease represented two entities caused by different strains of the organism. From acute appendicitis the diagnosis was most difficult. An overwhelming toxemia giving rise to early prostration, anxious expression, gray color, and sunken eyes were diagnostic of pneumococcus infection. Abdominal aspiration was used in four of their recent cases and the diagnosis of pneumococcus peritonitis was made in all of them before operation. An ordinary hypodermic syringe was used with the finest calibered needle. The point of preference for puncture was one inch below and one inch to the left of the umbilicus which would penetrate an area over the small intestines only. They were able to secure sufficient pus for smear examinations and cultures in all cases. The prognosis depended upon the localization of the inflammatory process and the involvement of other organs. Whipple had reported good results following the injection of antipneumococcic serum. Dr. Heiman had employed it intensively in four cases without avail. In those cases which presented localized collections of pus, all writers agreed that surgical intervention should be employed. There was difference of opinion in regard to the correct procedure in the acute diffuse stage of the disease. They believed the best treatment was to give an abundance of fluid by hypodermoclysis and proctoclysis, and to keep the patient under the influence of opium during the acute onset of the diffuse process. If toxemia tended to lessen it was advisable to wait for abscess formation before opening the abdomen. If, however, under supportive treatment no signs of improvement appeared, it was best to resort to surgery.

Dr. OSCAR M. SCHLOSS of New York mentioned that in puzzling cases in which there were no symptoms pointing to peritoneal infection they had found that it was sometimes possible to get fluid with a capillary needle when by aspiration they could get none. The needle was so constructed that it could not pass beyond the trocar except for a very small distance.

Dr. L. EMMETT HOLT called attention to one type of pneumococcus peritonitis in which the peritonitis was a part of the general pneumonitis, in which one found a pericarditis and a peritonitis. Frequently it gave no symptoms and was found only at autopsy. The diagnosis was almost impossible. The test Dr. Schloss spoke of might be very useful. Dr. Gibson was unqualifiedly in favor of operation in pneumococcus peritonitis, and his statistics showed a large percentage of recoveries. Evidently there was a difference of opinion on this point, and also as to whether the peritonitis was first generalized and then became localized or whether it was first localized and then became generalized. There was a question whether these children should be subjected to operation; he did not think this question had been settled.

Dr. ISAAC ABT of Chicago stated that he had seen quite a number of these cases. They usually ran a short and malignant course and were difficult to diagnose from appendicitis or ordinary peritonitis. A peculiar condition might occur during the course of the disease. The disease started with a severe, stormy onset. After two or three days of high fever and great toxemia, the patient lapsed into a calm semicomatose condition which reminded one of the condition seen when the appendix had ruptured. This was the condition which the surgeons called a "deceptive calm." After this the patient went rapidly downward and died. It seemed to him that even if one made an aspiration there would be some difficulty in telling whether one was dealing with a general peritonitis or a ruptured appendix. It seemed to him that exploratory operation might be justified and then one would know definitely whether or not an appendectomy was justified.

Dr. CHARLES GILMORE KERLEY of New York said he had seen quite a number of cases of pneumococcus peritonitis, all of the fulminating type. In one instance the child developed a paralytic ileus and died.

Dr. J. P. CROZER GRIFFITH of Philadelphia called attention to the difficulty in the early diagnosis of telling whether one was dealing with a true abdominal pain or a pain referred from the pleura. A referred pain might lead to the mistaken diagnosis of peritonitis. It seemed to him that it was better to take a chance until one was certain that the trouble was in the abdomen rather than to operate when it was unnecessary. He had seen instances in which early operation was performed and the patient died.

The Elements of Diet in Infancy, with Special Reference to the Employment of the Czerny and Kleinschmidt Butter-Flour Mixture.—Dr. J. P. CROZER GRIFFITH of Philadelphia said that it had long been thought that the giving of high protein percentages to normal infants was not a matter of indifference, and that the use of such food even in many cases of digestive disturbance might be harmful rather than beneficial. There was also the question whether the substitution for fat of large percentages of carbohydrates, useful as it might be in many cases, was one which was to be persisted in with entire satisfaction after health had been regained. Their conviction had long been that a relationship in the diet closer in some respects to the proportion seen in human milk was eminently desirable. Czerny and Kleinschmidt had devised a food which permitted the employment of a high fat percentage in combination with a percentage of carbohydrates also high, but with the protein reduced to approximately that of human milk. They insisted upon the great importance of having the ratio of carbohydrate and fat a fixed one. As soon as this relationship was altered, their results were not so good. They believed their good results were to be ascribed in part to the driving off of the volatile fatty acids from the milk fat, in part to the admixture of an amount of flour equalling that of the fat, in part to the chemical alteration of the flour produced by the browning which occurred during the preparation, and in part to the low protein percentage, the last being particularly important in weakly young infants. The proportions recommended were 20 grams of butter, 20 grams of flour, 15 grams of sugar, and 300 grams of water, but the relationship of butter to flour must remain the same. In preparation 20 grams of butter were placed on a pan and heated over a gentle fire until foaming took place and until the odor of the volatile fatty acids had disappeared. This required five to eight minutes; 20 grams of wheat flour were then added, the whole was boiled, rubbed through a sieve, and then mixed with the desired amount of previously boiled and cooled milk. For children under 3,000 grams in weight, one-third milk was added to two-thirds butter-flour mixture. For those 3,000 grams or over two-fifths of milk and three-fifths of butter

flour mixture were used. Not more than 200 grams per kilo body weight (about three fluid ounces per pound) should be given daily, and usually smaller amounts than this owing to the high caloric value of the food. Children fed in this way resembled healthy breast fed children. The improvement in general appearance and condition was striking, particularly in the development of fat in the lower part of the body. Results were particularly fine in weakly and premature infants, weighing less than 3,000 grams.

Personal Experience in Feeding Infants the Czerny-Kleinschmidt Butter-Flour Mixture.—Dr. A. GRAEME MITCHELL of Philadelphia read this paper in which he reported his experience with the butter-flour mixture in 32 infants. Emphasis was laid upon the necessity of following closely this method. For convenience they had estimated the amounts in tablespoonfuls. Thus it was sufficiently accurate to use 2 level tablespoonfuls of melted butter, 2½ tablespoonfuls of flour, 1½ tablespoonfuls of sugar, to 10 ounces of water. In whatever way the mixture was modified the amounts of butter and flour remained equal. In some cases the sugar should be decreased in amount or omitted entirely. It was quite easy to manipulate the percentages of fat, carbohydrates, and protein in this food as indications arose. Based upon the analysis of Dr. Leon Jones of the Pepper Medical Laboratory of the University of Pennsylvania, one fluid ounce of stock solution might be said to represent 26.6 calories. The mixture containing two-thirds of the stock solution and one-third milk might be said to represent fat 4.6 per cent., carbohydrates 8.2 per cent., protein 1.5 per cent., with a caloric value of 24.6 to the fluid ounce. Dr. Jones found that the fat of the stock solution after cooking consisted entirely of neutral fat and that no trace of fatty acids were to be found. This mixture, like other foods, had its indications and counterindications, and success in feeding depended upon the proper selection of cases. The food should be used cautiously if at all to infants suffering from infantile atrophy. They had found that it was the infant whose low body weight was due to failure to properly metabolize sufficient cow's milk fat who responded most favorably to the Czerny-Kleinschmidt mixture. In spite of high fat contents, vomiting seldom occurred. The removal of a baby from the butter-flour mixture was not a procedure to be accomplished quickly. Of the 32 infants fed on butter-flour mixture, 23 responded favorably by gain in weight and improvement in general condition. The two great lessons the study taught were: (1) That when fed with butter-flour infants might tolerate fat in a manner which could be accomplished probably by no other means as yet known to us. (2) That the truly remarkable results which often followed were a strong proof of the great need which the infant's anatomy possessed for a food containing a sufficiently large amount of fat.

Dr. CHARLES GILMORE KERLEY of New York said this was quite an involved proposition to put into the average family, and he did not see the necessity of following so many new and strange gods. Rotch had established the percentage method of feeding, and if one was having trouble with a difficult feeding case, he could write a prescription with the exact amounts of the various food elements. It seemed to him we were striving unnecessarily for new procedures. Too many proprietary preparations were being used by men too lazy to study up the suitable formula for the child. It would be well to recall some of the things taught some years ago and forgotten.

Dr. OSCAR M. SCHLOSS of New York stated that they had used the butter-flour mixture and had had the identical experience reported by Drs. Griffith and Mitchell. He thought that many babies did better on this mixture than when fed according to routine methods.

Dr. HENRY DWIGHT CHAPIN of New York said there might be danger in gettings things too simple. It might be possible to cut off the fats too much. A few years ago they were feeding all fats; now it was low fats or no fats. He thought the reason for this was the custom of estimating the caloric food requirements. It should be remembered that the different food elements were not interchangeable and particularly in early life. These papers were valuable because they showed how, in a certain class of cases, to keep the fats high.

Dr. L. EMMETT HOLT of New York expressed the opinion that the protein content of the butter-flour mixture was too low for a long continued diet. The formulas of Rotch were based on the 3-6-1 ratio and after physicians used this ratio for a time they found that it was unsuccessful. They came to believe it was because of the high fat content, but he thought that it was the low protein rather than the high fat that accounted for the failure.

Dr. ALFRED F. HESS of New York stated that the diets upon which the babies in the Hebrew Infant Asylum did best were the Schlüss milk, made of 160 c.c. of cream and 160 of milk to the liter, to which was added a certain amount of flour and sugar. It was similar to this mixture except that the fatty acids were not driven off. On that diet the children not only thrived but the texture of the skin and muscles was better than in the average bottle fed baby. This seemed to occur in spite of the fact that it contained fatty acids.

Dr. J. CLAXTON GITTINGS of Philadelphia stated that he had had babies gain in weight with this method of feeding. He emphasized the fact that the composition of the butter-flour stock did not represent the final percentage of protein, but only that before the milk was added.

Dr. GRIFFITH of Philadelphia said that twenty-five physicians had used the butter-flour feeding and admitted that the results were surprisingly good. This was not meant for temporary feeding, but was a permanent food.

Dr. MITCHELL, in closing the discussion, asserted that the butter-flour method of feeding was a percentage method. It was an easy and simple method of feeding but not a lazy one. It was simply a way to get an infant to take more fat. It was a method that helped infants that did not get along well on cow's milk mixures, and it might be true that it could be used indefinitely.

The Use of Thick Cereal Mixtures in Difficult Feeding Cases.—Dr. HENRY DWIGHT CHAPIN of New York read this paper. (See page 539.)

Dr. CHARLES HENDEE SMITH of New York stated that the babies at Bellevue were put on thick cereal gruels by the interns' orders, and many children retained these gruels when they could keep nothing else down. They had a formula for which he thought Dr. La Fetra was responsible, which called for one tablespoonful of farina to five or six ounces of milk and water. It was practically the same as the formula Dr. Chapin had given.

Dr. HENRY HEIMAN of New York said he thought they ought to welcome any new mixture that would feed ten to fifteen per cent. of difficult feeding cases. All babies, however, could not take these foods. He thought they all recognized that they had to adapt the food to the baby and not the baby to the food. It was their duty to try all these methods, and thick cereal mixtures were useful in some cases.

Dr. J. P. CROZER GRIFFITH stated that some babies did surprisingly well on these thick cereal mixtures. They had a very capable nurse who succeeded in getting the babies to take these mixtures by taking the rubber one-half of a hygiea bottle and with a spoon pushing the cereal through so that the baby sucked it.

Dr. ROWLAND G. FREEMANN of New York said these thick cereal mixtures were most successful for vomiting babies. He had used them with great success and thought it strange that more physicians did not prescribe them. When they saw babies growing atrophic they used these thick cereal mixtures. They had used a mixture as strong as a teacup of cereal to ten ounces of milk and water.

Dr. CHARLES GILMORE KERLEY of New York stated that he had used thick cereal feeding in 14 cases of persistent neuropathic vomiting with very decided success. It had been a means of inestimable value in the type of children mentioned. He had used Dr. Mixsell's mixture consisting of farina, cane sugar and dextromaltose.

Dr. LANGLEY PORTER of San Francisco said he had been using thick cereal feeding for a number of years, and had been impressed with the fine condition of the children fed in this way; they were solid and hard like well-fed breast babies. He supposed the good result

was due to the fact that these flours were high in salts and the mineral balance was well maintained. Some babies on farina became constipated and a few had diarrhea. In some babies they had found that rice flour cooked in the same way would enable one to continue thick feeding and to overcome diarrhea. On the other hand it had been brought out at St. Paul that rye flour was a laxative and by using it constipation might be overcome and the thick cereal feeding continued. They used a double boiler and cooked the cereal two hours. They used one tablespoonful of farina to 5 of liquid, 1 of rice to 7, and 1 of rye flour to 6, to get good results. They had been much impressed with the value of thick cereal feeding in all cases in which high saccharolytic bacteria were found and where the stools were frothy and acid.

Dr. ISAAC ABT of Chicago said he was not opposed to thick cereal feeding, but he wished to call attention to one danger, and that was that by feeding a high starch percentage one might produce indigestion. One should watch the percentage of starch and see that it was not too high. If one made the mixture with skimmed milk this danger might be produced easily. He thought it should be emphasized that the protein side must not be disregarded.

Dr. KENNETH BLACKFAN of Cincinnati emphasized the desirability of giving water with thick cereals and starchy foods. He said they had used these starchy foods for a long time. Dr. McClure had used them in infants with pyloric stenosis and malnutrition who were not doing well on whole milk.

Dr. CHAPIN, in closing the discussion, said that these feedings were only for temporary use. They were for those cases that had lost weight and in which the loss could not be stopped by ordinary means. All these babies were tried on normal formulas before thick cereal feeding was resorted to. He had found that the degree of thickness given by these formulas was better than that of the thicker mixtures. His nurse had improved upon the method adopted by Dr. Griffith's nurse. She pushed the cereal from the spoon into the baby's mouth with a tongue depressor. This was simply another method of feeding atrophic babies for a time until one could get them on a more rational formula.

Critical Consideration of the Four-Hour Nursing and Feeding Interval.—Dr. THOMAS S. SOUTHWORTH of New York read this paper, in which he stated that the four-hour interval had been advocated by Czerny and had been widely adopted in the expectation that it would clear away many of the difficulties of the nursery. Within limits it had proved helpful, but like many other dicta from "Mittel Europa" it was too sweeping for universal application. The four-hour interval seemed to be admirably adapted for the vigorous normal infant at full term, nursing a normal mother with an abundant supply of good breast milk. However, this group throve in former days with regular three-hour intervals or two-hour intervals, or indeed in unregulated cases in which the infant asserted its own times and requirements. There were certain types of more exceptional cases in which the longer interval proved distinctly superior. Two of these stood out in their appeal to the obstetrician. One was when there was tenderness of the mother's nipples with the risk of infection and mammary abscess, and the second type was that in which there was over-rich fat breast milk. Mothers also found the longer interval to their liking as giving them more freedom, and they naturally favored it and advertised it. Many obstetricians were the first to adopt it, and when the case reached the general practitioner, he continued the custom. However, the longer interval found useful in meeting or avoiding certain conditions of maladaptation, when adopted too enthusiastically as routine, worked injury to other more important types of maladaptation.

Premature infants required more frequent feeding than those at term. Of the full-term infants there was the sluggish dormant infant with difficulty stimulated to take a sufficient supply of breast milk in five nursings; there was the baby who was too weak or learned with difficulty to take the nipple, especially from moderately malformed breasts and did not empty the breast; the nervous and inexperienced mother who did not know how to cooperate with the baby and defeated its efforts; there was finally the large and perhaps increasing number of mothers whose breast milk, while scanty and insufficient, was capable of being made abundant enough to establish maternal nursing wholly or in part if stimulation was maintained with adequate frequency. For these above cases the four-hour interval was irrational and injurious.

Complemental feedings given at the conclusion of nursing, to make up deficiency in breast milk, were always justifiable when occasion demanded and should be employed more frequently, but the substitution ignorantly made of one or more bottle feedings to take the place of already too infrequent breast nursings was the most scientific way of drying up the breast milk and precipitating unnecessary weaning. In many instances complemental feeding, coupled with a return to shorter intervals, produced the best results. Because a four-hour interval was applicable to breast feeding it did not necessarily follow that it was applicable to bottle feeding. It was a question in the writer's mind whether in the young infants who must necessarily be brought up on the bottle, the total results were any better by adopting too rigidly the longer interval.

The Effect of Compressed Yeast in the Food of Infants.—Dr. MAYNARD LADD of Boston stated that the food for an infant must have the three known vitamines—fat soluble A, water soluble B, and C anti-scorbutic, which must be present in sufficient amounts. It was no less important to have sufficient amounts of fats, carbohydrates, and protein, mineral matter, and water to meet the individual requirements of the child. Experimental feeding had been carried out in lower animals to determine the part that was played by these three vitamines in nutrition, but conclusions reached in the feeding of rats, guinea pigs, fowls, dogs and pigs might be applied too directly to infants. Osborne and Mendel, for example, had shown clearly that their experimental animals (rats) failed to show normal growth when milk was added to their diet, whereas, with a small amount of yeast normal growth followed. Ten cases were reported in which the object had been to determine whether the addition of such an accessory as yeast, which presumably was rich in water soluble B vitamine, would favorably influence the development of infants in the first year, the other factors being managed along lines of rational feeding. The cases in this series were all difficult feeders and were carefully observed for varying periods. The weight charts gave evidence of satisfactory development, but careful analysis of the rate of weight development during the periods with yeast and without yeast did not show any benefit that could be attributed to the yeast itself separate from other factors entering into the feeding problem. As to the value of yeast in furunculosis, the series of cases gave no definite evidence. One child developed furunculosis while taking the yeast. The only ill effects were in one baby who developed a severe fermentative diarrhea soon after the yeast was begun, but later, when this was corrected, it took another dose of yeast with no bad effects, but still without benefit to its nutrition.

The Protein Requirements of Children.—Dr. L. EMMETT HOLT read this paper. He stated that the total protein required was to a large extent dependent upon the character of the protein given. Proteins differed greatly in their amino-acid content. Vegetable proteins were lacking in amino-acids essential for growth, while animal proteins were much richer in these substances and corresponded more closely in composition to the proteins of the body. In adults, protein was required only for maintenance and repair; in children, in addition, protein must be supplied for growth. While vegetable proteins might be sufficient for maintenance, the animal proteins were needed for growth. The protein furnished to the nursing infant was only from 8 to 12 grams daily up to nine months of life; this was equivalent to only about 1½ grams per kilo. This small amount was sufficient for growth and maintenance during the most active period of growth. The reason for this was to be found in the very high grade of the protein of woman's milk which was especially rich in essential amino-acids. When cow's milk was the food a much larger amount of protein was required

as the protein of cow's milk was deficient in some of the important amino-acids, especially cystin. It was therefore necessary to give two or three times as much protein as was contained in woman's milk. Low protein or an insufficient amount of protein was one of the reasons for the failure of condensed milk as a food and also for the want of success which attended the use of such milk formulas as those which were based on the percentage composition of woman's milk. No experimental work had been done, nor in fact was it possible, to determine the exact protein requirement of growing children. It seemed wise in view of the great need of protein for growth to allow a liberal amount to growing children especially since no harm had ever been shown to result from protein given in these amounts. Tables were presented showing the amount of protein taken by one hundred healthy children in their usual diets. These averaged about 40 grams daily at one year; 60 grams, at six years; 80 grams, at twelve years; 115 grams, at sixteen years. About two-thirds of the protein taken was of animal origin and one-third was vegetable protein.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December 14-17, 1900.

(*Continued from page* 483.)

CHEMISTRY.

1. What are fats chemically? What changes do they undergo during digestion?
2. What is the significance of Bence-Jones protein in the urine, and how is it detected?
3. Give a brief discussion of acidosis.
4. What is glycogen chemically, and where is it found in the body?
5. Give test for indican in the urine.
6. How is uric acid formed in the body?
7. Tell of the general color reactions of proteins and give the technic of any one of them.
8. What substances may be found in excess in the blood in a severe case of nephritis?
9. Give tests for acetone and diacetic acid in the urine.
10. What changes take place in the sugar content of the blood and urine in diabetes? How do you estimate the sugar in the blood.

MATERIA MEDICA.

1. Arsenic—In what class of drugs does it belong? How found? The preparations and doses, using official terms.
2. Name the preparations and doses of ammonium.
3. Sodium—Name six preparations of sodium and give doses.
4. Nux vomica—Describe it, give preparations and doses. Name the two alkaloids and give doses.
5. Opium—(*a*) Where and how obtained? (*b*) Give six preparations and doses. (*c*) What is the chief alkaloid of opium.
6. Iron—(*a*) Give six official preparations and doses. (*b*) What are the incompatibles?
7. Write a prescription—48 pills for adult—(*a*) containing iron, quinine, strychnine, and arsenic. (*b*) One containing three diuretics, using official terms.
8. What are carminatives? Name some of the most important and tell how administered.
9. Name and describe methods of introducing medicines into the system.
10. State what you know of the use and effect of thyroid extract. Give the official term.

THERAPEUTICS.

1. Write a prescription in Latin, without abbreviations, containing four ingredients, stating use.
2. Write another prescription in Latin, without abbreviations, containing four ingredients, and state the therapy or expected action of each.
3. Give classification of food stuffs and state their special uses.
4. In the preparation of a dietary to meet caloric needs what feature should receive careful consideration?
5. What is the accepted percentage of protein of the total metabolism, and what follows deprivation of protein?
6. From the standpoint of the circulation what is the main effect of a venesection? How are the favorable results of a venesection manifested?
7. Give the conditions in which the succinate of sodium often appears to be of decided value.
8. State the physiological action of and therapy of pilocarpus. In what prevalent winter ailment is it serviceable?
9. State the physiological action, therapy, and danger of hyoscine.
10. Give the therapy of senna and name common preparations.

ANSWERS.

CHEMISTRY.

1. Chemically, *fats* are glyceric esters, or compounds of fatty acids with glycerin.

Digestion of fats. In the stomach, the gastric juice dissolves the connective tissue binding the fat cells together, and sets free the fat, which passes into the duodenum. Here the steapsin of the pancreatic juice (aided by the secretions) splits up the fats into glycerin and fatty acids.

Thus:

$$C_3\,H_5\,(O.\,C_{15}\,H_{31}\,CO)_3 + 3H_2O = C_3\,H_5\,(OH)_3 + 3\,C_{15}\,H_{31}\,COOH.$$

2. *Bence-Jones protein* is a primary proteose; it is believed to be pathognomonic of multiple myeloma.

To detect it: Acidify the urine with acetic acid, and heat gently; if Bence-Jones protein is present a precipitate forms at about 60° C., which dissolves (partially or entirely) as the boiling point is reached, and reappears on cooling.

3. *Acidosis* is a condition in which the blood and tissues of the body are relatively increased in acidity and decreased in alkalinity. The blood is never acid in reaction. The condition is found when there is a disturbance in the metabolism of the fats combined with insufficient carbohydrate metabolism. It is noted in starvation, in fevers, and in diabetes. Ordinarily, in health, the fats are gradually oxidized to simpler fatty acids, and are finally split up into carbon dioxide and water. In the condition of acidosis, the belief is that the fats are split up into simpler fatty acids as far down in the series as butyric acid, and that then oxybutyric acid, diacetic acid, and acetone are produced; these substances are called the acetone bodies and may be found in the urine when acidosis is present. At the same time, the amount of ammonia in the urine is increased, and the alveolar carbon dioxide is diminished.

4. Chemically, *glycogen* is a polysaccharide carbohydrate. *It is found in the body* in the liver, placenta, white blood corpuscles, cartilage cells, muscle tissue.

5. *Test for indican in the urine.*—The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride; a few drops of chloroform are added, and the mixture strongly shaken 1 to 2 minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.—(From Witthaus' *Essentials of Chemistry.*)

6. *Formation of uric acid in the body.*—"Uric acid was long regarded as a product of general proteid metabolism and for chemic reasons an antecedent of urea. This view has been abandoned. At present it is believed that it is a cleavage product of nuclein, a constituent of all cell nuclei. In the metabolism of nuclein a proteid and nucleic acid are formed, from the latter of which uric acid is derived. Nucleic acid when decomposed yields a series of bases, such as xanthin, hypoxanthin, adenin, guanin, etc. Because of the fact that these bodies can also be obtained from a synthetized body termed *purin* they are known collectively as the purin bases. Though there is a close relationship between uric acid and the purin bases, it has been impos-

sible to experimentally derive one from the other. When hypoxanthin, however, is given internally it is oxidized and converted into uric acid. It is extremely probable, therefore, that uric acid is an oxidation product of one or more of the purin bases. It is probable, however, that not all of the uric acid eliminated is derived from the nuclein of tissue cells and their decomposition products, the purin bases. Some of it is undoubtedly derived from the nucleins contained in foods. The uric acid eliminated is therefore partly endogenous and partly exogenous in origin." (Brubaker's *Text Book of Physiology.*)

7. *The chief color reactions of the proteins* are: (1) The *xanthoproteic reaction;* if a few drops of nitric acid are added to a solution of a protein such as white of egg, the result is a white precipitate; this and the surrounding liquid become yellow on boiling and are turned orange by ammonia. (2) *Millon's reaction.* Millon's reagent is a mixture of mercuric and mercurous nitrate with excess of nitric acid. This gives a white precipitate which is turned brick-red on boiling. This reaction depends on the presence of the tyrosine radical. (3) *Copper sulphate (Rose's or Piotrowski's) test.* A trace of copper sulphate and excess of strong caustic potash give with most proteins a violet solution. Proteoses and peptones, however, give a rose-red color instead; this same color is given by the substance called *biuret;* hence the test is generally called the *biuret reaction.* This name does not imply that biuret is present in protein; but both protein and biuret give the reaction because they possess a common radical, namely, two $CONH_2$ groups linked to a carbon or nitrogen atom, or to one another. The native proteins give a violet color, because the red tint of the copper compound with the biuret group is mixed with another copper compound with a blue color. (4) *Adamkiewicz reaction.* When a solution of protein is mixed with a dilute solution of formaldehyde, and then excess of commercial sulphuric acid is added, an intense violet color is obtained. This is due to the tryptophane radical. (From Halliburton's *Handbook of Physiology.*)

8. *In a severe case of nephritis, the following substances may be found in excess in the blood:* Urea nitrogen, uric acid, creatinin, and (sometimes) the acetone bodies, beta-oxybutyric acid, diacetic acid, and acetone.

9. *Test for acetone in the urine.*—Add a few drops of a freshly prepared solution of sodium nitroprusside and then KOH solution, to the suspected urine; if acetone is present, the liquid becomes of a ruby-red color which changes to purple in excess of acetic acid.

Diacetc acid is detected by slowly adding a solution of ferric chloride to the urine, when a Bordeaux-red color appears; this color disappears on boiling.

10. In diabetes, the sugar content of the blood and urine is high.

To estimate the sugar in the blood.—Gardner and Maclean's modification of Bang's method is as follows: "Two or three drops of blood are soaked up in weighed pieces of filter paper 12 x 25 mm. in size and 1 mm. thick weighing about 100 mgm. and weighed. The weighing is most conveniently effected with a torsion balance. The paper containing the blood is placed for 3 to 5 minutes in an oven at 90° to 100° to coagulate the proteins. The glucose contained in the blood is extracted by immersing the paper in 7 c.c. of a solution containing 150 c.c. of saturated potassium chloride solution, 70 c.c. of water, and 2 to 3 drops of 40 per cent. acetic acid for 45 minutes to 1 hour, during which time it is raised twice to the boiling point. The solution is poured into a 50 c.c. Jena glass flask with a straight neck and no rim. The paper is again boiled out with 4 c.c. of the above solution in the same way and this is put into the flask. Three c.c. of the alkaline copper solution are added. The flask is closed with a piece of rubber tubing 3 mm. thick and 4 to 5 cm. long, leaving 2 cm. over, which can be clamped with a spring clip or a special clip. Dissolved gases are removed by shaking and exhausting the flask with a suction pump. The contents of the flask are heated to boiling for 3 minutes; just before the expiration of this time the tubing being closed with the cap. The flask is rapidly cooled under running water. The rubber cap is removed, and to prevent oxidation a current of carbon dioxide is immediately passed through the flask by a small tube which is bent for convenience and attached to the flask by a band. The reduced cuprous salt is titrated with .01N iodine solution or .005N iodine solution, which is prepared from .1N iodine solution contained in a 2 c.c burette with a fine point and graduated in fiftieths of a c.c. using 2 to 3 drops of starch solution as indicator. In all cases .01 per cent. should be subtracted from the final result, since blood contains a substance which reduces iodine.

"Gardner and Maclean state that at least four parallel determinations should be carried out and the mean of three or four satisfactory estimations taken as the correct figure." (Plimmer's *Organic and Bio-Chemistry.*)

MATERIA MEDICA.

1. Arsenic belongs to the indefinite class called "alteratives." It is found as the sulphide; also in combination with iron, nickel, or cobalt; a small amount is found free.

Official preparations, with their doses: Arseni trioxidum, gr. 1/30; Liquor acidi arsenosi, ♏iij; Arseni iodidum, gr. 1/12; Sodii arsenas, gr. 1/12; Sodii arsenas exsiccatus, gr. 1/20; Liquor potassii arsenitis, ♏iij; Liquor sodii arsenatis, ♏iij; Liquor arseni et hydrargyri iodidi, ♏j.

2. *Preparations and doses of ammonium:* Ammonia water ♏xv; carbonate of ammonia, gr. iv; aromatic spirit of ammonia, ♏xxx; ammonium chloride, gr. v; solution of ammonium acetate, ʒiv; ammonium benzoate, gr. xv; ammonium iodide, gr. iv; ammonium salicylate, gr. viij; ammonium valerate, gr. vij; solution of iron and ammonium acetate, ʒiv.

3. *Six preparations of sodium, with doses:* Sodium acetate, gr xv; sodium benzoate, gr. xv; sodium bicarbonate, gr. xv; sodium borate, gr. xij; sodium bromide, gr. xv; and sodium chloride, ʒiv.

4. *Nux vomica* is the dried, ripe seed of the strychnos nux vomica. It is of a grayish color, covered with thin hairs; internally it is whitish-gray, and is tough and horny. Its chief constituents are strychnine, brucine, igasuric acid, and loganin.

The official preparations and doses of nux vomica are: Nux vomica, one grain; extract of nux vomica, one-quarter of a grain; fluid extract of nux vomica, one minim; tincture of nux vomica, eight minims.

Two alkaloids of nux vomica: Strychnine, gr. 1/40; brucine, gr. 1/32 (not official).

5. *Opium* is the exudation obtained from incising the unripe capsules of the *Papaver somniferum* (white poppy); it should yield not less than 9 per cent. of crystallized morphine. It is chiefly obtained from Constantinople and Egypt.

Six preparations and doses: Deodorized opium, 1 grain; granulated opium, 1 grain; powder of ipecac and opium, 8 grains; tincture of opium, 8 minims; camphorated tincture of opium, 8 minims; tincture of deodorized opium, 8 minims. *The chief alkaloid of opium* is morphine.

6. *Six official preparations of iron, with their doses:* Reduced iron, 1 grain; ferrous sulphate, 1½ grains; pills of ferrous carbonate, 2 pills; tincture of ferric chloride, 8 minims; solution of iron and ammonium acetate, 4 drams; iron and quinine citrate, 4 grains.

Incompatibles: Acids, acid salts, alkalies and their carbonates, and vegetable astringents.

7. R.
Ferri phosphatis, ʒjss.
Quininæ phosphatis, gr. xlviij.
Strychninæ phosphatis, gr. jss.
Arseni trioxidi, gr. js. Misce.
Fiat massa in pilulas No. 48 dividenda.
Signa: Take one pill morning and evening.

R.
Potassii acetatis.
Potassii bicarbonatis.
Potassi citratis aa ʒii.
Aquæ q. s. ad ʒviij M.
Sig.: One tablespoonful, in water, three times a day.

8. *Carminatives* are remedies which are used to overcome flatulency and aid in the expulsion of gas. The chief *carminatives are:* Charcoal, peppermint, ginger, asafetida, camphor, ether, pepper, spirits, chloroform, and various aromatic oils. They may be administered by the mouth or as enemata.

9. METHODS OF INTRODUCING MEDICINES INTO THE SYSTEM:

(*a*) By the *skin*, or mucous membrane continuous with the skin, whether simply applied or rubbed in (liniments, ointments; painted on (pigments, etc.); worn on the skin (as a plaster or ointment); applied in a state of fine division by fumigation, with or without sweating; used as a gargle, injection, or wash; or insufflated on to a part. The effect desired is usually local only, but it may be general, many drugs being absorbed by the skin or exposed mucous membrane.

(*b*) By the *mouth*, to act locally on the alimentary canal, and to be absorbed from it, especially from the stomach.

(*c*) By the *rectum* (or *vagina* in the female), in the form of enema or injection (fluid), or of suppository (solid). Drugs may have to be given by the rectum instead of by the mouth, on account of some physical obstacle, repugnance on the part of the patient, or irritability of the stomach; or to spare the stomach in conditions of exhaustion. Again, the action desired may be a local one on the rectum and pelvic organs, *e.g.* to relieve pain, destroy worms or soften retained feces.

(*d*) By injection under the skin (*subcutaneous or hypodermic injection*); or into the tissues (*interstitial injection* and *infiltration*): excellent methods of admitting remedies into the system with certainty and despatch.

(*e*) By *application to wounds* or diseased surfaces, as lotions, dusting powders, gargles, injections, bougies, collyria; or by the *endermic* method, *i.e.* by being sprinkled on a blistered surface.

(*f*) By *inhalation*, the substances being volatile, and intended either to enter the blood through the pulmonary capillaries, *e.g.* chloroform, or to act directly on the parts to which they gain access in the form of smoke from medicated cigarettes, of insufflated powders, or of medicated watery vapours, sprays, or nebulæ.

(*g*) By *intravenous injection*, rarely practised in man. (Bruce's *Materia Medica and Therapeutics.*)

10. THYROID EXTRACT. "*Action*: It is a powerful vasomotor dilator, causing flushing of the cutaneous surface; large doses are apt to produce loss of appetite and diarrhea; it stimulates the cerebrum, and, given to excess, produces headache, restlessness, insomnia, palpitations, hot flushes, sweating, tremors, and even convulsions; it is excreted by the kidneys, and the quantity of urine is uniformly increased by it; it induces a greatly increased oxidation in the system.

"*Uses*: Myxedema; goiter (especially the hyperplastic follicular variety); sporadic cretinism; arteriosclerosis; delayed menstruation." (Wilcox's *Materia Medica.*) *The official term* is Thyroideum Siccum, or Dried Thyroids.

THERAPEUTICS

1. For *influenza:*

℞ Extracti aconiti .....gr. ijss
Quininæ sulphatis .....gr. xxiv
Pulveris ipecac et opii.....gr. xij
Acetphenetidini .....5j. Misce.

Fiant in capsulas No. xxiv.

Signa: Take two every three hours.

2. For *irritative cough:*

℞ Codeinæ sulphatis .....gr. vij
Ammonii chloridi 5jss
Syrupi tolutani 5ij
Aquæ quantum sufficiat ad 5iv. Misce.

Signa: One teaspoonful in water every two or three hours.

The codeine is a sedative; the ammonium chloride is an expectorant; the syrup disguises the taste of the ammonium chloride; and the water is a diluent.

3. See above, PHYSIOLOGY, 2.

4. In preparing a dietary, the first thing is to provide for a sufficient amount of protein; and then to add enough fat and carbohydrate to yield the requisite number of calories. Thus, for a man of average size and weight, and doing a moderate amount of manual work, the following may be suitable:

Protein, 120 grams.
Fat, 50 grams.
Carbohydrate, 500 grams.

This would yield the following amount of energy in calories:

Protein,	$120 \times 4.1 =$	492
Carbohydrate,	$500 \times 4.1 =$	2,050
Fat,	$50 \times 9.3 =$	465
Total,		3,007 calories.

5. The proportions given in the previous answer may be taken as normal. Deprivation of protein gives rise to inability to do muscular work, to imperfect tissue repair, to lowered vitality, and to a pale and puffy appearance.

6. *The main effect of venesection on the circulation* is a lowering of the blood pressure.

The favorable results of a venesection are manifested by the lowering of the blood pressure, slowing of respiration, quieting of the cardiac action, lowering of the body temperature, increase in the amount of urine excreted and of the solids in the urine.

7. The *succinate of sodium* is said to be of value in catarrhal jaundice, and also in delirium tremens.

8. PILOCARPUS. *Physiological action.*—It causes increase of saliva and of perspiration; increased peristalsis; it increases and then diminishes blood pressure and heart action; it causes the pupil to contract and depresses the nervous system. *Indications for use:* Bright's disease, uremia, eclampsia, pleural effusion, dropsy, and whenever prompt diaphoresis is required.

It has also been used in bronchitis.

9. *Hyoscine* "acts peripherally like atropine, and therefore will allay pain, will dilate the pupil, and will check secretion. But its action in the eye is more rapid and more powerful, a 1:500 solution dilating the pupil in ten to thirty minutes, and quickly thereafter paralyzing accommodation, while the effect passes fully away in three to five days. Centrally it differs from atropine in that the period of cerebral stimulation is short and is followed by prolonged mild depression of the psychic and motor centers—that is, the drug is narcotic. In excitable states, as in delirium or mania, it seems to have great power to lessen restlessness or excessive motor activity. Its use is not without danger, however, for it shows early depression of the respiratory and vasoconstrictor centers, and in a great number of instances has caused collapse. . . .

"Collapse is reported from the use of the drug in the eye.

"Its chief uses are: (1) As narcotic in the insomnia and excitement of acute mania, in delirium tremens, in the delirium of pneumonia (especially in alcoholics), and in the insomnia of alcoholism. (2) As a narcotic and peripheral sedative in treating the morphine and alcoholic habits. (3) As an anaphrodisiac. (4) As a mydriatic and cycloplegic—one drop of a 1:500 solution every fifteen minutes for four to six drops. (5) As a general anesthetic or as a preliminary to general anesthesia."—(Bastedo's *Materia Medica, etc.*).

10. *Senna* is a purgative, it stimulates the muscular coat of the intestine, acting chiefly on the colon. It is generally given with some other purgative. The chief preparations are the confection of senna, compound licorice powder, infusion of senna, and syrup of senna.

(*To be continued.*)

The Mutilated of the Great War.—According to compilations by the Red Cross the known mutilated total nearly 6,000,000. Of this number nearly one-half are furnished by France and Germany, the former leading the latter by a hundred thousand. Great Britain is third with well over a million, Italy fourth with over half a million, Poland fifth with 320,000, the United States sixth with nearly 250,000, while present day Czheko-Slovakia is seventh with 175,000. The Austria of today totals 164,000 and Jugo-Slavia has the same figure. Other figures are Canada with 88,000 (which, added to Great Britain, bring the grand total for that country up to a million and a quarter). The total for Roumania is 84,000 and that for Belgium 40,000. No figures are given for Russia or Bulgaria. These statistics, of course, give an imperfect idea of the total losses of the Teutons, as they are based wholly on postbellum geography. Apparently the countries which now represent ancient Austria furnish over half a million jointly, bringing the total of the Teuton armies to 2,000,000. The mutilated of Poland should be made up largely of former Russian soldiers.—*La Presse Médicale.*

Medical History.

NEW BOOKS AND OLD.

XIV. THE EDINBURGH SCHOOL OF SURGERY BEFORE LISTER.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

In the series of little Medical History Manuals published by A. and C. Black, London, there appeared in 1918 a volume written by Alexander Miles, Surgeon to the Royal Infirmary, Edinburgh, in which the author gives a very delightful account of the School of Surgery up to the time of their greatest master, Lord Lister. Lister marks an epoch not only in the history of the school at Edinburgh, but in the surgery of the world, so that future historians like Miles will probably write of "Surgery before" or "Surgery after Lister." In his preface Miles starts out with a paragraph on the value of the study of Medical History, which states so clearly its relation to a proper understanding of present day medicine that I cannot refrain from quoting it:

> The student of surgery who confines his reading to modern textbooks, which of necessity deal only with matters of present-day interest, fails to see the outlines of his subject in their true historical perspective. The existing state of surgery as a science and an art is duly presented to him, but the steps by which it has reached this state he has no means of tracing. The names of the old masters he may meet, but they remain to him but names attached to particular operations or instruments, and he gathers little of the part they played in the evolution of our knowledge and less of what manner of men they were. Seeing only the perfected results of the surgery of today, he fails, on the one hand, to realize the difficulties that had to be overcome by the pioneers of surgery, and, on the other, to grasp the real significance of the revolution effected by the master mind of Joseph Lister.

The School of Surgery goes back a long way, back to the year 1505 when the "Surregeanis and Barbouris" requested of the Town Council, shortly after they had been made a corporation, a request, "that we may have anis in the yeir ane condampnit man after he be deid, to make anatomea of, quairthrow we may heif experience, ilk ane to instruct utheris, and we sall do suffrage for the soule." Scotland in those days was in a pitiful plight. The people were ignorant and oppressed, and learning was not looked on with much favor. But these ruddy Scots of the Surgeon-Barber class gave evidence that they valued learning, for it was stipulated that no master of the craft should take an apprentice "without he can baith, wryte and reid", and realizing that sound surgery must ever rest upon a knowledge of anatomy, they represented in their petition, "that everie man that is to be maid frieman and maister amangis us be examit and previt in thir poyntes following—thatt is to say: That he knaw anatomea nature and complexioun of every member In manis bodie. And in lyke wayes he knaw all the vaynis of the samyn thatt he may mak flewbothomea in dew tyme. And als thatt he knaw in quilk member the signe hes domination for the tyme for every man aucht to knaw the nature and substance of every thing thatt he wirkis, or ellis he is negligent . . . ".

Thus we see that they were not quite like the old Scotch surgeon who was wont to say "Damn your anatomy, stick close to the bone." These canny Scots obtained other privileges than those of dissecting a condemned criminal once a year, and while they lost in the course of time, some of their franchises, one originally read, "That na person man nor woman within this burgh mak nor sell ony acquavitae within the same Except the saidis maisteris brether and frieman of the saidis craftes under the paine of escheit of the samyn but favouris."

The Barbers and the Surgeons remained leagued together up until 1722, when after many dissensions which led to litigation in the courts, the two bodies were separated by a decree of the Lords of Session. The Society of Barbers lingered on until 1892 when a father and son representing them, held the last meeting.

One of the most active of the early Surgeons was James Borthwick. He lies buried in Grey Friars church yard and his tombstone is the result of one of those curious fantasies illustrating the grim humor of the Scotch. Miles describes it as follows: "A dancing skeleton, holding at arm's length an open folio, is sculptured in the center astride the scythe of death; the plinth bears the familiar skull and crossbones, representations of coffins, spades, and picks; and the side panels are festooned round with various surgical instruments." This tombstone would make a fitting illustration to be included in F. Parkes Weber's book entitled "Aspects of Death Correlated and Aspects of Life," of which more at another time. Weber, however, has not seen fit to use it.

The first regular course of instruction in anatomy was made in 1694 by Alexander Menteith, who secured from the town council the bodies of persons who died in the Correction House and also the house for dissection. Unfortunately, for some reason, this course was discontinued after three years and Menteith turned his attention to teaching chemistry. In 1582 King James VI granted a charter of erection and for long after the institution was known as the College of King James. This college at Edinburgh paid no attention to the teaching of medicine until the first of the great Monros was made Professor of Anatomy in 1726. There had been some effort made to teach medicine before, the town council in 1685 having appointed three Professors of Medicine, but without salaries nor any assigned duties. The Physic Garden was established about 1668, and shortly afterwards a professor, on the fee of one guinea, undertook to demonstrate the plants and "to wait upon them at a solemn public herberizing in the feilds four severall times in every year." There were private lectures under the auspices of the Incorporation of Surgeons and these have been continued to the present time under what is known as the Extramural School. The beginning of the Medical School is due to the energy and ability of the first Monro. The Medical faculty lacked facilities for bedside instruction and in 1721 there was an attempt made to open a small hospital, but it was not until 1725 that Alexander Monro, with the aid of George Drummond, then the Lord Provost, was able to open a Royal Infirmary, which, as Miles truly says, "was destined to become one of the most famous Medical Institutes in the world."

One of the most remarkable of the practitioner surgeons of the time was Alexander Wood (1725-1807). He was better known at the time as "Lang Sandy Wood," and while he is more famed for his social qualities and his convivial habits than as a surgeon, his memory is still one of the cherished traditions of the Edinburgh School.

Oh, for an hour of him who knew no feud—
The octogenarian chief, the kind old Sandy Wood.

He was one of the chief members of the Gymnastic Club. In the poems of Andrew Duncan (1818) we find "a song composed on a memorable event in the annals of the Gymnastic Club."

Here lies Sandy Wood, a good honest fellow,
Very wise when sober, but wiser when mellow;
At sensible nonsense by no man excell'd,
With wit and good humour dull care he repell'd.
But though now he's laid low, we must not complain.
For, after a sleep, he'll be with us again.
Shed no tears, my good friends, wear no garments of sable;
Sandy Wood is not dead, but laid under the table.

A rhyming explanation of this "memorable event" was subsequently forthcoming which, while admitting that

'Tis true that once in evil hour
Beneath this table he did cour,
Which rais'd the tale, you may be sure,
That we had lost our Sandy,

went on to offer the excuse, always considered valid in these days, that

It was a glass that laid him low—
A glass his friend, and not his foe.

Those were merry days, and the accounts of such organizations as the "Sulphur Club," the "Hell Fire Club," and the "Demireps," make good reading, but I doubt that in this Sahara which we now inhabit anyone will ever have conferred on him, as did Sandy Wood, the diploma of Doctor of Mirth, which was given him by the Sons of Æsculapius in 1813. In spite of what the forward lookers of the present day will term his "indiscretions," Wood lived to the age of 82 and was until a few years of his death recognized as the leading surgeon in Edinburgh. Miles states that his grandnephew, Dr. Andrew Wood (1817-1884) introduced the practice of hypodermic medication and invented the hypodermic syringe.

The School of Surgery in Edinburgh dates from the second half of the eighteenth century. The founding of the Academy of Surgery in Paris and the enthusiasm of the French teachers, led Benjamin Bell and others to imitate their French colleagues. James Rae was the first to give a course in surgery apart from anatomy, and in 1776 the college approached the magistrates with a view to establishing a Professorship of Surgery within the University. This was violently opposed by Alexander Monro secundus, but after a bitter controversy in 1777 Monro was commissioned Professor of Medicine and particularly of Anatomy and Surgery. In 1804, the College of Surgeons having been unable to establish a separate Chair of Surgery in the University, appointed a lecturer with the title of Professor of Surgery in the Royal College of Surgeons. So it happened that a Surgical Professorship was founded in the Extramural School twenty-seven years before the teaching of surgery was separated from that of anatomy within the University. Two years later Thomson was appointed by the crown Professor of Military Surgery in the University and in 1831 he was made Professor of Surgery. The Extramural Chair was filled for the succeeding eight years by John Lizars, and when he resigned the Professorship was abolished owing to the fact that the Chair of Surgery had been definitely established in the University.

One of the most noted professors of surgery was Sir Charles Bell (1774-1842). He began his work on the nervous system in the Extramural School acting as assistant in the anatomical rooms of his brother John. Charles' ability as a draftsman led him to prepare the illustrations for the section on the nervous system of his brother's work on anatomy. When he was thirty years old he decided to move to London, where he made a great reputation. At the age of sixty-two, in 1836, he returned to Edinburgh as Professor of Surgery. At some future date I hope to review some of the contributions of Bell which are well worth the attention of modern students. Bell was followed in 1842 by James Miller (1812-1864) who held the chair up until the time of his death.

There were many curious things in connection with surgery in Edinburgh. Twenty-eight years before they were able to establish a definite Chair in the University there was a foundation made in 1803, by King George III, of a Chair of Clinical Surgery. Space prevents going into some interesting things in connection with this and also with the Chair of Military Surgery, established by the same monarch in 1806 and carrying with it an endowment of one hundred pounds a year or just twice as much as that given the Professor of Clinical Surgery.

Miles outlines the life and works of the various men who filled these chairs and also the more prominent teachers of the Extramural School, and he gives rather extended accounts, which it is a pity I cannot notice more fully, of Robert Liston (1794-1847) and of James Syme (1799-1870), the Napoleon of Surgery. Syme's name is associated with his method of amputation and so is reasonably sure of a permanent place in the history of surgery. He was a remarkable man, and when he passed there came Joseph Lister, as Miles says in closing:

In the radiant after-glow of Syme's fame the torch that Lister had lighted before he was called to fill the Chair of Clinical Surgery glimmered but feebly, yet ere long its lambent flame illumined the whole surgical firmament. That the light of Lister's genius shone at its brightest in her midst is the lasting pride of the Edinburgh School, but "many brave men lived before Agamemnon," and although we "are without a divine poet to chronicle their deeds," we would not willingly forget them.

Such in brief is the history of the Edinburgh School of Surgery up to the coming of Lister. With Lister dawned a new era, but the heritage from the earlier age should not be forgotten. Such works as these of Alexander Miles help to keep in mind the struggles and successes of the earlier surgeons.

Opotherapy in Heredosyphilis.—Fernet in the course of a long article on the treatment of syphilis mentions the pluriglandular treatment apparently indicated in certain types of the congenital form. One prescribes according to indication in part, but thyroid seems of value in most cases.—*Le Bulletin Médical.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 14.
Whole No. 2656.

NEW YORK, OCTOBER 1, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

CLINICAL INDICATIONS OF THE ETIOLOGY OF DIABETES.*

BY J. W. MITCHELL, M.D.

MORRISTOWN, N. J.

THE question of the etiology of diabetes is important in relation to the theory of the subject and to practical prophylaxis, treatment and prognosis. The enormous increase of the disease, indicated by some statistics, amounting even to a multiplication of the incidence within the past few decades, is explained by Joslin[1] as representing chiefly improved diagnosis, though there is a possibility of some degree of actual increase connected with advanced civilization (nervous stress, sedentary life, elevation of the average nutritive level, obesity) or to possible unknown factors.

As a clinical contribution to this subject, the records of 229 diabetic patients observed by the writer in the Physiatric Institute, under the direction of Dr. Frederick M. Allen, between July 15, 1919, and January 1, 1921, have been analyzed with a view to suspected etiologic agencies. The viewpoint has been chiefly that afforded by the newer conceptions of diabetic pathology,[2] but the older hypotheses have also received consideration. A well-rounded study must rest on cases which are adequately investigated from all angles. For example, the factor of heredity is important, and the convincingness of the evidence concerning any suspected etiologic agency in any individual diabetic is different if this patient is free from any discoverable hereditary taint, or if on the other hand he is strongly predisposed by heredity. The family history is also the part of the record which is subject to the most serious deficiencies and inaccuracies, since very few persons actually have accurate knowledge of the causes of death or illness of their immediate relatives. Chiefly on this account 113 cases were rejected, and the study was based upon 116 diabetics who could give reasonably trustworthy statements concerning diseases in their grandparents (exceptionally the great-grandparents), parents, uncles and aunts, cousins, nephews and nieces, and children. Also, in all instances the inquiries into possible acquired causes, particularly constitutional or local infections which might stand in etiologic relationship to the diabetes, were pursued more carefully than is customary in average history taking. The suggestive causative agencies may be divided into hereditary and acquired.

I. *Hereditary Causes.*—The possible hereditary causes may be divided into those pertaining to the race and those pertaining to the immediate family.

A. Race: Of this series of 116 patients, 65 patients or 56 per cent were Jewish. In the interpretation of these figures due regard must be paid to the large Hebrew population of New York, but still the vast majority of the population from whom patients are drawn are non-Jewish. The proportion of Jews may be swelled somewhat by their knowledge of diabetes and its symptoms and by their disposition to seek medical care. A more important disturbing influence may be found in factors such as mode of life, nervous qualities, deficient exercise, over-eating, obesity, etc., which are common racial characters but not strictly hereditary. Without attempting to go more deeply into the cause, this record may at least be said to support the prevailing belief in a specially high incidence of diabetes among the Jewish race, and race must therefore receive consideration among the possible predisposing causes in any instance.

B. Family: The observations covered the incidence of certain associated disorders, obesity, and diabetes.

TABLE I.—ASSOCIATIONS OF METABOLIC DISORDERS IN INDIVIDUALS AND FAMILIES.

	A. Diseases in Blood Relatives of 116 Diabetic Patients.		B. Complicating Disorders in 116 Diabetic Patients.		C. Diseases in Blood Relatives of 112 Non-Diabetic Patients.	
	Absent in 40 Cases	Present in 76 Cases, as Follows:	Absent in 79 Cases.	Present in 37 Cases, as Follows:	Absent in 29 Cases.	Present in 83 Cases, as Follows
Arteriosclerosis, hypertension or apoplexy		22		26		48
Nephritis		31		8		38
Diabetes		78				43
Obesity		111				20
Cancer		21		1		34
Tuberculosis		32		5		33
Cardiac disease		28		4		21
Thyroid disorders		4		3		5
Nervous or mental diseases		8		3		9
Cirrhosis of liver		0		0		2
Bronchial asthma		5		0		3
Rheumatoid arthritis		4		0		2
Gout		1		0		0
Constitutional inferiority		1		3		0
Pernicious anemia		1		0		1
Progressive muscular atrophy		0		0		1

1. *Associated Disorders.*—It has been the opinion of J. R. Williams[3] and many of the classical writers that nephritis, arteriosclerosis, and other metabolic disorders are significantly prevalent in the same families with diabetes. Diabetes has also been viewed as a degenerative disorder, associated in the same individuals or families with nervous ailments and stigmata of degeneracy. Infections such as

*From the Physiatric Institute, Morristown, N. J.

syphilis (mentioned separately below) and tuberculosis have sometimes been regarded in the same connection not as causes of diabetes but as indications of constitutional taint. Cancer is sometimes considered in a similar sense. Table I has therefore been arranged to show, in its division A, the occurrence of these other diseases in the families of these 116 diabetics. As an additional feature, division B shows the occurrence of these disorders in the same individuals with diabetes. For comparison, division C embodies a similar study of the family history of 112 non-diabetics, the great majority of whom were nephritic and hypertension patients under treatment in the Institute, while a minority were persons examined on account of suspicion of metabolic disease.

Certain crudities are unavoidable in any such tabulation. Arteriosclerosis and hypertension are by no means synonymous, but were best lumped together with apoplexy for this presentation. They are not sharply distinguishable from nephritis or cardiac disease, but the chief abnormality was chosen for classification as well as possible. Cardiac disease as a complication of diabetes could not be taken to mean the slightest detectable abnormalities, but could include only serious cases on a par with those mentioned in the family histories. The question of primary and secondary etiology required consideration. In only one instance was there any strong suspicion that arteriosclerosis may have caused the diabetes. In at least one instance tuberculosis apparently antedated the diabetes. In general, also, the diabetes cannot be regarded as the primary cause of the other disorders, though patients with active diabetes are notoriously susceptible to infections and injuries in all parts of the body. For one example, they have been considered specially susceptible to arteriosclerosis, and occasionally a high blood pressure may be found to fall by simple treatment of the diabetes. Another interpretation is that the original toxic or infectious cause of the diabetes injured other organs besides the pancreas, so that the diabetes becomes complicated with the symptoms of these other injuries. The special status of obesity is discussed below.

Considering division B first, it may be deemed certain that the proportion of 37 complicating disorders in 116 individuals is higher than would be found among the population at large at corresponding ages. This ratio is increased by the fact that the same patient occasionally had several distinct complications, so that division B actually contains 51 examples of the disorders in question. With a certain small allowance for the predisposing influence of the diabetes, there is still ground for the above-mentioned conclusion that a considerable proportion of diabetics have suffered injuries in other organs than the pancreas.

With regard to division A, it must be recognized that complete family histories of any group of persons must show a high proportion of certain chronic diseases, for the very reason that these diseases are so widely prevalent. Though the proportion is high for the diabetics in division A, it is even higher for the non-diabetics in division C. The figures shown in the column headings of these two divisions represent the number of patients having a history of constitutional disease among their blood relatives, and these are necessarily increased greatly by the multiple instances occurring in the respective families, as shown in the detailed figures of the columns. Real completeness would have required a study of the family history of a similar number of persons free from metabolic disease. It is evident, however, that nephritis, arteriosclerosis, and hypertension (in the sense of the severe fatal forms here referred to) hold an abnormally high position in relation to cancer and tuberculosis here in comparison with vital statistics for the population at large. It may therefore be inferred that these disorders tend to be associated in the same families. The hereditary tendency is strongest for the identical disorder. The actual examples of nephritis, arteriosclerosis and hypertension are more numerous in division C than in division A, but this demonstration could be made much more striking through proper allowance for the fact that a considerable proportion of the diabetics with cardiovascular-renal disorders among their relatives also had these troubles themselves, and the highest proportion of negative family histories in division C were found among the persons of this group who had little or no metabolic disease. Therefore, notwithstanding the interrelations, the fact remains that diabetes is by far the leading disorder in diabetic families, and nephritis similarly in nephritic families. No similar association of diabetes with thyroid, nervous, or mental troubles, cancer, or constitutional inferiority is indicated in these family histories.

2. *Obesity.*—Strictly accurate statistics on familial obesity are unobtainable, partly because no precise line can be drawn between obesity and its absence, and partly because it is generally impossible to learn the exact number of relatives who have been obese. The figures shown in division A of Table I are conservative, being based upon a definite history of marked obesity in relatives of whom the patients had sufficient information, and it may thus be assumed that a considerable number of obese individuals escaped notice. In most instances the examples of obesity in a given family were multiple. The list thus includes 111 obese relatives of the 116 diabetic patients, as opposed to only 20 obese relatives of the 112 non-diabetic persons (division C). As the statistical method was the same in the two series and involved equal chances of error, the result confirms the prevalent view that obesity is specially associated with diabetes in families. The question must be left open to what extent this association depends upon endocrine or other inborn peculiarities, and to what extent it represents merely family habits of gluttony giving rise to both obesity and diabetes. It may be mentioned that obesity has been noticeably prominent in Jewish families in combination with excessive eating.

3. *Diabetes.*—A definite history of diabetes in some member of the immediate family was obtained in 54 of the 116 diabetic cases (46.6 per cent). Owing to the multiple instances of diabetes in some families, the total number of diabetic relatives of the 116 diabetic patients was 78, as shown in division A of Table I. This number is disproportionately large in comparison with the 23 diabetic rela-

tives of the 112 non-diabetic individuals (division C). It must be repeated that even this figure 23 is artificially swelled by the fact that so many of the non-diabetic individuals came for examination because they had diabetic relatives under treatment in this Institute. In addition, reference may be made to observations reported by Sherrill[4] indicating that the number of examples of diabetes in diabetic families may be greatly enlarged by the many latent or potential cases revealed by blood sugar analyses and glucose tolerance tests.

Heredity is frequently not the sole etiologic possibility in the cases classed as hereditary. Acquired factors often enter in as confusing elements. One of the commonest combinations may be summarized in "race, heredity, obesity, over-eating." Infection also requires consideration. Following in general the classification used in Chapter VIII of the Rockefeller Institute Monograph No. 11, the cases in this series may be analyzed as follows:

(*a*) Cases without known heredity.—These comprised 62 cases, or 53.4 per cent, in the present series. Deficiencies in such a record must be ascribed to lack of complete information by the patients, inadequate or incorrect diagnoses by physicians in the past, and the possible number of latent cases which can be discovered only by the most recent methods. In general, it appears that the non-hereditary class will diminish as investigation becomes more accurate, and an hereditary element may be suspected in the majority of diabetic cases.

(*b*) Cases of marked hereditary character, or without other known etiologic factors.—The occurrence of 54 familial cases, or 46.6 per cent in this series, was mentioned above. It is easy to find examples of seemingly pure hereditary type, where the number of cases in a family is large and diabetes appears, sometimes in infancy, without the slightest suggestion of any cause other than heredity. The great majority of cases occur at a later age and under more mixed conditions. A new turn is given to this problem by the pathological studies of Allen, indicating that even in the seemingly pure hereditary cases evidences of pancreatitis are commonly distinguishable at autopsy. As the present observations are entirely clinical, and so many details of clinical histories are confusing and open to different etiologic interpretations according to the viewpoint of the investigator, no attempt is here made to subdivide the hereditary group accurately between pure and mixed cases.

(*c*) Familial diabetes due to transmitted infection.—The possibility is open, chiefly with regard to syphilis, that infection transmitted through several members of a family may attack the pancreas and thus cause diabetes in some or all of them, without any true hereditary factor being involved. Opinions have differed widely concerning the frequency of such an etiology, but the general decision is that it is comparatively rare. The majority of cases in the present series were not subjected to the Wassermann test, but this test was performed in all instances when the slightest suspicion was created by either the history or the physical examination, and when indicated was performed upon both the suspected parent and the child. In no instance was familial diabetes thus traceable to syphilitic infection, and this series thus agrees with the general experience that such causation of diabetes is uncommon.

(*a*) Cases due to accidental acquired infections.—The following examples are chosen from this series to illustrate confusing combinations of heredity and infection:

Patient No. 132 was a girl of 22 years, who gave a history of diabetes in her paternal grandfather and four of her uncles and cousins. Her own record was negative except for mild childhood diseases and malaria at 18. At the age of 19 she experienced a severe attack of epigastric pain, with icterus. The condition was carefully studied in a New York hospital and a diagnosis of cholecystitis was made. During this time glycosuria was found for the first time. The diabetes proved to be easily controllable by diet, but in the course of the next 3 years there were several wide variations of the tolerance, not connected with alterations of diet but accompanied by slight abdominal pains and a doubtful icteroid tint of the skin.

Patient no. 44 was a seemingly normal Jewish boy aged 5 years. Both grandfathers and the paternal grandmother were obese and diabetic. In May, 1918, the child sustained a rather deep cut of the face, which became infected and drained for about a month. Six months later enuresis began, and a test of the urine revealed sugar.

Patient No. 166 was a small, poorly developed Jewish boy of 2½ years. The father was living and diabetic, and the paternal grandmother and maternal grandfather died of diabetes. In August, 1919, the child had measles and during convalescence was allowed more candy than usual. About Oct. 1, 1919, diabetic symptoms were first noticed by the parents and glycosuria found by a physician.

Patient No. 184 was an apparently normal Jewish girl of 14 years, with a history of diabetes in her father and two maternal aunts, all three of whom were living. Her only known illnesses were measles and mumps in early childhood and a severe "catarrhal" icterus in 1916. The first diabetic symptoms noticeable to the parents appeared in January, 1919.

II. *Acquired Causes.*—Sex and age are traditionally discussed as factors influencing the incidence of diabetes. Joslin states that diabetes is more frequently treated in males but that more females die of the disease. The present series of 116 cases included 70 males and 46 females. The increasing frequency of diabetes with advancing years is also commonly recognized. The present series comprised 4 cases in the first decade, 14 in the second decade, 18 in the third decade, 23 in the fourth decade, 27 in the fifth decade, 26 in the sixth decade, 2 in the seventh decade and 2 in the eight decade. Such figures are mostly explainable on a simple rational basis. Formerly, at least, women had their urine examined less often than men, hence diagnoses were apt to be fewer and later. In children and young persons, there has been less time for heredity to manifest itself, and advancing years bring an increasing series of actual etiologic factors such as infections, gluttony and obesity. The incidence of diabetes thus rises up to the later decades (in this instance the sixth), until the absolute figure falls corresponding to the fewer persons alive at very advanced ages. It is unnecessary to

consider age and sex in themselves as etiologic factors.

The three agencies which merit principal consideration as possible acquired causes of diabetes are (A) nervous disturbances, (B) over-eating and obesity, (C) infections.

A. Nervous Disturbances:—These receive attention because of the high importance attributed to them by classical writers, notably Naunyn, and the persistence of a widespread belief in the nervous causation of diabetes. There was no example of traumatic diabetes in the present series. A suspicion of this sort was possible only in the case of a patient who had been struck on the head with a small stone two years before the onset of diabetic symptoms, but the injury seemed too slight to be significant. Several patients suggested that their diabetes had been brought on by worry, but this notion was chiefly derived from the current theories which they had heard discussed, and it was not possible to compile any statistics distinguishing between patients who had had special worry and grief and those who had not. Allen has discussed the nervous hypothesis of diabetes, and has stripped it of most of its importance by two principal arguments: first, the world war with all its physical and metal shocks and stress did not increase the incidence of diabetes;[3] second, the pathology of diabetes disagrees with the assumption of a merely nervous etiology. The possibility remains open that the nervous system may play some minor part as an exciting or aggravating factor in diabetes, but with more careful study it tends to retreat more into the background.

B. Over-eating and Obesity:—Sixty-nine patients (approximately 60 per cent.) of this series were obese when received or gave a history of obesity. The proportion might have been increased by considering all excesses of weight above the average set by insurance companies, but the above figures refer to marked and unquestionable obesity. Other patients who were not notably obese gave a history of gross excesses of diet, sometimes particularly in sugar and starch and sometimes in food in general. These records were not classified, because it is difficult to draw an exact line between excessive and normal eating. Continued excesses naturally lead to obesity, and there was no other apparent cause for the excess weight in the patients who were obese, and no difficulty in reducing their weight by limitation of diet. A further discussion of this factor might have been undertaken, had not Joslin[4] recently covered this subject thoroughly and convincingly. Also, as it has been shown experimentally that an existing diabetes can be aggravated or controlled by increase or reduction of the body weight, it is safe to assume that the same influence may determine whether a diabetic tendency becomes active or remains latent. There is no evidence that either gluttony (in carbohydrate or other food) or obesity can be a primary cause of diabetes in an otherwise normal individual. Fibro-fatty changes, when present in the pancreas, must be attributed to another origin, and excessive diet and obesity must be regarded only as a secondary or exciting cause.

(C) Infections:—There is a considerable literature of reports of diabetes coming on acutely during or following acute infection. Saundby[5] reported two such cases in 1890. In a clinical lecture in 1896, James[6] stated that there had been a distinct increase in the number of cases of diabetes admitted to the hospital following epidemics of influenza. This suspicion concerning influenza was renewed by Hirschfeldt[7] in 1908 and particularly of Motzfeldt.[8] Joslin states, "In only a few instances have I been able to associate infectious disease with diabetes; in fact, in only 28 cases of my series"; also, "On the other hand, the marked lowering of tolerance for carbohydrate in diabetic patients when an infection appears is an emphatic demonstration that this subject should be thoroughly investigated."

From purely clinical evidence, it is seldom if ever possible to decide whether any case of diabetes following infection is primarily caused by the infection or has previously been latent and is merely excited into activity by the infection. Other factors, such as heredity, often serve further to confuse the question, as previously mentioned. Allen[2] has clarified the subject by showing, from the literature and by personal observations, (*a*) that pancreatic disease is very common, and in addition to true chronic pancreatitis, various acute infections are accompanied by acute inflammations and necroses in the pancreas which may give no perceptible clinical symptoms at the time but nevertheless leave the organ permanently damaged and scarred thereafter; (*b*) that all accurately studied cases of diabetes show pancreatic lesions of this character at autopsy, and even when the existing fibrosis or other pathology is slight (so that the pancreas has sometimes been reported as "practically normal"), these changes are nevertheless important as remains of a former acute inflammation which has damaged the islands of Langerhans in structure or function; (*c*) that these conditions can be imitated by experimental aseptic inflammation of the pancreas in experimental animals, which produce both diabetes and the various degrees of scarring in the pancreas. With the support of this pathological and experimental evidence, it is no longer necessary to require strict clinical proof that a given infection gave rise to diabetes; but just as heart disease is connected with tonsillitis or some other antecedent infection or in other cases some portal of infection is assumed if not known, so also in taking the clinical history of a diabetic patient particular care should be employed to inquire for infections which may have been responsible for setting up pancreatitis. In the majority of cases no positive clinical relationship of this character can be traced, and the origin of the pancreatitis (the occurrence of which must still be assumed on the basis of autopsy evidence) must remain unknown. In a large minority of cases, careful questioning will reveal relationships which add support to the infectious theory of the etiology.

Among the 116 cases of the present series, 51 were found with histories sufficiently suggestive to warrant tabulation.

Table 2 shows 8 cases in which diabetic symptoms followed immediately upon local or general infection. The first 4 are cases of gallbladder infection, presumably communicated through the ducts or lymphatics to the pancreas. These cases all belong in this category, even when the actual diagnosis of diabetes was delayed for 6 or 9 years, because there was

a clear history of typical diabetic symptoms dating back to the time of the cholecystitis. The last four cases are general infections, 1 of streptococcus, the other 3 of influenza, thus adding to the bad repute of the influenza bacillus in connection with diabetes. The close relationship in these 8 cases leaves scarcely any doubt of the significance.

TABLE 2.—EIGHT CASES IN WHICH INFECTION WAS AN IMMEDIATE ANTECEDENT OF DIABETES.

Serial No.	Nature of Infection.	Predisposing Factors.	Time Elapsed.
111	Acute pancreatitis, diagnosed clinically, accompanied by icterus.	Overeating and obesity.	Never convalesced. Diabetes diagnosed in six weeks.
132	Acute epigastric disturbance with icterus, probably cholecystitis.	Heredity.	Glycosuria found during attack.
83	Chronic cholelithiasis, frequent attacks, chronic icterus.	Race.	Diabetes diagnosed after six years.
36	Puerperal sepsis at 25 and 40 years. Chronic cholecystitis for 15 years. Arthritis deformans for 18 years.	Race, obesity.	Diabetes diagnosed 9 years after onset of cholecystitis.
78	Acute streptococcic adenitis, simulating lymphatic leukemia.	Heredity.	Glycosuria found during attack.
124	Influenza.	Lead poisoning abdominal type.	Glycosuria found during convalescence.
218	Influenza.	Heredity, menopause, sedentary life, obesity.	Glycosuria found during convalescence.
204	Influenza.	Race, heredity, overeating, obesity.	Glycosuria found during convalescence.

Table 3 presents 43 cases in which the relationship is less immediate and clear, but in which the general knowledge of the subject now permits tracing a suggestive sequence of cause and effect. First are placed 10 cases of liver or gallbladder disease. Next come 9 cases of chronic gastrointestinal complaints, which are characteristic of a certain type of diabetics and are presumably connected with pancreatitis even in the absence of steatorrhea or other signs of extreme degree. The rest of the table is made up of a mixture of general and localized infections which may be suspected as responsible for the diabetes through pancreatitis.

The outstanding cause of a true chronic pancreatitis is syphilis, here represented by 3 cases. Single or successive acute infections constitute the remainder of the list. Two points in connection with this table call for special discussion.

First is the time elapsed before the apparent onset of diabetes. When such onset occurs within a few months, the causal relation of the primary infection may be considered clearest. Other cases have been listed in this table of suggestive relationships, even when the diagnosis of diabetes has been made 5, 10 or even 20 years after the original infection. In some of these instances it has been evident from the patient's history that active diabetes has been present for many years and only the diagnosis has been lacking. A further link in this evidence is furnished by the very recent observations of Sherrill,[4] who has shown that a "prediabetic" or latent diabetic state may exist for years with or without occasional glycosuria or other symptoms, yet with a deficiency of carbohydrate assimilation plainly demonstrable by glucose tolerance tests and serving as a clear warning of the coming

TABLE 3.—43 CASES SHOWING A SUGGESTIVE RELATIONSHIP BETWEEN PATHOLOGY OR INFECTION AND DIABETES.

Serial No.	Pathologic Condition.	Additional Causative Factors	Time Elapsed.
31	Hepatic enlargement, typhoid at 18	None known.	Six months after hepatic enlargement
126	Hepatic enlargement.	Heredity, overeating, carbohydrate excess.	Indeterminate.
149	Hepatic enlargement.	Race, overeating, obesity.	Indeterminate.
219	Hepatic enlargement.	Pregnancy	Indeterminate.
223	Severe catarrhal icterus.	Heredity, overeating, obesity.	20 years.
200	Enlarged spleen at 26. Severe icterus at 42	Race	6 years.
168	Acute catarrhal icterus in 1916, hepatic enlargement at admission.	Race, overeating, carbohydrate excess, obesity	Within a year.
191	Acute catarrhal icterus.	Heredity, carbohydrate excess.	Within a year
60	Acute hepatitis with icterus between 14 and 18. Acute icterus at 26, paratyphoid fever at 28.	Heredity, overeating	1 year after paratyphoid.
26	Dysentery, melena and chills followed by cholecystitis.	Heredity, overeating, obesity.	Indeterminate.
125	Chronic dyspepsia	Carbohydrate excess.	Indeterminate
24	"Stomach trouble" 16-24 years.	Moderate obesity.	Indeterminate.
214	Chronic indigestion.	Heredity, overeating	Indeterminate.
90	Severe gastrointestinal disturbance as child.	Heredity, overeating, obesity.	Indeterminate.
51	Gastrointestinal disturbances.	Heredity, obesity.	Indeterminate.
130	Chronic indigestion.	Race Constitutional inferiority.	Indeterminate.
159	Chronic indigestion.	Race. Overeating, obesity.	Indeterminate.
220	Chronic indigestion	Race. Heredity.	Indeterminate.
217	Chronic indigestion	Race. Overeating, carbohydrate excess, obesity.	5 years
231	Syphilis, acquired, treated with mercury and potassium iodide.	Race, heredity.	20 years
47	Syphilis, acquired, treated with salvarsan and mercury.	Race, heredity.	15 years.
141	Syphilis, acquired, no treatment.	Race, heredity, Overeating, obesity.	Indeterminate.
54	Acute appendicitis at 13 and 21. Bilateral oophorectomy at 23.	Artificial menopause.	Indeterminate.
76	Furunculosis for years, frequent respiratory infections.	Heredity, constitutional inferiority, carbohydrate excess	Indeterminate.
192	Mumps, measles, chickenpox, influenzal pneumonia, chronic pan-sinusitis	Race	Indeterminate.
156	Chickenpox, measles, mumps, typhoid fever.	Poor development, carbohydrate excess.	Indeterminate.-
43	Severe sinusitis, 1914, chronic since.	Race	4 years.
195	Acute and chronic nephritis.	Race Carbohydrate excess.	7 years after diagnosis of nephritis.
140	Phlebitis following childbirth, specific salpingitis	Race. Heredity.	10 years.
146	Fistula in ano from 15 to 27, badly infected much of that time.	None.	12 years.
150	Two rectal abscesses in past three years, frequent tonsilitis	Race, carbohydrate excess.	2½ years
137	Acute appendicitis at 51, chronic intestinal obstruction past 4 years.	Heredity, overeating.	Diabetes discovered by blood analysis.
1	Acute suppurative appendicitis, frequent tonsilitis, two attacks of measles.	None.	6 months.

TABLE 3.—Continued

Serial No.	Pathologic Condition.	Additional Causitive Factors.	Time Elapsed.
41	Scarlatina, pneumonia, measles as child, endocarditis at 18, gangrenous appendicitis at 25, chronic nephritis for three years prior to onset of diabetes.	Poor development, overeating.	6 months after appendicitis.
187	Measles, scarlatina, diphtheria, and pertussis between six and eight years.	Overeating, carbohydrate excess, obesity 8 to 11 years.	3 years.
184	Measles, mumps and severe catarrhal icterus 3 years prior to onset.	Race, double heredity	3 years.
205	Mumps, measles, chickenpox, frequent tonsilitis.	Heredity, badly balanced diet.	Indeterminate.
97	Measles, preceded by mumps and chickenpox.	Heredity, carbohydrate excess	2 months.
166	Measles.	Race, double heredity, carbohydrate excess.	2 months.
44	Measles, infected wound of face.	Race, double heredity.	6 months.
196	Mumps, measles, scarlatina, typhoid, diphtheria.	Race, heredity, overeating, carbohydrate excess.	6 years.
70	Severe typhoid fever, three relapses.	Overeating, carbohydrate excess.	6 years.
85	Frequent severe otitis media influenza in 1914	None.	8 to 9 months

of outright diabetes in the future. Under these circumstances the cause which damages the pancreas must often be sought at a period years before the diagnosis of diabetes, and a fallacy must lie not in attempting to trace the clinical history in such a sequence but rather in trying to assume some immediately associated factor or symptom (such as a nervous state) as the cause of a diabetes which has actually been coming on for many years.

Second is the confusion introduced by other factors which enter into the history of many or most cases. One of these is heredity. Allen's studies have brought into prominence the fact that the pancreatic pathology is entirely similar in hereditary and non-hereditary cases; in other words the pathology indicates pancreatitis as the cause of the diabetes even in hereditary cases. "If this be true, the problem of hereditary diabetes becomes simply the question why certain families or races are specially subject to pancreatitis or to a particular form or consequence of it." "With diabetic heredity such inflammations may be either more frequent, or, by reason of an inherently subnormal functional power of the organ, more serious in their consequences; and accordingly there will be special interest in examinations of the pancreas of both the non-diabetic and diabetic members of diabetic families." Over-eating and obesity, as elsewhere mentioned, cannot be regarded as primary causes of diabetes, but undoubtedly contribute to convert any latent tendency into the active disorder. None of these factors, therefore, detract from the value of attempts to trace the origin of any case of diabetes to its primary infectious cause.

Summary and Conclusion.—The recent advances in the knowledge of diabetes have given a fairly clear explanation of the etiology. Pancreatitis is very common, often giving no recognizable symptoms even in acute cases, but it leaves the pancreas more or less damaged in structure and function. In the majority of cases the injury is relatively slight and the margin of safety of the organ enables it to continue its functions. In very numerous cases, however, the islands of Langerhans are injured to an extent which produces various degrees of diabetic tendency. With sufficiently severe injury the outbreak of diabetes may be immediate; with the milder grades it may be postponed for years.

Some races and families are for unknown reasons specially subject to infectious or toxic damage of certain viscera; the lesions are readily revealed by autopsies, and clinical histories show the high frequency of the hereditary association. When an individual, with or without hereditary susceptibility, becomes potentially diabetic through pancreatic injury, over-eating (perhaps of carbohydrate especially) and obesity contribute to increase this tendency and develop an active diabetes, while abstemious living may keep the disorder latent throughout life. Because the degree of pancreatic damage which suffices for active diabetes in an obese person is insufficient for producing it in a thin person, diabetes developing in thin persons is generally more severe than that which occurs in the obese.

Prevention of diabetes, even in the susceptible families, may be expected more and more from prevention of the primary cause, through prevention and improved treatment of infections. Avoidance of gluttony (in carbohydrate or other food) and of obesity may be expected to prevent a large proportion of latent cases from developing. Precautions against infections (early removal of threatening foci in teeth, tonsils, appendix, galbladder, etc.) and against dietary excesses are most important in the members of predisposed families. The very few causes mentioned are probably all that require serious attention, and prophylaxis against the primary infectious and secondary dietary agencies may be hoped gradually to reduce the heretofore rising incidence of diabetes.

REFERENCES.

1. Joslin, E. P.: Treatment of Diabetes Mellitus. Lea & Febiger, 1917.
2. Allen, F. M.: Series of papers on the pathology of diabetes, in press. Preliminary outline in Rockefeller Institute Monograph No. 11, Chapter VIII.
3. Williams, J. R.: *Amer. Jour. Med. Sci.*, 154, 1917, 396-406.
4. Sherrill, J. W.: Paper read before American Medical Association, Boston, June 10, 1921. The diagnosis of latent or incipient diabetes.
5. Allen, F. M., and Mitchell, J. W.: *Amer. Jour. Med. Sci.*, 159, 1920, 25.
6. Joslin, E. P.: The Prevention of Diabetes Mellitus, *Jour. Amer. Med. Assn.*, lxxvi, 1921, 79-84.
7. Saundby, R.: Diabetes After Influenza, *Brit. Med. Jour.*, 1890, i, 1067.
8. James: Clinical Lectures on Diabetes, *Edinburgh Med. Jour.*, 1986, 889.
9. Hirschfeld, F.: Zur Entstehung des Diabetes. *Dtsch. med. Wchnschr.*, xxxv, 1909, 137.
10. Motzfeldt, K.: Diabetes og Influenza. *Norsk Mag. f. Laegev.*, No. 4, 1920.

Action of the Rabbit Spirochete on Man.—Recently the rabbit has been found to suffer from a spirochetosis natural to itself, a fact which doubtless throws some light on the susceptibility of the animal to syphilis. The lesions, which are papulo-crustaceous, attack the genitals and nostrils. This spirochetosis has been encountered in the rabbits of numerous European countries and has received the name of *S. cuniculi*. Levaditi and others have been testing this spirochete in mankind, but thus far the latter has proved immune to it.—*Gazette des Hôpitaux.*

CANCER A MUTINY OF BODY CELLS.

By L. DUNCAN BULKLEY, A.M., M.D.,

NEW YORK

SENIOR PHYSICIAN TO THE NEW YORK SKIN AND CANCER HOSPITAL; MEMBER OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

SOME one has likened the systemic process of carcinosis, which results in the local lesions in various locations of the body to which have been given the name of cancer, to a mutiny or rebellion of certain previously normal or healthy body cells to the conditions under which they exist, in regard to nourishment, hygienic surroundings, personal treatment, etc. While the suggestion was briefly considered in my recent book, the subject is such a wide and important one, and opens so fully all the relations of cancer, that it will bear further development.

We can understand how the body cells rebel against wrong conditions of nourishment, in the light of the remarkable book by Quevli,[1] in which the subject of "Cell Intelligence" has been worked out and developed scientifically, and so convincingly that there is no question but that their aberrant and riotous action is the result of the condition in which they find themselves.

A regiment of soldiers has been sent far away, as, for instance, to Siberia, and owing to difficulties of transportation and lax and bad management, mainly on the part of subordinates, the food and other elements of life have become wrong and in every respect intolerable. Finally a single soldier or two, representing individual body cells, rebel, and declare to their comrades that they will not stand it longer, and presently fifty or more agree with them, and they propose to kill their officers and return home. The colonel of the regiment hears rumors of the dissatisfaction and investigates, and happens in at a meeting of the plotters, and quickly surrounds and arrests them and has them all shot, just as the surgeon removes the riotous group of cells forming the tumor called cancer.

But if the intolerable conditions of life remain the same, this may not prevent another group of riotous soldiers, or cells, forming in the same locality or elsewhere in the regiment or body, and the surgical removal or shooting of these will not prevent still other mutinous bodies forming, until the whole regiment or body becomes affected, and subsequent drastic treatment ends the life of the regiment or body. This we see every day in cancer, for all recognize and know that repeated surgical operations end disastrously, and Ewing[2], as a result of pathological observation states, in regard to mammary cancer, "There can be no doubt that operation shortens life and aggravates the terminal suffering in a great majority of recurrent cases."

What now happens if a good and compassionate colonel is in charge of the same regiment? Hearing the rumors of dissatisfaction he investigates and happens in at the same meeting, or listens outside, in which the soldiers, or cells, are complaining to one another and proposing to kill their officers, as the cancer cells, if the bad conditions of body remained unchanged would of themselves kill the patient. The good colonel hears the soldiers declaim to each other the various sources of discontent which were leading them to riotous and mutinous conduct. "The beef and canned goods are rotten," "The potatoes are frosted and decayed," "The canned milk is all sour," "The cereals are full of maggots," "The black bread is sour and mouldy," "The drink called coffee is made from acorns," etc., etc. Moreover, "The hygienic conditions are dreadful," "The wooden flooring of the tents is decayed, and some are sleeping on the ground," "The tents are worn out and leak in the rain," "Filth prevails everywhere," "There is an insufficient supply of blankets, and the tents not being warmed and the clothing poor and worn out, some perish from the cold, while all suffer," "The shoes are worn out, and those that were provided did not fit, but caused sore feet," "There were no gloves or mufflers to protect against the bitter cold," etc., etc. "Let us kill our officers and go home."

The good colonel hears all this from the outside and steps into the gathering and says, "Boys, I have been hearing all that you have said; why did you not come right to me? The things you mention are shameful and should not be, and I have been derelict and should have looked into and rectified them before; but all shall be changed and you shall all be the good soldiers, such as you always were before we came to Siberia."

By some means or other, with great care and attention to every detail he secures better transportation and supplies them with the proper and best food imaginable and rectifies all the hygienic and personal elements which were wrong. He dismisses all the commissary agents and also the noncommissioned officers, appointing new ones who carry out scrupulously all his personal orders, and he places everything as it would be in an ideally regulated camp, under his own personal supervision, in every detail.

What now happens to this discontented, riotous, and mutinous group of soldiers? There is no need of shooting them because they have threatened to kill their officers and go home, for they thought they had, and did have, just reason for complaint. Now all is changed, and they take up their former life of obedience to just commands, do their work and drilling cheerfully, and become again even better soldiers than before, because they have experienced the beneficial results of human intelligence and compassion, instead of the irritating and harmful influence of ignorance and brute force.

The simile applies perfectly to cancer, as I have repeatedly shown elsewhere, and as many will testify, who have, with great patience and perseverance, applied the right principles of correct dietary, hygienic, and medicinal treatment in carcinosis, wherever its local lesions are manifested in various parts of the body. Of course we have not reached the point where every case of cancer, in every stage of the disease can be cured, but under sufficient and exactly proper medical management there need not be the 90 per cent. of ultimate deaths from cancer that surgeons acknowledge to be the case at present; early cases that have not been operated on yield in a large proportion, as

has been repeatedly shown, while even advanced, inoperable, and postoperative cases show plainly the beneficial results of procedure along these lines, with some recoveries. Moreover, when the lesions and the real carcinosis disappear, with the removal of the causes, the cure is complete and permanent, until new causes arise, even as in the army there would be no more mutiny when the reasons for it had ceased to be operative.

The simile of a mutiny also explains the occurrence of metastases. We can understand how one or more members of the first disaffected group of soldiers might go to another company and call attention to the same grievances which had caused them to rebel, and thus a metastasis or new group would arise elsewhere and spread to any dimensions. And so again from this second disaffected group some might go elsewhere, until the whole regiment was infected. With the intelligent body cells of cancer the same can take place, if the constitutional conditions remain active.

Finally, the simile of a mutiny explains satisfactorily the matter of the supposed local origin of the lesions in carcinosis, about which so much is said, and claimed wrongly. We all acknowledge that cancer of the tongue and buccal cavity arise from the local irritation of a broken or decayed tooth, but of the thousands of such that exist, how very few result in cancer! Smoking, especially the use of a pipe, is accredited with cancer of the lip and mouth, but how seldom does this occur among the thousands who use tobacco! Cancer of the breast is often attributed to a blow, but almost every woman has, at some time, had a blow on the breast or irritation from a corset, while relatively few develop cancer. Stones in the urinary or gall-bladder are assigned as causes of cancer in those localities, but patients have been known to carry these for many years, even up to twenty-five, with no cancer resulting; as is also shown by hundreds of operations for their removal and the rare discovery of a cancer having developed. The same may be said of cancer in various other localities.

In regard to epithelioma of the skin, the epidermoid carcinoma of Ewing, upon which surgeons so often base their claim for radical operations, much may be said, but we forbear. If not irritated or treated wrongly this is often, or commonly a local, trivial affair, often easily cured in many ways, and only seldom, or when aggravated by injudicious treatment, does it manifest a destructive nature, and then it is owing to the same internal conditions which induce cancerous lesions elsewhere, as already intimated. We know how rarely metastases occur in basal-cell epithelioma, and very seldom in internal organs, but spinocellular epithelioma metastasizes freely, even in distant parts, as in the liver and bone marrow.

Applying now our simile of a mutiny of soldiers, to the action of the cells forming the lesion which we call cancer, we can readily see how a local irritation may act as the exciting cause of rebellion, by soldiers or cells, against existing conditions of life, while perhaps the latter alone would not suffice to produce a mutiny or the malignant growth: even as a spark suffices to start a great fire in combustible materials.

The soldiers may have endured their increasing discomforts and distress without resistance or mutiny, until some unjust or unkind treatment, or a blow, from a corporal or a sergeant, led them to open rebellion. In the same way the cells of a part may have long suffered nutritive and neurotic, or other grievances, and yet have striven to perform their functions faithfully, secreting milk, gastric juice, bile, urine, etc., until some external agency gave them a shock of unusual or unjust treatment. Some local injury precipitates matters and leads them to throw off their allegiance to physiological control and action, and starts them on their abnormal and riotous career. Ceasing to functionate as before in their proper glandular or other action, they still have the power of growth and reproduction, and a useless malignant neoplasm is formed.

We all know that after the surgical excision of an innocent adenoma, which had been pronounced non-malignant microscopically, true cancer may develop, metastasize, and destroy the patient; and the surgical removal of a true carcinoma will often seem to light up a much more severe and distressing trouble. It is quite logical to believe that, if the nutritional and other errors of system persist, these wild and riotous cells will continue their mad and destructive career, and that they will metastasize, as already mentioned. All this accounts well for the wrong theory of the purely local nature of cancer, which has gained such a wide acceptance.

All surgeons and pathologists claim that we know nothing of the true cause of cancer: but everything has a cause, and careful clinical study and experience now show abundantly the correctness of the doctrine of a constitutional origin and cause of carcinosis, and that when taken early the local lesions called cancer disappear and remain absent as long as the casual elements are kept under control. Diet, of course, is the basic element, in order that the cells may receive the proper pabulum with which to perform their duties. But perfect nutrition depends also upon the correct action of the various organs of the body, including the endocrinous glands, and hygienic and proper medicinal measures are often necessary to secure a perfectly healthy blood stream, from which the body cells receive their nourishment. When this is ideal, the cells have no cause to mutiny.

REFERENCES.

1. Cancer and Its Non-Surgical Treatment. William Wood & Co., New York, 1921.
2. Quevli, Nels: Cell Intelligence, etc. The Colwell Press, Minneapolis, Minn., 1917.
3. Ewing: Neoplastic Diseases. New York, 1919, p. 522.

10 East 61st Street.

Late Recurrence in a Patient with Epidemic Encephalitis.—Rathery and Cambassades presented before the Paris Hospital Society a patient with a second attack of this affection. The first episode had occurred fifteen months before and was somewhat abortive in character. Eleven months after complete recovery there was a recrudesence with a Parkinsonian syndrome, salivation, exaggeration of reflexes, and foot clonus. Of interest was the fact that in the interval the patient conceived and bore a child.—*Gazette des Hôpitaux.*

SYNERGISTIC ANALGESIA WITH NITROUS OXIDE-OXYGEN AND MAGNESIUM SULPHATE.

BY JAMES T. GWATHMEY, M.D.,
NEW YORK,
AND
JAMES GREENOUGH, A.B., M.D.,
NEW YORK,
PRESBYTERIAN HOSPITAL.

STATISTICS, as well as laboratory and clinical data, demand the discontinuance of empirical methods of anesthesia, the using of some one agent or method because of its employment in some prominent clinic. American statistics,[1] embracing nearly 500,000 administrations, show that sequences and combinations are far more safe than any single method or agent. Laboratory experiments[2] prove that with preliminary medication the margin between complete anesthesia and respiratory arrest is lengthened, making anesthesia a safer procedure. Geoffrey Marshall[3] has shown that in severely shocked patients nitrous oxide-oxygen is not followed, as is ether, by a fall in blood pressure two to four hours after operation.

Pharmacologists are agreed that nitrous oxide is the least harmful of any of the general anesthetics in its effects upon the tissues and organs of the body. But nitrous oxide-oxygen, used alone, is immediately dangerous; when pushed to the point of saturation,[4] *i.e.*, when the patient is cyanosed, with dilated pupil and apnea, it is the most dangerous of all anesthetics. That patients have been asphyxiated and resuscitated does not warrant us in using this extremely dangerous method as a routine in order to avoid using ether, when the same results can be obtained by simpler and safer methods.

Meltzer and Auer[5] and their associates have proven that magnesium sulphate is not only an anesthetic, but also that it has no deleterious effect upon any of the tissues or organs of the body. Having proved fully its innocuous character, Meltzer made the natural mistake of attempting to use it *alone*, ignoring other agents and methods.

With all of the above and other collateral information we have attempted to avoid the mistakes of others and, taking advantage of the well-known synergistic action of all anesthetics and hypnotics, have used the most desirable in such a way as to get the greatest efficiency with the least risk. The three most desirable agents are, in our opinion, magnesium sulphate, morphine, and nitrous oxide-oxygen. By preliminary analgetizing the patient with magnesium sulphate and morphine and completing the analgesia with nitrous oxide and oxygen, the patient sinks into unconsciousness without struggling, is fully relaxed during the operation, and emerges from the ordeal without nausea, vomiting, or pain.

In the technique to be described in this paper, ether, chloroform, and ethyl chloride are absolutely excluded. Ether, by far the safest of these three drugs, is almost invariably followed by more or less nausea and vomiting, even when used with nitrous oxide and oxygen and in as small amounts as one to four drams. This does not hold when it is used intravenously or colonically. We can now get satisfactory relaxation without ether, and so this agent is entirely eliminated.

Studying synergistic analgesia from various angles and working in collaboration with many surgeons and anesthetists, several distinct techniques have been evolved, but in this paper only the technique for magnesium sulphate, morphine, nitrous oxide and oxygen will be considered.

To Dr. Adrien V. S. Lambert of the Presbyterian Hospital, New York City, more than to any one else, is due the credit for the development of the technique with nitrous oxide and oxygen. With this technique we have had between forty and fifty cases. The results have been so uniformly successful and compare so favorably with thousands of other cases in which nitrous oxide was used without the synergists that we have no hesitation in giving the full technique at this time, which is as follows:

Two soap-suds enemata one hour apart, or one soap-suds enema followed by a thorough irrigation until the return is clear, are given the night before the operation. A tap-water enema is given early the next morning. If not already in place, a folded sheet is placed under the patient to serve as a lifter at the proper time. The bed is now screened, if in a ward, or the room darkened and quiet demanded. Two hours before the operation a chloretone suppository, grs. xv, is given, after which the patient is not allowed to leave the bed. A half-hour later a breast hypodermoclysis is given of three or four hundred c.c. of a sterile and chemically pure 4 per cent. solution of magnesium sulphate at a temperature of 110° Fahrenheit. In one or two instances we have dissolved one tablet "A" novocain suprarenin in the solution and this seemed to allay the small amount of pain caused by the distention of the tissues. The whole procedure should be done aseptically, the solution running in by gravity in not less than thirty minutes. We have had no abscesses or sloughs.

A towel is now placed over the face, and every inducement is offered for sleep. The first hypodermic of morphine is given one and a half hours before the time set for the operation and consists of one-eighth of a grain. It may be given in plain water or magnesium sulphate. This is repeated at 15 or 20-minute intervals, until the full amount is given, the average adult receiving three-eighths of a grain. If an idiosyncrasy is present, it will develop before the time for the third dose. Quite often one-quarter of a grain is amply sufficient, especially for women.

At the proper time the patient should be lifted as gently and quietly as possible and placed upon the stretcher, or preferably upon the operating table, and taken to the operating room. Under no circumstances should he be allowed to help himself. When these precautions are taken, he will arrive in the operating room in a quiet and comfortable mood and quite often asleep. If asleep, he is probably analgesic, and in one or two instances the operation has been done by using novocaine for the skin and peritoneum.

However, our best results have been obtained by using nitrous oxide and oxygen. This factor may be considered as representing the margin of safety with this special technique, as it can be withdrawn

at any time, leaving the patient analgesic, but usually not unconscious. It is best to apply the mask before the usual preparation for the operation begins, as the gases themselves add considerably to the analgesia. With the mask in place, the oxygen is started at the same time as the nitrous oxide, and at no time should the patient be cyanosed or any attempt made to induce the usual signs of anesthesia. The patient, even before the inhalation of the gases, is almost completely analgetized, and the gases are used only to render the patient unconscious and to complete the analgesia. After the skin and peritoneum are incised, the oxygen may be rapidly increased up to 35 per cent., as the patient will be found fully relaxed, and stertor and cyanosis merely add to the danger without increasing efficiency. The second or excitement stage is absent, unless too low a percentage of oxygen is used and the patient becomes cyanosed. In certain cases, the gas and oxygen may be discontinued after the peritoneum is opened, but if rigidity is present, it should be immediately reapplied, and again during closure. A continuous administration with a high percentage of oxygen is the most satisfactory.

The general appearance of the patient in the condition just described (analgetized and unconscious) is so much more satisfactory than when the gases alone are used, that one feels fully compensated for the extra time and care taken in the preparation, and the patient's condition after the operation fully justifies every procedure. While some of the operations have been as severe as any known to surgery (including thoracotomies, removal of one or more ribs, decortication of lung, appendectomies, pylorectomies, gastrojejunostomy, jejunojejunostomy, tuberculosis of lungs and intestines, supravaginal hysterectomy, arteriosclerotic gangrene, etc., etc.), yet the symptom-complex known as shock is almost invariably absent. This does not mean that we can neglect the usual precautions when, from the nature of the operation and the low vitality of the patient, shock is expected.

An examination of the charts at the Presbyterian Hospital show that the respiration averages about 20. As respiratory arrest is the only factor to be feared with both magnesium sulphate and morphine, and as cyanosis is the one thing to be avoided with the gases; and as the respiration is normal and the patient is pink throughout—and, furthermore, as the patient is not in the third stage of anesthesia with consequent lowered blood pressure, but is analgetized and merely unconscious with normal blood pressure, it would seem that we have a more ideal condition in which to perform surgical operations than has heretofore prevailed.

Clinical experience, the final test of all medical and surgical procedures fully justifies this statement.

Wound pain is practically a thing of the past; the patients are comfortable for fifteen to thirty hours after the operation, with no nausea, no vomiting, and with respiration, pulse, and temperature about normal.

Where no great relaxation is required, or for minor operations or where for any reason it is impracticable to carry out the technique as described, the following modified technique has proved its value: One and a half hours before the operation, give by hypodermic $\frac{1}{8}$ grain of morphine in 2 c.c. of a chemically pure 25 per cent. solution, $MgSO_4$, and repeat in twenty minutes for a patient below par, and a third time for robust patients—making the maximum dose $\frac{3}{8}$ of a grain of morphine with possibly 1 100 grain of atropine and 6 c.c. of magnesium sulphate. This is to be supplemented by gas and oxygen—the oxygen to be started at the same time as the gas—the patient never to be cyanosed at any time, and the percentage of oxygen to be slightly increased over the usual amount after the operation has begun.

REFERENCES.

1. Gwathmey, James T.: Anesthesia, page 843.
2. Gwathmey, James T.: *N. Y. Med. Jour.*, Oct. 28, Nov. 4, 1916.
3. Marshall, Geoffrey: Transaction of Royal Society of Medicine, London, 1917.
4. McKesson: Advances in Pure Nitrous Oxide and Oxygen Anesthesia, *Amer. Jour. of Surg.*, October, 1920.
5. Meltzer, S. J.: *Jour. Exper. Med.* xxiii, 641, May, 1916; *Am. J. Physiol.* xiv, 366, 1905, and xv, 387, 1905.

40 East Forty-first Street.

THE RECOGNITION AND CORRECTION OF ENTEROPTOSIS IN CHILDREN.*

By CHARLES GILMORE KERLEY, M.D.,

NEW YORK.

Children showing faulty growth and defective development along physical lines furnish us some of our most difficult cases. We often find such patients suffering from chronic gastrointestinal disorders which have resisted the usual method of management. Because of our inability to successfully cope with some of these patients and feeling that further information was a necessity, an *x*-ray study has been made in a series of 91 cases. The method of diagnosis heretofore had depended upon the symptomology, an examination of the stools, of the urine and of the blood. The treatment consisted in efforts in dietetics in the use of drugs, in rest cures and climate. By means of the *x*-ray carried out by Le Wald, we have demonstrated various types of abnormalities, congenital and acquired, that have enabled us to establish a correct appreciation of the condition, without which rational treatment was impossible.

Among the abnormalities found, only ptosis of the stomach or intestines or both will engage our attention. Children in whom we have proven enteroptosis are very similar in the following features: They show defective development, malnutrition, and secondary anemia.

The Ptosed Stomach.—We have no evidence to offer that this condition is of congenital origin. From a searching investigation of the previous feeding habits it would seem that in all our cases the ptosis may be explained by the overload, and this over-loading takes place during the first three years of life. The frequent feeding of 8 to 9 ounces in the bottle fed seems to be an important etiologic feature. Another and probably more important error is the custom in many families of forcing

*Read before the Medical Society of the County of New York, April 25, 1921.

large quantities of milk after a solid food diet had been instituted.

Ptosis of the Colon.—A complete colonic ptosis has always been associated with a ptosed stomach. Ptosis of the cæcum, however, we have observed in 5 cases in which there was no drop in the stomach, these also are in all probability a result of overloading and stasis, as there was a colonic deformity or angulation further on which caused the back-up.

As has been mentioned, the enteroptosis patient suffers from maldevelopment because of insufficient food intake, and this appears to depend upon the following chain of circumstances, namely: poor appetite, food residue, abnormal relations of the pylorus to the stomach, and hypomotility. All our cases in which a ptosed stomach was demonstrated showed food residue five hours or longer after a Bismuth meal. These observations have been corroborated by the use of the stomach tube after an ordinary meal. The ptosed stomach means an enlarged organ, a type of dilated stomach. All dilated stomachs with us have shown hypomotility.

The symptom complex enteroptosis in children is an habitually poor appetite, recurrent vomiting, nausea without vomiting, eructations of gas and constipation. These children are improperly nourished because of insufficient food intake.

The habitually poor appetite is due to the presence of residue in the stomach when the next meal hour arrives. In order for a child to be hungry at meal time there should be an interdigestive period of half an hour to an hour. In addition to the poor appetite the residue case is a subject of recurrent vomiting and has usually been treated for acidosis.

Ptosis of the colon and sigmoid invariably means constipation of a nature that requires daily attention to the bowel function. These patients are usually of the sway back type and the abdomen is enlarged.

Management.—Our first step is to secure proper mechanical support. An abdominal belt with a projecting ridge for those in whom the stomach alone is ptosed is fitted to the patient. The ridge is so arranged that the pressure is exerted against the lower portion of the stomach. In those in whom both the stomach and intestine are involved, a large thick pad is fashioned and attached to the inner surface of the belt. This support is worn constantly when awake.

Rest in a Recumbent Position.—The carrying requirements of the stomach are lessened and the emptying of the stomach is facilitated by having the child rest in a recumbent position (on the right side, if possible) for an hour after a meal, and only solids are given at meal time. Fluids such as milk and water are given at a period equally distant between meals.

Pyloric spasm, which we have frequently found in other abnormalities, has not been much in evidence in the ptosed stomach.

Constipation.—Our so-called constipation diet schedule is given the patient. Laxative doses of aromatic cascara are given three times daily in sufficient quantities to produce an evacuation. In some we have added nux vomica and belladonna. Daily massage by a skilled operator is employed if the family means will permit. The results of this management in the main have been satisfactory.

The improved appetite is readily produced by establishing a normal emptying of the stomach and a satisfactory gain in weight has followed the larger food intake. Later *x*-ray observations have shown the stomach occupying its normal relations. In those with the badly ptosed intestine the patients have not been observed sufficiently long to warrant conclusions.

(Several lantern slides demonstrating various types of ptosis were shown.)

132 WEST EIGHTY-FIRST STREET.

GONORRHEA IN WOMEN FROM THE STANDPOINT OF THE DIAGNOSTICIAN:

ITS COMPLICATIONS AND TREATMENT.

BY WARREN H. HOAK, M.D.,

BALTIMORE, MD.

P. A. SURGEON (R.), UNITED STATES PUBLIC HEALTH SERVICE.

POSSIBLY the greatest and most widespread of all venereal diseases in woman is gonorrhea, and there is probably no one infection which appears in so many varieties and forms, and is the etiological factor of so many and commonly met pelvic disorders, as this infection. And yet with the above known facts, its infinite variety of clinical pictures, its frequently obscure onset, its insidious progress, and the delicacy with which one must go about diagnosing the trouble if suspected, from a sociological point of view, often obscure the proper diagnosis and early treatment which is imperative if a cure without complications is to be obtained.

Now let us look into some of the factors which cause this disease to be so different in its extent, varieties, etc., from the same infection in man.

First of all, let us go back to the anatomy of the female genitalia—here we will remember that there is very close proximity of several structures, covered with mucous membrane, and glands, and *all* except the vagina affording an excellent culture medium for the development and extension upward into the pelvic organs—once the gonococcus is implanted. As a general thing all the external genitals as far as the cervix, including the urethra with the glands of Skene and Bartholin, which make excellent traps for the infection to lodge in, are found to contribute in the infection at the same time. Then, as the process extends, if not properly treated we find the infection traveling upward through the cervix, uterus, and tubes, and finally in some cases out into the peritoneal cavity. The process may not stop even in the peritoneum but may be blood-borne to various distant organs, as the several large joints, and serous cavities, as the pericardium and pleura and set up a very virulent and sometimes fatal inflammation.

On the other hand, gonorrhea practically always results from sexual intercourse, which in most cases is illicit (either directly, or indirectly on the part of the husband) and from the knowledge of this fact, the woman often tries to conceal her trouble —hide everything which, if she should make known, she fears would ruin her reputation and moral standing for life. Thus she does not seek medical advice early in her trouble, as she should, but allows it to continue until it extends to such an extent and her suffering is so great that she is *compelled* to seek

medical attention, and then often finds she has waited too long; that the process has gone far beyond a cure, and she sees invalidism and suffering staring her in the face for the rest of her life. Happily, however, this is not the fate of all women who transgress and are the victims of such an infection.

The sociological standing especially—the woman who has innocently become infected by her husband, must always be considered with the utmost acuteness. We must protect the social relations—not necessarily protecting the husband in his infidelity, but protecting the woman from knowing that she is suffering the results of an unfaithful husband, which would be much harder for her to endure than the suffering from the disease itself, and possibly break up an otherwise happy family relation with its sequential curses.

Another important factor which often causes delay in the innocent married woman is the fact that she is frequently led to believe that the discharge or burning sensation is only a physiological or normal occurrence, the result of early married relations, and thus she pays little or no attention to it until it advances to such an extent as to cause her unbearable suffering, when she decides to consult her physician—and here, again, the latter may not be alert, and not suspecting the true nature of the infection, assures the patient there is nothing to be alarmed at, and administers symptomatic treatment without seeking the cause of the malady and removing it if possible. Thus the physician who undertakes the care of a woman with a suspected gonorrhea has no easy task on his hands. It will require every bit of skill that he possesses both in determining the true nature of it, and afterwards in the handling and treatment of the case.

The popular question might easily come up here: "Can you cure a case of gonorrhea in the female" and if so what would you be guided by in giving a favorable prognosis?

This is a greatly disputed question and the answers will vary possibly in almost direct proportion to the number of men you question on the matter. For instance, should you inquire from an obstetrician he would undoubtedly say—"Once a woman contracts gonorrhea, she always has it although it may cause no marked symptoms, but generally if she becomes pregnant she always tends to run more or less of a temperature during her puerperium which as a general thing does not prove serious, but at the same time is supposed to be the result of the old infection, that is, of course, providing there is no other causing factor. Be on the lookout for this during the puerperium of such women.

On the other hand—a gynecologist would be likely to tell you that gonorrhea is curable providing the case is seen before it extends beyond the internal os, and proper treatment is administered at once and faithfully carried out. However this unfortunately is not always the case, as one would readily deduct from gynecological statistics, which show the great percentage of women suffering from acute pelvic disorders, 90 per cent. of which are supposed to be due to gonorrhea. Thus in all suspected cases be guided by your better judgment rather than the social standing of your patient, in giving your prognosis and making your diagnosis.

Now that we have dealt with some of the many obstacles with which the physician meets in determining the true nature of this trouble, and have spoken of the necessity of an early and proper diagnosis with appropriate treatment before the process travels into deeper structures beyond medical aid, let us consider some of the common complications which result from neglected and improperly treated cases of gonorrhea.

As we know, the complications of this disease in the female are numerous, and volumes have been written on the subject. It is not my intention here, however, to consider the entire list, neither do I intend going into the finer details of any one complication. I merely intend considering briefly the important points of some of the most common complications which the physician is constantly coming in contact with, and if he is not on the alert will often baffle him.

In considering the complications of this disease we shall speak first of the parts primarily affected in which the affection may go on to a chronic process, thence the extension upward to pelvic structure.

As I mentioned before, due to the close proximity of the external genitalia, as the vulva, urethra, with their glands, vagina, etc., when once the gonococcus becomes implanted it generally attacks all of the structures at about the same time—and the result is an acute or subacute vulvitis, urethritis, or vaginitis. When this occurs we find these parts greatly inflamed and more or less edematous. The vulva, urethra, and vagina are swollen, red, and very tender, presenting the cardinal signs of inflammation as found elsewhere, and bathed in a creamy purulent exudate. This process tends to become chronic and the glands of Bartholin often become the seat of abscess formation. They are seen to be swollen, red, and tender, and fluctuation may be present. On incision we find them filled with a creamy pus, rich in gonococci. Skene's glands of the urethra are often found in the same condition and if not properly treated in the same manner are frequently the cause of a long-standing and chronic inflammation with extension upwards to the tubes and ovaries, due to the fact that the germs are lodged deep in the tissue of the glands and are not reached by the ordinary and common irrigation and application to the surrounding parts.

A specific cystitis often results; due in most cases to improper catherization and irrigation, although it may extend by tissue continuity through an infected urethra. This is a common occurrence, especially in the female, and the damage does not always stop here, but may extend by way of the ureters to the kidney and result in the development of a gonorrheal pyelitis.

Gonorrheal endocervicitis is thought by many men to be the primary seat of infection and the others secondary, but this can hardly apply to most cases. It is frequently the result of a neglected or improperly treated vulvitis and vaginitis, due in many cases to improper manipulation and irrigation on the part of doctor or patient, but in some cases it may be the result of extension by continuity of tissues. While this is a very grave complication in any case, due to the chance of extension up into the uterus, the prognosis must always be guided by the relation of the process to the internal os. Once it passes this limit, the woman is past a cure by

medical means, in the opinion of our best authorities of to-day.

This condition should, however, be readily recognized and treated before further extension takes place. It manifests itself by a thick tenacious secretion (white of egg) which is always characteristic of a cervical discharge, while that from the uterus, on the other hand, is thin in consistency and of a milky appearance. The cervical secretion is quite irritating, and if the process is an acute one, it will contain the gonococcus. The cervix is found to be greatly swollen, tender, edematous, and bleeds readily on manipulation.

This condition, if neglected or improperly treated, tends in all cases to run a chronic course and extend up into the endometrium, continuing its work there. It can readily be differentiated from a chronic endocervicitis or malignancy of the cervix by its short duration and acute onset and from an endometritis by the nature of the discharge; and whether or not it is gonorrheal in character is determined by a microscopic examination or the history of a previous existing gonorrheal vulvitis or vaginitis.

While it is not the consensus of opinion that a cervicitis is the cause of the infection of all the parts lower down as the vulva, urethra, etc., it is, however, with metritis probably the cause of a chronic vaginitis, due to the fact that the vagina is not a favorable seat for the germ to live. When found in this place it is probably due to the constant presence of the cervical or uterine discharge, which is full of the germs, thus causing a constant infection and chronic inflammation. Once the cervical infection becomes chronic we have a sad state of affairs, and the process by this time either has extended or is extending upward into the endometrium and on to the adjacent structures.

Next in anatomical order as the process extends upward we have the involvement of the endometrium. The gonococcus is by far the most frequent source of bacterial infection of the unpregnant or non-puerperal uterus, due to the fact that it is about the only germ that will implant itself and grow in the tissues on mere contact. Once the infection passes the limits of the internal os we have an endometritis to deal with. This may come about by a spontaneous extension upward by continuity of tissues or as the result of improper manipulation of the parts with applications, irrigations, etc.

The endometritis may occur immediately after the infection of the cervix, or the inflammation may remain localized in the latter for weeks or months, but during the menstrual period is the most favorable time for spontaneous extension upward, due to the condition of the tissues at this time. Once the gonococcus is implanted on the endometrium it tends to spread and involve the entire lining of the uterus. It may be found through the tissues of the uterine walls, although more abundantly in the mucous membrane and deep in its glands. This condition manifests itself by the usual signs of acute inflammation elsewhere; the uterus is congested, swollen, painful, and tender to the touch and a mucopurulent (thin) discharge is seen to exude from the cervix, which will show on microscopic examination, dead leucocytes, epithelia, pus, and a few red blood corpuscles with an abundance of the diplococcus of Neisser.

This generally comes on some few weeks after the vaginitis and cervicitis, and its course is always progressive, tending to become chronic with further extension upward and involvement of the tubes with a resulting gonorrheal salpingitis with extension to ovaries and adjacent peritoneal surfaces; but it does not involve the connective tissue (parametrium) to any great extent thus differing from the ordinary pus organisms.

Now let us follow the infection on to the tubes. This possibly is one of the most common and disastrous complications of gonorrhea in the female, causing invalidism and sterility, in many cases, for the rest of the woman's life, providing the process is a bilateral one, as it generally is. Statistics show that the greater number of cases of acute pyosalpinx are due to gonorrheal infection and that it is the etiological factor in practically 80 per cent. of all chronic inflammatory masses of the pelvis. Pyosalpinx is said to be the characteristic lesion of pelvic gonorrhea.

The process in the tubes follows on closely after the infection of the endometrium and may be detected either in a few weeks or months after the endometritis has been established. In many cases of an unrecognized gonorrheal infection of the organs lower down we may have the inflammation arising apparently spontaneously, with very severe symptoms. In these cases we must inquire into the history of a previously existing urethritis or frequent urination with burning, etc., and at the same time examine a smear from the cervical discharge. Such cases as these are often found in young women who have been married but a few months and come to the physician complaining of marked pain and tenderness in the pelvis over the tubes, with rigidity of abdominal muscles, backache, headache, and general malaise. In these cases we generally get some fever (102°-104°) and a pulse invariably much faster in proportion to the temperature.

The uterus is found to be enlarged and softer than normal, very tender, and boggy to the touch. The intense edema of the surrounding tissues make it practically impossible to palpate the tubes. The pelvic structures are pushed low down in the cul-de-sac and the latter is found to contain a purulent fluid which harbors the diplococci. When the tubes are exposed to the eye they are quite characteristic of Neisserian infection causing the trouble, being markedly swollen, congested, edematous, and full of pus. Their ends are inverted and adhesions to surrounding parts are often present in contradistinction to tubercular tubes which are not tied down by adhesions and whose ends are always everted resembling that of a cock's comb.

This condition tends to run a chronic course with extension to the ovaries resulting in a chronic salpingitis and oophoritis which will, in most cases, continue with relapses and remissions throughout the sexual life of the woman until the menopause when the parts atrophy and the process subsides.

It may be well to mention here in regard to the diagnosis from examination of the contained pus, that the gonococcus is not always found in pus of a long-standing pyosalpinx, due to the fact that it is a short-lived coccus, and that it dies after a certain period of time in its own secretion.

Treatment.—In considering the treatment of gonorrhea and its complications we will divide it into two parts, namely *prophylactic* and *curative*.

The prophylactic is possibly as much if not more important than the curative, because upon it depends to a great extent the final result as well as guarding the patient from carrying the infection to more distant parts of her own body, as the eyes, etc., and also affording protection to other members of her family from infection.

When a woman with a specific infection of the genitalia consults a physician she should be instructed at once regarding the very infectious nature of the disease, warning her at the same time of the disastrous results it may lead to, both to herself and the others who come in contact with her, if she does not carry out the rules set down for her. In other words she should be instructed how to live until the infection has been eradicated from her system. In many cases of married women who are innocent of the nature of their malady these strict instructions will often arouse their curiosity and they will ask the cause of their trouble. In most cases it is not wise to make the truth known, especially if it is going to bring about a break in marital relations, and the physician can in most cases eradicate this tendency by telling the patient that she has a very virulent infection, the secretion from which is quite prone to infect others as well as herself, with special explanation regarding the infection.

Instructions to the woman regarding the care of herself and mode of living should be somewhat as follows: In the very acute cases she should be kept in bed. She should refrain from any violent exercise as horseback riding, tennis, dancing, heavy work, etc. Her diet should be of a mild nature, and she should refrain from stimulating foods, as condiments, alcoholics, etc. She should use separate toilet linen, basins, etc., and her hands should be washed in a solution of bichloride of mercury each time after she touches the infected parts—with special instructions again regarding her eyes. All packs, sponges, bandages, etc., should be burned at once, and needless to say cohabitation should at all times be refrained from.

The *curative* treatment varies greatly with the different physicians handling the disease, but in all modes of treatment the purposes are about the same, namely: 1. To prevent upward extension. (2) To relieve the discomfort. (3) To eradicate the infection completely.

In considering this part of the treatment we will include all the external genitalia as far as the cervix with urethra and its glands, as all of these structures are generally involved to a greater or less extent at the same time, and then we will take up the complications individually.

Possibly the best way to handle the cases is to follow some routine schedule, modifying the treatment, of course, for each individual case as it presents itself. For convenience this may be divided into the *treatment by the doctor at the office*, and the *home treatment as prescribed by him*.

For instance a patient consults the physician with a case of acute gonorrhea involving the vulva, vagina, and vaginal surface of the cervix.

The patient should be put on the table in the lithotomy position, her parts thoroughly flushed out with some mild antiseptic solution and then examined, care being taken not to carry the infection further up into the cervix. Now after the parts are thoroughly cleansed they are painted over with some silver solution such as a 5 per cent silver nitrate or 25 per cent. argyrol solution and dusted with boric acid or packed with sterile gauze which may or may not be glycerinated to prevent adhesions. The strength of these solutions may be increased up to 40 per cent. in the vulva and vagina if the parts will stand it. The application is best done under gas anesthesia. In the urethra we should not use a solution stronger than 5 per cent. because of the sensitiveness of the structures. This should be applied after the urethra has been thoroughly irrigated by means of an applicator through the urethral tube.

If the external os is open and the infection has not extended through it, it may be packed with gauze soaked in a 20 per cent. solution of silvol which is allowed to remain there 24 hours to prevent upward extension, when it should be removed and replaced again by the physician.

The use of iodine in the form of an iodex pessary tamponed with cotton every other day, allowed to remain twenty-four hours, has proved beneficial in chronic stages where there is an extension to the tubes.

The patient should now be sent home and instructed to irrigate the parts freely with a slow return flowing irrigator, using at least a gallon of some hot mild antiseptic solution at each time. This solution may be a two or three per cent. carbolic or bichloride of mercury (1-10,000) and should be used at least three times daily.

IRON AS A GROWTH FACTOR IN INFANCY.

By LOUIS BERMAN, M.D.,

NEW YORK.

RECENT studies of the nutrition of young growing animals by means of synthetic diets have emphasized the importance of different food elements and constituents as growth factors. It has been shown that out of the thousand or more different substances found in the animal and plant foods the animal feeds upon there are necessary, in order to obtain satisfactory growth and health, a sufficient minimum quantity of at least sixteen amino-acids, the carbohydrate glucose or one of its polysaccharides, at least nine inorganic elements: sodium, potassium, chlorine, iodine, calcium, magnesium, phosphorus, iron, and sulphur, and the vitamines fat-soluble A, water-soluble B, and water-soluble C. All of these growth factors are present in the milk offered by the properly fed healthy mother to the suckling in the right proportions except iron.

Even under the most ideal of conditions, breast milk, cow's milk, goat's milk, and the other animal milks analyzed by the physiological chemist contain but traces of iron. Bunge was the first to stress the significance of the relatively small amount of iron in milk ash. He compared the composition of the ash of milk with that of new-born animals of the same species, and showed that, while the other inorganic elements, sodium, potassium, calcium, and so on, were present in nearly the same relative

proportions, there was six times as much iron in the organism of the young animal as in that of the milk on which it was nourished. It followed that there must be at birth a reserve of iron in the suckling from which it could draw its supply for growth and to increase the amount of hemoglobin of its blood to keep pace with its increasing mass, besides making up for what it lost.

Certain results of chemical analyses of the organs confirm this assumption. The percentage of iron in the entire organism is highest at birth. During the suckling period the amount of iron in the normal remains constant, although the body weight increases constantly, as well as the amount of total hemoglobin. In other words, the reserve iron is converted into hemoglobin iron, or other forms necessary, and so the iron balance of the organism is maintained.

The amount of iron present at birth in the organism is three times as much as in that of maturity. How does this occur? The researches of Bunge, Hugouneng, and others, proved that the amount of the inorganic elements fixed by the fetus in the last three months of pregnancy is twice as great as that fixed in the first six months. This applies also to iron. But as the amount of iron to begin with is greater, the percentage at birth is six times as great as the other inorganic constituents. Most of the reserve iron is deposited in the liver.

This storing up of iron is accompanied by a decrease of iron in the body of the mother. That has been proved in the guinea-pig by Charrin and Levaditi, and probably accounts for the predisposition of the mother to anemia during pregnancy. This storage of excess iron in the fetus at birth, it may be assumed, is provided in order to make up for the lack of iron in the mother's milk.

If the amount of iron at birth is three times as great as at maturity, and there is a constant total iron, as Bunge showed, the percentage of iron, that is the amount distributed throughout the organism, will become about that of maturity when the birth weight is tripled. This is what occurs at about one year. At this time other iron-richer foods than milk are added to the food of the infant. We see in both the qualitative and quantitative iron relations of mother, milk, and infant, a mechanism of nature for guarding against iron deficiency in growth as a matter of prime importance. That this has been worked out for iron alone probably depends upon its enormous importance both in the provision of hemoglobin for the proper oxygen supply to the cells and its role in intracellular oxidations.

Much remains to be cleared up concerning the role of iron in metabolism. It certainly is important as the oxygen-retaining portion of the hemoglobin molecule, fundamental therefore as a carrier of oxygen for intracellular respiration. But it has also been shown by Spitzer that the oxidizing enzymes, the oxidases in cells, are always associated with the iron-containing constituent of the nucleus. Iron regularly accompanies nucleins and nucleoproteins wherever they are found. In organs of greater oxidation more iron is found than elsewhere. Thus there is 0.02 per cent. in the liver and 0.01 per cent. in heart muscle, less in other muscles. Its position as an oxygen carrier and intracellular oxidation catalyst establishes its importance as a growth factor in infancy.

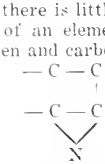
Effect of Deficiency of Iron.—It follows from the above considerations that if there should be a deficiency of the reserve iron to begin with, or an increased loss during the suckling period, or a failure to supply iron from without when the iron reserve disappears, *i. e.*, at about one year, certain effects upon the character of the blood and of intracellular oxidations, *i. e.*, growth, should become manifest. As a matter of fact, both of these disturbances, an anemia and failure to grow, have been observed following one of these three causes of iron deficiency in an organism.

As might be expected, the type of anemia observed has been that resulting from an interference with the formation of hemoglobin, the so-called chlorotic type, from the resemblance of the blood picture, a low color index associated with a fairly normal number of red blood cells, to that of the chlorosis long known to occur in girls at puberty. This chlorotic anemia, it is conceivable, may occur as a result of insufficient iron reserve in the liver. So it is observed regularly in twins, who have to share the mother's iron between them, and so are born into the world with only half the iron they ought to have; in premature infants, who being born before term, have not lived sufficiently long in the uterus to be supplied with the total amount of iron to which they are entitled; *e. g.*, if born at the eighth month there will be 22 per cent. less of iron laid down in the liver than if delivered at term. To a less extent, the same applies to infants born with a low birth weight who may be assumed to be premature to that extent. A deficiency of the mother in iron could also account for a low iron reserve in an apparently normal infant at birth.

So much for the congenital deficiencies in the iron reserve. Such deficiencies may also be acquired. Ninety per cent. of the daily loss of iron from the body is by way of the colon. In certain cases of colitis in infancy, long continued, a great deal of iron may be so lost, because more iron is excreted by the irritated mucous membrane, and the iron reserve may thus be depleted. One thus sees a chlorotic anemia developing in infants with a normal family and birth history who have suffered a long time from a colitis. Besides this, keeping an infant upon a milk, *i. e.*, iron-poor, diet after the first year will result in the production of a negative iron balance and a consequent chlorotic type of anemia.

Not that every instance of chlorotic anemia in infancy must necessarily be traced to such a deficiency of the iron reserve. For into the construction of the hemoglobin molecule more factors enter than the iron content of the liver. In the first place there are the internal secretions which control the normal functioning of the bone marrow. Hemoglobin consists of globin, a histone protein precipitated by ammonia (for the formation of which a large amount of the diamino-acid histidin, not present in milk, is necessary), and the iron-containing pigment, hematin. Before hematin can be formed it is necessary that there be supplied the pyrrhol ring containing substances which are its nucleus, and which the animal organism cannot synthesize.

This pyrrhol ring, which is present in the amino-acids, prolin, oxyprolin, glutaminic acid, and tryptophan, of which there is little in the milk proteins, is just as much of an elementary requirement of animals as nitrogen and carbon itself, for lacking it



they will starve. The ring is contained in small amount in most proteins, and is an important component of chlorophyl, the green coloring matter of plants. Although chlorophyl is not digested by the intestinal juice, it may be split up by intestinal bacteria, and thus made available for absorption. In short the history of hemoglobin formation is complex, consisting of a series of events, a disturbance of anyone of which will result in anemia. Nevertheless, evidence points to the iron factor as by far the most frequent and important in the production of the chlorotic anemia of infancy.

At birth about 40 per cent. of the total body iron is held as hemoglobin. As the infant grows the amount of hemoglobin increases, the non-hemoglobin iron decreases. Also, the reserve iron in the liver decreases. It follows that the source of the iron in the new-formed hemoglobin is the reserve iron which agrees with the facts already stated concerning the function of the reserve iron mechanism.

Iron in inorganic form has been used for centuries in the treatment of anemia. With the introduction of experimental methods controversy developed concerning the ability of the organism to utilize inorganic iron and the relative merits of organic and inorganic iron. Most of the experimental work done is valueless because no cognizance was taken of the importance of other food and growth factors as they affect nutrition and hemoglobin metabolism. This explains a good many of the contradictory results obtained. There are no experiments on record of a diet complete in every respect except as regards its iron content. Workers in the field of nutrition, however, now hold that inorganic iron may supply the organism's need of iron as much as inorganic calcium will supply its need of lime. Thus Osborne and Mendel, in their standard salt mixture, a mixture of inorganic salts intended to satisfy the inorganic needs of the organism, use iron in the form of ferric citrate. McCollum in his book on the Newer Knowledge of Nutrition states that the iron present in drinking water "aids in some degree in preventing iron starvation in the infant," and also that "milk is therefore capable of nourishing the pig during many, many months, with no other modification or additions other than the addition of small amounts of iron," citing the case of a pig brought up on milk alone up to the reproductive age, and states that "there can be no doubt that the milk which she consumed was enriched to some extent with iron by being in contact with cans having part of the surface free from tin. City drinking water also was furnished, and this contained appreciable amounts of iron." In short, it is recognized that iron is a growth factor, that its minimum quantity in a diet is necessary to growth, and that inorganic iron may act as the sole source of iron in a diet.

In feeding the human infant up to the first year conditions would appear to be ideal for the settlement of the question. The milk or milk modifications fed contain all the necessary growth factors except iron. If there should be a deficiency of the normal reserve iron in the liver, as occurs in twins, prematures, low birth weight babies, and in those who have suffered from certain types of colitis, the effect of inorganic iron should be manifest and measurable. In this connection, however, it should be pointed out that not only does the reserve iron play a part in this anemia, but that also the state in which the iron is offered plays a role in determining whether or not it is to be utilized by the body. Thus the analyses of Krasnorgorsky showed that the iron in human milk is more easily retained than that of the milk of any other animals, *e. g.*, as compared with goat's milk four times as much relatively of the iron of human milk is retained. Besides, human milk contains about three or four times as much iron as cow's milk (4 mgm. per litre) and Soxhlet demonstrated that this was quite enough to satisfy the demands of the infant. Yet even in the breast fed the amount of iron gradually diminishes toward the latter periods of lactation and hence prolonged breast feeding is liable to cause anemia. It should be emphasized also that the chlorotic anemia of infancy may be observed at any time in the breast feeding period.

An interesting point relating to growth appears to divide the cases of the chlorotic anemia of infancy into two classes: one in which there is anemia of the oligochromemic type with or without pallor, and adequate layer of subcutaneous fat, firm tissues, and no apparent disturbance of growth; in the other class growth has ceased, the weight is stationary and below the average, the color is grayish or waxy or yellowish white, and the tissues are flabby. Those of this latter class are also weak and have frequent colds.

In a series of twelve cases, including two sets of twins, observed in private practice, periodic examinations of the hemoglobin and iron content of the blood as well as of the weight were made. These showed in all cases a resumption of growth with a return of the hemoglobin and iron content of the blood to the normal when inorganic iron was fed in relatively large amounts. No changes were made of the formulas upon which these infants had remained stationary in weight and increased the poverty of their blood in the hemoglobin. The details, including the charts showing the iron hemoglobin and weight curves, will be presented elsewhere. They showed definitely that inorganic iron is a growth factor which may be observed as such and influences the entire nutrition of growth of the infant. In the case of some of them it had been attempted to relieve the condition by supplying the iron in the form of beef juice, orange juice, egg, oatmeal, and vegetable purées, but without result. It is not possible to conclude whether this ineffectiveness of iron present in these foods was due to its unavailability to the organism as such or whether it should be put down to the relatively small quantity present as far as these individuals were concerned. It is possible that the provision of iron in large quantities has the effect of accelerating a reaction in quasi-catalytic fashion, following the

physicochemical law of mass-action, according to which a reaction proceeds at a velocity proportional to the mass of the substances taking part in the reaction. Accordingly, much of the iron ingested is excreted in the stools. But the effect upon the growth curve and the hemoglobin and iron content of the blood is obtained just the same. If iron is fed in small amounts, not sufficient to appear macroscopically in the stools, the effect is not obtained.

The work of Abderhalden, who produced acquired form of the chlorotic anemia of sucklings in animals by prolonged feeding of new-born upon milk, showed that the condition could be cured by the introduction of inorganic iron salts. In the words of Osborne and Mandel, "The fact that the growing animal can fully supply from inorganic sources its requirements for the elements specially discussed in this paper emphasizes anew that it is unnecessary to consider the presence of calcium, phosphorus and iron, for example, in natural foods to the degree that is currently believed. Any shortage of an essential inorganic element can be suitably remedied . . . . by the use of its salts."

BIBLIOGRAPHY.

1. Bunge: Zeit. f. Physiol. Chem., 1889, xiii., 399.
2. Hugounenq, L.: *Journ. de Physiol et de Path.*, 1899, 1.
3. Charrin et Levaditi: *Journ. de Physiol. et de Path. Gen.*, 1899, 1, 772.
4. McCollum: The Newer Knowledge of Nutrition, p. 70.
5. Abderhalden: *Zeit. f. Physiol. Chem.*, 1902, 34, 500.
6. Osborne and Mendel: *Journ. of Biol. Chem.*, 1918, 34; Carnegie Inst. of Washington Pub. 156, 1911.
7. Spitzer: *Biochem. Zeitschr.* 6, 1907.

144 WEST 77TH STREET.

ETIOLOGY AND TREATMENT OF GASTRIC HYPERACIDITY.

BY JOSEPH KATZ, PH.G., M.D.,

NEW YORK.

INSTRUCTOR IN MEDICINE AT THE NEW YORK POST-GRADUATE HOSPITAL.

AT a recent gathering of medical men the question was raised as to the treatment of hyperacid cases with heartburn and sour mouths. Most of the men present confessed the unsatisfactory results obtained at their hands with the treatments they had tried. I shall therefore try to discuss the subject from a gastroenterologic standpoint and outline a routine treatment which has been successful in my hands in a good number of these cases.

In considering treatment of any pathological condition or even physiological abnormal development, the most important is to know the cause, if possible, and upon removal of the cause the major part of the treatment has been accomplished, there remaining only to treat the complications resulting therefrom. The causes of hyperacidity are very numerous and I shall discuss, as briefly as possible, only the more common of them, as follows:

1. All neurological conditions, including all neuroses and more severe types of mental disturbances. In these cases belladonna and alkalies will not benefit the patient, but the treatment or alleviation of the actual condition will in turn relieve the hyperacidity.

2. Visual disturbances of any kind will in the majority of cases if prolonged, although unnoticed by the patient but found on examination, cause hyperacidity and the only remedy or cure is to correct the actual condition, when all other medication and diets will not relieve it.

3. Nasal obstructions, mouth breathing causes dryness of the mouth irritating the mucous membrane of the esophagus (besides that it may cause laryngeal and bronchial disturbances), reflexly setting up hyperstimulation of the gastric mucous membrane followed by hypersecretion and hyperacidity. The remedy is self-evident.

4. Defective teeth may be responsible for a good many gastric disturbances and among those hyperacidity, yet this does not justify the extraction of teeth in all cases as has been the fad in the last few years. The innocent teeth are blamed for the ignorance of the diagnosticians being a close second to their fellow brother or sister the appendix. The so-called gold and silver mouths, gold caps, fillings, and gold plates are greatly responsible for hyperacidity of the mouth.

5. Hypothyroidism. In my article on "Deficient Thyroid Secretion as an Etiological Factor in Gastric and Duodenal Ulcers and in Hyperacid Conditions" (Medical Record, May 29, 1920), I pointed out the rôle that lack of thyroid secretion may play in causing hyperacidity. The treatment then narrows down to one point, namely, the artificial supply of thyroid.

6. Cardiac disturbances may cause any gastroenteric condition and in a good many cases hyperacidity, sometimes overtreatment with digitalis, may bring on hyperacidity.

7. Toxemias of every kind, and especially of the influenza type, are often etiological factors. Who did and does not see the after effects of the last influenza epidemic and its deplorable results, especially regarding psychoses of various degrees and gastroenteric disturbances with a great number of hyperacid cases predominating. In these cases restorative treatment, good food, pleasant surroundings, and change of climate will clear up most of the cases.

8. Disturbances of the gastroenteric proper as hypersecretions, ulcers, gastritis, appendicitis, colitis, enteritis, and their combinations. This class of cases requires rigid treatment, but I shall not enter into the discussion of that at present.

9. Gall-bladder disturbances, as cholelithiasis and cholecystitis, will cause hyperacidity. Their treatment will not be discussed here.

10. Various nephritic disturbances and also diabetes mellitus, whether pancreatic or nephritic, will bring on hyperacidity even in the early cases.

11. Pathological conditions of the organs of reproduction in females will in a great number of cases cause hyperacidity, especially in the pathology of the cervix, as it has been pointed out by the author in his article, "Pathological Conditions of the Organs of Reproduction in the Female Causing and Simulating Gastroenteric Disturbances" (MEDICAL RECORD, February 5, 1921).

12. Sexual disturbances and perversions; un-

gratified sexual stimuli, especially so in unmarried men and women, usually resulting in nervousness, headache, and heartburn with constipation, while on the other hand excesses in sexual indulgence bring on nausea, headache, hyperacidity, and most of the time diarrhea; the same is true, of course, of masturbation.

13. The hyperacidity of pregnancy is well known to all medical men, its treatment is sometimes rather easy, at other times will yield to no medication even in the nontoxic cases. The general routine treatment which will relieve the hyperacid condition in most of the cases I shall speak of later in my paper.

14. The quality, quantity, and kind of foods. As a rule heavy meat eaters will at some time complain of hyperacidity which may even lead to more serious organic disturbances. Those that indulge in spiced foods in great bulk or highly seasoned foods and vegetables will in time bring on hyperacidity. Smoked fish and canned foods will cause hyperacidity in a large percentage of cases. Constant indulgence in highly sweetened food, and especially those who constantly partake of it on full stomach, will cause hyperacidity.

15. Drugs. It is a well-known fact that some drugs, as the salicylate group, phenacetine, acetanilide, etc., will cause in certain people a high acid condition.

16. Night work or keeping late hours will in time result in hyperacidity.

17. Great indulgence in tea, coffee, alcoholic beverages, tobacco, and other stimulants may cause hyperacidity.

18. Recently another form of hyperacidity has been found in those that are following the latest fad of yeast chewing, and even physicians have fallen victims to this habit, not knowing its effects. I have seen dozens of cases during the so-called yeast campaign suffering with hyperacidity, belching, and fulness in the epigastrium after meals and complete distress instead of relief. Its use has no physiological basis, and it has no curative effect on the gastroenteric tract.

19. Excitement of any kind, whether joy or sorrow, will bring on high acidity.

Having thus enumerated the most frequent causes of gastric hyperacidity I shall now enter into the discussion of the general treatment and the first thing to do is to remove the causative factor, if possible; then regulate the mode of living and hygienic surroundings, next regulate the diet. The following has been very helpful in most of the hyperacid cases.

Small, frequent meals of nonirritating food. Let the patient have a vegetable, milk liquid diet. No meat of any form or kind nor its extracts as beef juices and soups; no spiced or highly seasoned foods, no condiments of any kind, no sweets in any form; no tea or coffee, no alcoholic beverages of any kind or make (complying strictly with the 18th amendment in its full text); no cold or carbonated drinks on the market, especially the sweetened kind; no smoking. In using milk or soups the quantity should not exceed a glass at a time, but at frequent intervals. Eggs soft boiled, preferably one at a meal.

Alkaline mouth washes should be used after each meal. The bowels should be kept open with some saline laxative, as artificial Carlsbad salt, the sal carolini factitium, N. F.

Belladonna or its alkaloid atropine given at first in large doses until its full effect is brought about should be given. And here I would caution against prescribing this drug for patients with an idiosyncracy or for pregnant or nursing women. After obtaining the full effect of the drug the dose is cut one-half. Always one should add some alkaline substance to it, as milk of magnesia in large doses before meals, giving some different alkaline after meals.

Gastric alkaline lavages every day at first and then on alternating days will materially aid in bringing about good results. The above outlined treatment must be continued for a long while, but by perseverance it will be found positive and permanent.

616 MADISON AVENUE.

AN EPIDEMIC OF MEASLES AT AN INDIAN AGENCY.

BY EDWARD RICE, M.D.,

KELSEYVILLE, CALIF.

FORMERLY PHYSICIAN TO THE STIKINE INDIAN AGENCY.

In the course of several years with the Indians at the Stikine Indian Agency in the northern part of British Columbia one experiences a number of incidences which afford a few facts worthy of mention.

The Indian of this locality is of the inland type; a few still retain the "face and frame" of the Plains Indian but on the whole a large majority, after much intermingling, have lost the characteristic caste and are more or less of a mongrel type. The Indians close to the Agency have advanced in civilization to a noticeable degree but those in the interior are largely still primitive in nature, methods, and superstitions. The medicine man is still a dominant figure during sickness, with his gong and dance, lizard legs, weird decoctions, etc., and is generally successful in removing "a frog from the head" or "an otter from the bowel." But I am not prepared to say just why such diseases as measles and the care of accidents during parturition are passed up to the white doctors for attention.

A recent epidemic of measles among these Indians totaled 177 cases. The disease ran the regular course in so far as the catarrhal symptoms and the eruption were concerned but with greater severity in Indians than in whites. The eruption first appeared in the throat before constitutional symptoms were manifested. During the epidemic seven cases occurred in the whites by which the comparative effects on the two races could be noted.

The period of incubation appeared to be about the same, about 10 days. The eruption in the throat preceded the general symptoms of invasion about three days and disappeared before the rash became evident on the face. In the Indian the rash spread to the body much more rapidly than in the white and in many cases the entire body was involved in from 36 to 48 hours. The skin was uniformly

thickened but with no edema and the eruption appeared to mass, not just mottle with clear skin between the mottles, but huge areas covering an entire side, and in some instances the entire body, were involved with no intervening clear space. The temperature ran high; in most cases over 104°, and in three reached 106°. Gastrointestinal disturbances were present in every case from the start. The eruption and temperature subsided by crisis rather than by lysis; often in 24 hours the temperature dropped to normal or nearly so and the eruption noticeably faded.

The duration of the disease from the early throat signs to the disappearance of the rash was about ten days. The time required for the desquamation to be completed varied owing to the fact of the natives being rather lax in the matter of personal cleanliness. The age seemed to play no important part in the manifestations; the young and the old suffered alike, and the age limits were from 2 years up to 80 and over, with fully four-fifths of the cases among adults. One boy, aged about 19 contracted the disease a second time during the epidemic and one woman, aged about 35, gave a history of having had measles 12 years before at Hazelton.

Eight women were pregnant at the time. Four showed signs of aborting and were in the fifth month of gestation. Of these two responded to sedative treatment and the accident was avoided, the gestation going on to uneventful full term. The other two aborted what appeared to be five month fetuses, neither of which showed any signs of eruption. In two other cases gestation proceeded with no disturbance and terminated later normally. In the seventh, a woman with the rash fully developed gave birth to a healthy boy baby at full term. This baby showed no signs of measles at birth nor did it subsequently develop measles although nursing from the mother while the mother was still in eruption. An eighth pregnant woman gave birth at the seventh month to a boy baby weighing 4½ pounds. This baby was poorly nourished and marasmic and died 59 days after birth.

Catarrhal pneumonia developed in one case with fatal results, this being the only death in adults during the epidemic; two other deaths were reported in old persons at outside localities, but the cause of death was not stated. One case appeared to be of the hemorrhagic form with great prostration and recovery was much prolonged. It was clearly more than simply a case of hyperpigmentation.

The treatment consisted mainly in the use of calcium sulphide in half-grain doses. I am convinced that this remedy has a salutary effect in measles. In cases already advanced its use affords prompt relief of the catarrhal symptoms and disagreeable cutaneous irritability and also appears to shorten the course of the disease, lessen the severity of the symptoms, reduce the temperature, and decrease the liability to complications and sequels.

Beef Heart in Cardiac Disease.—Renon announces that he administers a powder from the ventricle of the ox heart, vacuum dried, dose 50 cgms. daily. He gives it for twenty days out of every month in cases of asystolia, especially of the left ventricle, with extrasystolic arrhythmia. Results are said to be good, but the author gives other cardiotonics as synergists.—*Le Bulletin Médical.*

Medicolegal Notes.

Evidence of Experiments as to Powder Marks from Pistol Shot.—On a trial for wife murder by shooting with a pistol the defense was that the deceased shot himself. The undisputed evidence was that there were no powder burns on the head or neck near where the bullet entered, and evidence of experiments made in regard to the effect of powder fired from the pistol which killed the deceased upon a napkin and upon tissue paper at distances ranging from three to ten feet was admitted to show the distance of the pistol from the deceased's head when the fatal shot was fired. On appeal from a conviction of manslaughter in the first degree the Oklahoma Criminal Court of Appeals holds that the trial court did not err in admitting evidence of the experiments as tending to shed some light on the firing of the fatal shot, and its weight was for the jury to determine. The court said: "As a general rule an experiment introduced for the purpose of proving that the alleged result is obtained by a certain act or operation, considered as existing in the case, should not be permitted unless the conditions and circumstances under which the experiment is made are similar to those shown actually to have existed in the case. However, if the evidence shows that the experiment was made under circumstances similar, or approximately similar, to those which surrounded the original transaction, it would be admissible, although such experiment might not have been made under exactly similar conditions as attended the original transaction. The want of exact similarity would not exclude, but would go to its weight with the jury."—Irby v. State (Okla.), 197 Pac. 526.

Demonstration by Physician as to How Deceased Could Have Been Shot with Pistol Permitted.—An appeal for a conviction of manslaughter, where the defense was that during a fight between the deceased and a brother of the accused the deceased was accidentally shot while the accused was endeavoring to disarm him, the defendant contended that the trial judge erred in refusing to require a doctor, under cross-examination, who testified to the bullet wounds in the body of deceased, to demonstrate by the use of a pistol, which figured in the homicide, how "the deceased could have been shot while holding the gun in certain positions." The Pennsylvania Supreme Court held that the regulation of cross-examination is always a matter of discretion for the trial judge, particularly how far actual physical demonstrations shall be allowed; and the court was not convinced of error in the trial court's ruling.—Commonwealth v. Barille (Pa.), 113 Atl. 663.

Proof of Accidental Means in Insurance Cases.—Where an insurance policy provides that the insurance is against "injury effected solely through external, violent and accidental means," the plaintiff must prove to a reasonable certainty that the death or injury was so caused. It is not sufficient to prove a declaration made by the deceased to his physician that his injury was so caused. There must be affirmative proof as to how the injury occurred, and the proof must show that it was accidental and caused through accidental means. The only testimony in an action on such a policy to establish the alleged accident was the statement by the deceased to his physician, who first treated an abrasion on his toe that he thought it was caused by his rubbing his toe with a towel. The physician had no knowledge of his own as to what caused the abrasion. When he was called to treat the abrasion he found the toe slightly infected. While the statement of the deceased to his physician was admissible to evidence for the purpose of showing the basis of an opinion by the physician, and his opinion as to the injury and the extent of the injury, it was held not sufficient to prove the main fact of the accident. As to this it was a mere self serving statement, and had no probative value as to such fact. It further appeared from his statement to his physician that, even if the injury had been caused by rubbing, the rubbing had been voluntarily done, and this would, therefore, not constitute an injury inflicted through accidental means. The proof was accordingly insufficient to establish any liability in the case.—United States Casualty Co. v. Malone, Mississippi Supreme Court, 87 So. 896.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, October 1, 1921.

PULMONARY TUBERCULOSIS IN CASES OF SURGICAL TUBERCULOUS LESIONS.

IN a very large majority of cases an attentive examination will reveal the presence of pulmonary lesions in different phases of evolution in cases of surgical tuberculosis, and statistics show that the lung process precedes the surgical lesions. But although pulmonary tuberculosis during lymphnode, bone, or joint tuberculous infection is often secondary, or at least presumed to be such, it may also be the first evidence of tuberculous infection, although it is impossible to determine the initial lesion in many instances. Between these two extremes should be placed those cases in which the lung was the first organ involved, and probably such are much more common than has generally been suspected. Therefore, the question should be studied under three heads, namely, (1) pulmonary infection in cases where the lesions have remained local for a long time; (2) bone, joint, and lymphnode infection in cases of pulmonary phthisis, and (3) the part played, probably important, by latent pulmonary or lymphnode infections giving rise to blood infection, in the genesis of surgical tuberculosis whose etiology is so frequently obscure.

It is generally stated in text-books that before making a prognosis of local tuberculous lesions the patient's general health and the presence of complications in other viscera—especially the lungs—should be first considered. Phthisis darkens the prognosis of white swellings, for according to Billroth, 16 per cent. of the subjects treated for this affection in his day died of pulmonary tuberculosis, while Koenig's later statistics are about the same. From the clinical viewpoint, two conditions are to be considered. The first embraces those cases in which a surgical tuberculous lesion follows a regular or even favorable evolution. Locally everything appears to be doing well, but a pulmonary lesion exists which kills the patient. In the second case the surgical lesion has caused much deformity, numerous sinuses, and marked enlargement of the lymphnodes, and tuberculous metastases occur in the lungs from the joint or bone lesion. Although tuberculous adenitis remains for a long time a local lesion the researches of Boulay and Heckel have shown that pulmonary tuberculosis often follows. Bone or joint tuberculosis seems to provoke pulmonary infection secondarily, while adenitis, especially in the neck, seems to be the normal course followed by the infection in reaching the lungs by lymphatic contiguity. According to Marfan, Boulay, and Heckel, the infection in the lymphnodes of the neck follows the cervicomediastinal lymphatic route and the lymphnodes of the mediastinum are most frequently involved when an infection of the cervical glands exists, at least this is what occurs in children and to some extent in adults. When, for example, the case is a joint tuberculosis an enlargement of the regional lymphnodes indicates that the bacilli have started on a general invasion of the body; they may reach the thoracic duct, and then the pulmonary circulation becomes arrested in the fine pulmonary capillaries. This mechanism is the same as that described by Calmette in the intestinal origin of tuberculosis of the lungs, and recent experimental work has shown the importance of the lymphatic system in the generalization of local tuberculous lesions.

When the tuberculous lesions of lymphnodes, bone, or joints are manifestly consecutive to pulmonary tuberculosis, the clinical picture changes. In these circumstances there is generalization of the infection; the bacilli invade the organism and create visceral lesions—bones and joints included—whose development is the result of frequent obscure factors. Trauma, however, seems to play an important part. Between primary and secondary osteoarticular manifestations there are often very marked clinical differences in respect to the aspect and evolution of the lesions. While in the former the lesions are circumscribed and slow in progress, in the latter the invasion is rapid. The invasion of the blood by leucocytes gorged with bacilli takes place either by the direct passage of the leucocytes through the pulmonary capillaries or from the presence of a tuberculous endarteritis of the pulmonary vessels. The great number of autopsies showing that pulmonary tuberculosis exists without giving rise to clinical manifestations is now a well known fact; a minute pulmonary lesion, susceptible of cicatrization may give rise to blood infection by one of the mechanisms referred to. Therefore the pulmonary lesions are often less evident than the osteoarticular processes and are apt to be overlooked. But there are cases in which the inverse is true, namely, that the lungs become secondarily infected from a tuberculous process in the bones or joints.

THE PROGNOSIS AND DIFFERENTIAL DIAGNOSIS OF ESSENTIAL FEVER IN GASTRIC CANCER.

THE prognosis of the febrile form of gastric cancer cannot as yet be definitely established on account of the relatively few reported cases; nevertheless,

it would appear from the case reports, and especially when the temperature assumes the intermittent type, that death occurs sooner than in cases of cancer of the stomach running the ordinary course. Generally speaking, when the elevation of temperature develops, a fatal outcome is not long delayed. The aggravation in the patient's general health following upon febrile paroxysms is readily comprehensible on account of the state of depression resulting therefrom, as well as the organic intoxication, the clinical manifestation of which is the febrile paroxysm. There are three affections that the febrile form of gastric cancer may simulate, namely, malaria, obscure suppurative processes, and pernicious anemia. When the gastric cancer is accompanied by an intermittent form of fever, two categories of cases are met with. In one, distinct signs of a gastric neoplasm are detected, or there are signs of probable cancer of the stomach; in the other, there are no digestive symptoms whatsoever. In the first category malaria coexisting with cancer or some internal suppurative focus must be eliminated from the diagnosis. In other circumstances the problem may be still more difficult, and before making a diagnosis of essential fever, a gastric neoplasm should be thought of and then the possibility of malaria must be considered. In all these cases the gastric manifestations are to be studied, an attempt being made to ascertain if they are simple painful paroxysms due to malarial infection or the result of a chronic affection of the stomach.

The type of temperature will not help in the diagnosis because in gastric cancer it presents the same character as that of malaria, while on the other hand larvate or abnormal forms of malaria give rise to peculiarities in the temperature making the diagnosis difficult. The most that can be said is that after paroxysms of essential intermittent fever an eruption of herpes or urticaria is never met with, although this is common in the malarial paroxysm. The patient's antecedents, the nature of his occupation, and the countries where he has lived are aids to the diagnosis of malaria, while an enlarged spleen also is important, but this enlargement is slight in recent cases and on the other hand the spleen may be increased in size in gastric cancer should it be the seat of metastases. The two important aids are the action of quinine and the blood examination. In the fever of gastric cancer quinine is ineffective. The presence of the malarial organism in the blood will settle the question of diagnosis but even when the results of the examination are negative malaria cannot be ruled out. Therefore several blood examinations should be made and the patient be under observation for some time.

The differential diagnosis from pernicious anemia is usually difficult, and in some reported cases of the febrile form of gastric cancer the former diagnosis was made. Several observers have endeavored to show that in cases of difficult diagnosis the hyperpyrexia taken by itself is an important element in the diagnosis, and affirms the existence of anemia. Consequently, this symptom has no value whatsoever since an elevation of temperature may also enter into the symptomatology of gastric cancer. Therefore, if the malignant gastric process assumes the character of pernicious anemia, the diagnosis will present great difficulty or may even become an impossibility. Gastric cancer, especially in the cases under consideration, may undergo a silent evolution, and since pernicious anemia is rare and cancer common, the gastric origin of the process should be carefully sought for by all our modern methods. Examination of the heart will indicate nothing because the presence of murmurs will be found in both morbid processes. In some cases indefinite diagnostic data may be obtained from analysis of the urine, but examination of the feces may be of real service in this respect. If the diagnosis of both gastric cancer and pernicious anemia can be eliminated, an attempt must be made, by a careful analysis of the patient's antecedents and the physical signs presented, to ascertain if the febrile manifestations are due to a suppurative process. Should this examination show that the accidents are due to gastric cancer one should try to discover if the fever is essential or symptomatic of a pus focus. In most cases this differential diagnosis cannot be made intra vitam except at operation.

PARATYPHOID FEVER SPREAD BY HEADCHEESE.

THE literature of detailed reports of clear-cut paratyphoid outbreaks in this country is very limited. This fact together with the unusual source to which the outbreak was traced makes the epidemic which occurred in Cascade County, Mont., in November and December, 1920, and recorded by Drs. Fred T. Ford and T. E. Walker in the *Public Health Reports*, xxxvi 35, Sept. 2, 1921, of unusual interest. On Nov. 27, 1920, there were reported to the Health Department of Cascade County thirty cases of influenza by the local physician, with the request that the county health officer come to Cascade for the purpose of seeing a number of the cases and instituting measures to prevent the further spread of the disease. The symptoms presented by these patients closely simulated the onset of influenza of rather severe type, but the blood serum of all but one of the twenty cases examined gave positive Widal reactions with *Bacillus paratyphosus* B, in a dilution of 1-40 in one hour. In no case was the reaction positive with *B. paratyphosus* A. In nine instances the Widal reaction was positive also with *B. typhosus*, this being undoubtedly by reason of group agglutinins.

With this finding an investigation was started to determine the source of the infection. The town of Cascade is a prosperous rural community of 430 inhabitants, nearly all of whom live in clean and well-kept homes. The water supply of the town derived from two sources was subjected to repeated

laboratory examinations, all of which failed to reveal the presence of *B. coli*. An epidemiological investigation was then carried out by means of a questionnaire answered by eighteen of the patients, through which it was found that in every instance the patients ill had eaten headcheese which had been purchased from a single meat market within the period November 17-20, inclusive. This headcheese was prepared by the proprietor of the market on November 17 and sold during the following three days. This was the only article of diet of a common source eaten by all the patients. The milk used was supplied by different dairies. There were no privately owned water supplies. Of thirty-four patients who had become ill up to and including November 30, twenty-eight had eaten the headcheese, and the other six, though denying that they had eaten of it, were members of families wherein the headcheese had been served and in which other cases existed. Several cases developed in two families living outside of Cascade. It was learned that the members of one these families had visited relatives in Cascade and eaten of the headcheese, while the other family had purchased some of the headcheese in Cascade, this being the only article of food purchased. Of the forty-four cases that developed in fifteen families throughout the course of the outbreak, from November 18 to December 18, thirty-seven were apparently primary cases. The seven secondary cases were easily accounted for as contact cases.

The question remaining to be answered was how the paratyphoid bacilli came to be in the headcheese. On carefully questioning the proprietor of the meat market, it was learned that his wife had been ill for a period of approximately four days three weeks before the outbreak. It was also learned that she had assisted in preparing the suspected food about two days before it was placed on sale. At the time of the investigation she was out of town so that it was impossible to obtain a Widal examination of her blood. In addition to the interest that attaches to a carefully investigated paratyphoid epidemic this study emphasizes the importance of investigations of supplies of food as well as of water and milk in connection with outbreaks of intestinal diseases.

THE RELATIONSHIP BETWEEN EPIDEMIC ENCEPHALITIS AND HERPES FEBRILIS.

THE knowledge of this association which is beginning to attract attention began in a way with the discovery by Grüter in 1913 that herpes of the cornea in man is transmissible to the rabbit. This line of research lay fallow for six years, and in the meantime epidemic encephalitis had appeared in Europe. The original experiments of Grüter were then repeated and extended, and it was learned that herpes of the cornea in rabbits may be propagated from animal to animal, and that inoculated animals developed immunity to further inoculation. Doerr and Schnabel of the Hygienic Institute at Basle, writing in the *Schweizerische medizinische Wochenschrift* for May 19, 1921, li. 20, state that Loewenstein apparently demonstrated also that in all cases of febrile herpes there is a common exciter. A new infectious disease had in other words been isolated and it presented apparently but a single lesion—herpes febrilis. The original conception was, however, greatly modified by Doerr and Vöchting, who showed that the herpes virus could produce a general disease-picture and even cause death. Some of the general symptoms were convulsions, paralysis, and salivation. Intensification of the virus and injection into the veins or subdurally showed that the nerve centers were vulnerable to its action. Finally it appeared that the induced rabbit disease had much in common with epidemic encephalitis when conveyed to the same kind of animals. It became evident that propagation from eye to eye of the herpes virus causes more than a local malady. In theory, material from an infected brain should be able to set up the corneal disease, though Doerr and Vöchting could not at first obtain this result. But if the brain emulsion was allowed to come in contact with a well scarified cornea by instilling a drop or two into the corneal sac, positive results were obtained which closed the chain of proof. Hence herpes virus can apparently not only cause a purely local affection—albeit one attended by fever—but it can also by mere inoculation of the cornea show a pathogenic neurotropism, causing infection of the central nervous system.

A later find was a metastatic keratitis present in cases of general infection. This explains the tropism of the exciter of the disease toward the cornea, which at the same time becomes immune to further attack. The author later was able to show that the other cornea shared in this immunity and that immunity in the inoculated cornea was merely a phase of total acquired immunity. We have here then a disease which shares features with a group of infections of the central nervous system, including rabies, poliomyelitis, and epidemic encephalitis. In the case of the latter malady the question of identity has come up. A comparison is restricted thus far to laboratory diseases. Encephalitis virus inoculated into the rabbit cornea can set up a local infection, although the author does not term it a herpes, nor does he state the contrary. In the laboratory encephalitis of rabbits the animals were refractory to inoculation of the cornea with herpes virus. In general the experiments showed the existence of double or crossed immunity. This points to identity of virus, although no exciter has ever been isolated in either disease. Clinically to claim any identity between so banal and innocent a condition as herpes febrilis and a malady like epidemic encephalitis would, to say the least, be premature. Moreover, it has not yet been possible to cause corneal herpes in rabbits by inoculation with the infected brain tissue of human encephalitis or with lumbar punctate from the living victim of the latter. The question of separate strains of a com-

mon disease exciter must necessarily come up and there must be further experiment before the question of identity can be settled.

Arsphenamine vs. Novarsphenamine.

In France, at least, novarsphenamine, or novarsenobenzol as it is there called, has been generally accepted by the medical profession, probably because of its very easy preparation for immediate use. Nevertheless, some syphilologists remain faithful to 606. Of this number belongs Queyrat, who has very recently given his reasons for this preference. This observer, with his collaborator Millet, has for one year treated comparatively similar cases with each of these arsenical products in equivalent doses, namely, three grams of arsphenamine and four grams of novarsphenamine. They found that after the end of the treatment the Bordet-Wassermann reaction was less often negative in the subjects treated with novarsenobenzol than those treated with arsenobenzol. The proportion was 25 per cent. more positive reactions in the primary stage and 28 per cent. in the secondary stage. Besides, a negative reaction appears to be less durable after treatment with novarsenobenzol, while relapses and secondary accidents are much more frequent. On the other hand, Queyrat believes that novarsphenamine is much more prone to give rise to hepatic complications, which may be serious in a few cases, made manifest by malaise, elimination of urobilin, fever, erythemata, and a large, tender liver. The milder complications are reduced to icterus, which is exceptionally met with when arsphenamine is given. If in spite of these drawbacks neosalvarsan is used, Queyrat then maintains that the product should be injected in very dilute solutions in the proportion of one part of the drug to five parts of serum. As a last argument in favor of arsenobenzol, these observers find it advantageous that when the needle does not enter the vein there is pain from the injection in the subcutaneous tissues. Thus the physician being immediately warned that the needle is not in the lumen of the vessel, the injection can be made at another spot, while with novarsenobenzol there is risk of local complications which may last for some time, because one is less quickly warned when this product is injected outside a vein.

Familial Incidence of Quinsy.

Leegaard has for years investigated the subject of the possible familial incidence of phlegmonous angina, and always, when encountering a new case, he notes whether any other immediate relatives are subject to the same ailment, and has found positive results quite frequently. (*Norsk Magazin for Laegevidenskaben*, May, 1921, lxxxii, 5.) The number of primary cases seen was 120, of which 52 were in male and 68 in female subjects. The maximum incidence was during the age period, 20-25, and the great majority of all cases occurred between the ages of 15 and 35. Of the 120 patients 44 had no immediate relatives with history of quinsy, while 43 had one relative thus affected, 13 had 2, 8 had 3, 5 had 4, and 5 five relatives with the same ailment. Finally there were two patients who each had no less than eight near relatives with history of quinsy. In other words, 76 out of 120 patients had near relatives who suffered from this affection. The total number of these second cases adds up to 170, although the author for some reason makes this total only 154. The relationship comprised parent, grandparent, brother or sister, uncle or aunt, nephew or niece. It now became necessary to take controls who had never themselves had quinsy, and of 110 such patients but 10 had relatives who had suffered with the disease. The familial character of quinsy is thus rendered possible or even probable; but it must be noted that a person who had never himself had quinsy would be less likely to hear of or to remember similar cases occurring in relatives living apart from him, possibly in another city. Of further interest is the number of attacks of quinsy in the 120 patients. In 23 there had been but one attack, in 17 but two attacks, while in 73 the attacks had occurred so frequently that the author terms them habitual. It is the patient with habitual quinsy who shows much the greatest tendency to familial incidence, as shown by supplementary figures of the author.

Provoked Inequality of the Pupil in the Diagnosis of Early Tuberculosis.

Professor Sergent, who has long made a study of the precocious diagnosis of pulmonary tuberculosis, last April announced the discovery of a possible new sign (*Journal de médecine et de chirurgie pratiques*, June 10, cviii, 11). He terms this "provoked mydriasis." Before that period he had traced a connection between pupillary inequality and the presence of a dry apex pleurisy in which the sympathetic nerve was the transmitting agency. Apparently filaments of these nerves are involved in certain enlargements of regional lymphnodes. In certain cases subsequent miosis was explained by destruction of the said fibers. As a spontaneous phenomenon not much could be expected of it in diagnosis and therefore Sergent tested suspicious cases with mydriatics in both eyes. The latent period is counted as 10 minutes and dilatation reaches its maximum in 25. Upon the theory that the aforesaid lesions will sensibilize the sympathetic on the diseased side the author expected a precocious reaction. Ten normal subjects tested were found to present bilaterial symmetry in mydriasis. Of 18 subjects known to have unilateral apical trouble 11 showed inequality. In another series of 22 suspicious cases 15 gave a positive result. In addition to the frankly negative results there were a number more or less anomalous and it would seem that the stage of the lesion and resulting cicatricial changes play a role.

News of the Week.

Typhoid Spreads in New Jersey.—Following the recent epidemic of typhoid fever in Burlington County, five cases of this malady have developed in Hamilton Township, Mercer County. Twelve other persons are ill and it is feared that they also have

the disease. The State Board of Health is conducting an investigation and believes the milk supply is responsible.

New York Scores Lowest Death Rate.—The mortality record for the week ending September 23 is the lowest ever experienced by the city of New York, there having been only 967 deaths recorded with a death rate of 8.77 per 1,000 of the population. Other low death rates are those of July 17, 1920, of 9.00; September 20, 1919, 9.04; August 31, 1918, 10.05, and June 14, 1917, 10.95.

Infantile Paralysis Cases Increase.—The number of cases of poliomyelitis reported to the New York City Department of Health for the week ending September 24 was the largest recorded in any single week since the epidemic of 1916. There were 69 cases reported, and of these 19 were discovered as the result of a canvass of 7000 homes by the nurses of the department. Health Commissioner Dr. Royal S. Copeland has emphasized the importance of excluding from the schools any child presenting symptoms of catarrhal fever or suspicious evidence of acute disease, and has published instructions in the lay press aiming at the prevention of contact infections.

Physicians Must Be Morally Fit.—A decision recently handed down by Chief Justice Rugg in the Supreme Court of Massachusetts, declares that soundness of moral fiber to insure the proper use of medical learning is as essential to the public health as medical learning itself. "Mere intellectual power and scientific achievement without uprightness of character may be more harmful than ignorance," the court asserted in overruling exceptions of a practising physician of Boston, who had been requested to appear before the State Board of Registration in Medicine and show cause why his certificate should not be revoked for alleged gross misconduct in his practice. "Highly trained intelligence combined with disregard for the fundamental virtues is a menace," Justice Rugg said. "A physician, however skilful, who is guilty of deceit, malpractice, or gross misconduct in the practice of his profession, even though not amounting to an offense against the criminal laws, well may be thought to be pernicious in relation to the health of the community. The circumstances that the petitioner already had been registered and given a certificate to practise medicine gave him no immunity against future legislation."

State Society Initiates New Activity.—The Ohio State Medical Association has started a series of group meetings for postgraduate clinical study throughout the State this fall. Some eighteen or twenty locations have been selected where these meetings will be held, to which physicians from all surrounding counties are being invited.

Hospital Notes.—A site has been purchased for a general hospital in North Baltimore and construction operations will soon be undertaken. This will be the first hospital in North Baltimore. It will be managed by Dr. G. W. Foltz and Dr. Earl Foltz.

Improvements, which it is estimated will cost $300,000, are being made at the State Hospital for the Insane at Farnhurst, Delaware. When completed this institution will have an equipment modern in every respect.

Structural alterations in the buildings of the Hospital of the Rockefeller Institute have been completed and the hospital reopened for the admission of patients on September 19. The hospital confines its work to selected cases that bear upon a limited number of subjects chosen for investigation. The conditions that will be the subject of special study during the coming winter are nephritis, cardiac disease, acute rheumatic fever, acute lobar pneumonia and other acute pulmonary infections. Patients suffering from these diseases will be admitted to the extent of the hospital facilities. Physicians wishing to have patients admitted may communicate with the hospital by telephone or by personal application to the Resident Physician.

The new annex to Grady Hospital, Atlanta, Ga., was opened on September 18. It provides two hundred additional beds.

Examination of Food-Handlers in New York City.—During the past year a total of 17,143 food-handlers and industrial workers were examined in the occupational clinics conducted by the Bureau of Preventable Diseases of the Department of Health. During the same period 55,673 examinations of food-handlers were made by private physicians. A comparison of the results indicates that the private physicians are not all contributing conscientiously to the protection of the public health from the food-handlers who may be affected with communicable disease. Excluding the industrial workers, 16,484 food-handlers were examined in the Occupational Clinics of the city, 28 per cent. of whom were found to present a physical defect of significant character. A ratio of 278 per 10,000 food-handlers was found to have sputum positive for the tubercle bacillus. If this same ratio obtained among all food-handlers in the city, there would be 19,275 such food-handlers in the City of New York. In the city as a whole 104 cases of active syphilis were excluded, giving a ratio of 65 per 10,000 food-handlers. Since examinations are made only once a year it is possible that many infections may occur in the interval between examinations. If the ratio found in this series prevailed among the three-quarter million food-handlers in the city, there would be a total of 10,350 cases of syphilis among this vocational group. There were 28 male food-handlers in whom evidence of chronic gonorrhea was found. If this ratio is assumed to represent the prevalence of this infection among food-handlers we may expect to find 4,350 such cases among the food-handlers of the city. A total of three active, chronic typhoid carriers were discovered by the clinic staff. In addition there were a number of parasitic skin affections, and one case each of diphtheria and of scarlet fever.

The Second International Congress of Eugenics was held at the American Museum of Natural History, New York, September 22-28, 1921, under the presidency of Professor Henry Fairfield Osborn. Among foreign representatives attending the meetings were: Dr. A. Govaertz, Belgium; Dr. D. F. Ramos, Cuba; Senor Dr. Don Arturo Scroggie, Chile; Dr. B. Feierabend and Dr. A. Sum, Czecho-Slovakia; Mr. Georg Bach, Denmark; Major Leonard Darwin and A. Barbara Dale, England; Mr. Manuel Dieguez, Guatemala; Messrs. Lucien Cuenot, Lucien March and George Vacher de Loupougue,

France; Mr. Sane Naccarati, Italy; Dr. Jon. Alfred Mjoen, Norway; Dr. Ales Hrdlioka, Prague; Dr. A. F. Tredgold, Edinburgh, Scotland; Dr. Phya, Medha, Siam; Dr. J. Varela, Uruguay; Mr. E. Arroyo Lameda, Dr. N. D. Dakin and Dr. R. Ruggles Gates, Venezuela, and many others. In addition to the scientific meetings a number of excursions about New York were arranged for the guests, among them one to the Eugenic Records Office of the Carnegie Institution of Washington at Cold Springs Harbor, L. I., and one to the country home of Dr. Henry Fairfield Osborn at Garrison, N. Y. The keynote of the various papers presented seemed to be in agreement in emphasizing the importance of heredity. While it was admitted that training and environment have an influence, the chief factor which determines the extent of an individual's mental development is his inborn potentiality for such development. As Professor Osborn put it, "There is no form of matter so stable as the germ plasm on which heredity depends." From the practical standpoint he finds little promise from the "melting pot" theory. All experiments have shown quite definitely that the mixture of a poor stock with a good one does as much harm to the good stock as it does benefit to the poor. From the practical standpoint the eugenists see little of promise for America in an unrestricted immigration. It is confessed that as yet the eugenic program has not proved eminently practical. The sterilization of the obviously unfit is legalized in a dozen States, but is practised in very few. The idea of a standard of physical health for marriage has encountered obstacles of prejudice, and indeed of practicability, which are apparently insuperable. The hopeful factor in the situation is that progress, however slow and halting, can already be discerned both in the public conscience as to marriage and in the collection and interpretation of scientific data.

American Medical Association Reestablished in Vienna.—This organization which, prior to the war was of excellent service to all English-speaking students in the city was dissolved at the outbreak of the war. It has now been recalled into existence. Some of the old functionaries have again taken up their offices, and in a short time the old conditions will be found again.

The New York Electrotherapeutic Society will hold its next meeting at the United States Naval Hospital in Brooklyn on Wednesday, October 5, 1921, 8.30 P. M. The program will include exhibition of equipment, methods and results of treatment, and moving pictures. All physicians are invited. Dr. Victor Pedersen is president of the society.

Dr. John G. Heisler has been elected Professor of Anatomy in the University of Pennsylvania in succession to Dr. George A. Piersol recently resigned.

Dr. W. Estelle Lee has been appointed by the Governor a member of the Pennsylvania State Board for Medical Education and Licensure in succession to Dr. John M. Baldy, and Dr. W. M. Hillegas has been reappointed to the Board.

Increased Dental Facilities for School Children.—The Bureau of Child Hygiene of the New York City Department of Health, with funds appropriated for increasing its dental service, which became available on September 1, has appointed four dentists, six dental hygienists, and eight nurses. The Bureau was given sufficient appropriation to appoint five dentists on full time as against nine on half time, eighteen hygienists, and nine new nurses. It is planned to operate eight new clinics apportioned among the various boroughs, one being established in Richmond, which, to date, has had no departmental dental service.

Infant Mortality in New York City.—The records of the New York City Health Department show that for the first thirty-five weeks of the year, ending August 27, the infant mortality rate was 76 per thousand children born, as against 91 for the corresponding period of last year. In 1885, the infant mortality rate of the city was 273.6 per thousand children born.

Health Exposition.—A public health exposition will be held at the Grand Central Palace on November 14, under the joint auspices of the New York City Health Department and the American Public Health Association. The proceeds from the sale of tickets will be used to aid in financing the annual convention of the American Public Health Association and to establish nutritional clinics in New York City for the benefit of undernourished children.

Position for Scientific Aid.—A vacancy in the Division of Physical Anthropology, National Museum, Washington, D. C., at $125 a month, is announced by the United States Civil Service Commission. A competitive examination will be held on October 19, 1921, from which this vacancy and others requiring similar qualifications will be filled. Applicants must have completed three years of college or university work (preferably in a medical school), or have had at least one year's experience in a laboratory of physical anthropology. Applicants should apply at once for Form 1312, stating the title of the examinations desired, to the Civil Service Commission, Washington, D. C.

Vacancies in Civil Service Positions.—The New York State Civil Service Commission announces an unwritten examination for First Assistant Superintendent (physician), to fill a vacancy at the New York State Reformatory for Women at Bedford Hills. The salary is $3,000 and maintenance. Candidates will be rated on training, experience and personal qualifications. The age limits are 25 to 50 years. Candidates must be graduates of an incorporated medical school and have had at least three years in medical work since graduation.

An examination is also announced to fill the position of Assistant Bacteriologist, State Department of Health. The salary is $2,250. The age limits are 25 to 45 years. Candidates must have had a college education or equivalent training in chemistry, physics and bacteriology and four years practical experience in the bacteriological and serological diagnosis of infectious diseases. This position is open to non-residents and non-citizens. Application forms for unwritten examinations may not be sent out after October 20 and for the written examinations not after October 10. Application for forms should be made to the Civil Service Commission, Albany, N. Y.

Charitable Bequests.—By the will of the late Mary Powers Harris, of Philadelphia, bequests are made as follows: Children's Hospital, $25,000, for

the erection of a separate building or wing for the treatment of crippled children, to be known as the Thomas H. Powers Memorial; Pennsylvania Hospital, $8,000, for the endowment of a free bed; Home for Incurables, $8,000, for the endowment of a room; Home of the Merciful Saviour for Crippled Children, $5,000; Chestnut Hill Hospital, $5,000, as a memorial to Anna M. Powers; Orthopedic Hospital and Infirmary for Nervous Diseases, $5,000.

Medical Society Elections.—The Wisconsin State Medical Society, at its annual meeting in Milwaukee, September 8, 1921, elected the following officers for the ensuing year: *President*, Dr. Sidney S. Hall, Ripon; *first vice-president*, Dr. Louis M. Warfield, Milwaukee; *second vice-president*, Dr. Spencer Beebe, Sparta; *third vice-president*, Dr. Rolla Cairns, Rivers Falls; *secretary-treasurer*, Dr. Rock Sleyster, Wauwatosa.

The Tenth Councilor District of the Arkansas Medical Society at its annual session at Fort Smith, September 8, 1921, elected the following officers for the ensuing year: *President*, Dr. William R. Reeves, Alma; *vice-president*, Dr. J. G. Eberle, Fort Smith; *secretary-treasurer*, Dr. J. G. Wolfermah, Fort Smith.

The Union County (N. J.) Professional Guild, organized on September 8, with a membership of three hundred physicians, dentists, druggists and nurses, elected the following officers for the ensuing year: *President*, Dr. Norton L. Wilson, Elizabeth; *vice-president*, Dr. Charles L. Hardy (dentist), Summit; *Secretary*, Miss M. E. Kernan (nurse); *treasurer*, Louis Langman (druggist), Elizabeth.

The Cumberland Valley Medical Association, at its annual meeting held in Hagerstown, September 12, 1921, elected the following officers for the ensuing year: *President*, Dr. W. D. Campbell, Hagerstown; *vice-presidents*, Dr. W. A. Gordon, Hagerstown; Dr. LeRoy H. Sape, Fannettsburg, Dr. S. Dana Sutleff, Shippensburg; *secretary*, Dr. John H. Coffman, Scotland; *assistant secretaries*, Dr. Warren D. Miller, Hagerstown; Dr. Frank N. Emmert, Chambersburg; Dr. C. R. Rickenbaugh, Carlisle; *treasurer*, Dr. John C. Gilland, Greencastle.

The Wisconsin Association of Industrial Physicians, at its annual meeting held in Milwaukee, September 9, 1921, elected the following officers for the ensuing year: *President*, Dr. C. F. Schram, Beloit, *vice-president*, Dr. R. A. Waite, Milwaukee; *secretary-treasurer*, Dr. R. E. Fitzgerald, Milwaukee.

Obituary Notes.—Dr. W. B. Cory, general medical examiner of the Brotherhood of Locomotive Firemen, died suddenly of heart disease at his home in Cleveland, Ohio, on September 23, at the age of forty-four years. He was graduated from the University of Illinois College of Medicine in 1901.

Dr. Wilfred B. Cunningham of Mamaroneck, N. Y., a graduate of Harvard Medical School in 1903, died on September 12, at the age of forty-two years.

Dr. Edward Rawson of Battle Creek, Mich., died in a local hospital on August 30, at the age of eighty-four years.

Dr. Clarence Jaquins Wallace of Wilkesbarre, Pa., a graduate of Hahnemann Medical College, Philadelphia, in 1889, died on August 29, at the age of fifty-four years.

Dr. Joseph H. Peck, a retired physician of Cleveland, Ohio, died at his winter home in Fort Orange, Fla., on August 30, at the age of eighty years. He was graduated from the Western Reserve University School of Medicine in 1883.

Dr. Charles W. Ray of Waxahachie, Tex., a graduate of Vanderbilt University Medical Department, Nashville, Tenn., in 1916, died suddenly on September 6, at the age of thirty-five years.

Dr. John M. Pleasants, former Mayor of Petersburg, Va., died September 1, at the age of eighty-eight years. He was graduated from the Baltimore College of Medicine in 1852, served as state senator, and was for a time editor of the *Index-Appeal*.

Dr. Margaret E. Holland of Houston, Tex., a graduate of the Northwestern University Woman's Medical School in 1873, died on August 31, at the age of seventy-three years.

Dr. William L. Fitts of Atlanta, Ga., a graduate of the Emery University School of Medicine, Atlanta, in 1883, died on September 8, at the age of fifty-nine years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, Sept. 6, 1921.

Post-Graduate Training in London.—The Bulletin of the Fellowship of Medicine and Post-Graduate Medical Association in its issue of September 3, last, discusses the future of post-graduate medical education in London. It is pointed out that it may be that, as the years pass, it will acquire the position of a specialism requiring an expert in the subject to organize and regulate the courses. Should this eventually materialize each scheme of the kind would demand the appointment of a "Director of Studies," in some respects resembling the position of that of a dean in a medical school. The director's duties, however, would be different from those of a dean: they would be of a more responsible nature, for while in the case of the latter the medical student's education is regulated by the demands of the curriculum, the instruction of the post-graduate has to conform to the special requirements of those by whom the instruction is sought. These requirements, of course, vary according to the position of the post-graduate. He may be a general practitioner, seeking to add to his knowledge in general medicine and surgery. For him the ordinary courses in both of these subjects would probably suffice. In his case the director's advice would present no difficulty. But something more in the way of advice would be necessary where the post-graduate applied for instruction, say, in one of the special departments. Here the director would be enabled to discharge the duties of his position with material benefit to the post-graduate. Let it be supposed that the latter presents his requirements in the following form: "I want to study diseases of the nose, throat, and ear. Can you put me in the way of making the best use of my time?" Under these circumstances the director, fortified with the full knowledge of the necessary procedure, would be able to draw up a schedule, including the hospitals to visit,

the lectures to attend, the special features of the courses provided to which attention should be given and other details of importance. In short, a "plan of campaign" would be devised and presented to the post-graduate which would soon prove to be to his advantage to follow. The same also would apply to every other special department. The fact is emphasized that one of the chief and most pressing difficulties encountered by a foreign post-graduate visiting London for the first time is to learn the geography of this great metropolis. The director could render him help in this direction. Merely to be told that certain hospitals must be visited leaves the post-graduate parlously placed for ascertaining for himself the precise locality of the institutions and the best means of visiting them. A few hints upon this point when desired could not fail to be appreciated where all was strange, novel, and difficult in regard to the environment. In order that full use should be made of the "director's" position, notification would be required to be given that post-graduates should consult him in all cases respecting their requirements.

It may be added that the report of the secretary to the Fellowship of Medicine Post-Graduate Association is most satisfactory in respect to the number of post-graduates joining the association during the present vacation season. Some of these have come from far distant parts of the Empire. In two or three instances Vienna has been the main objective of the visit to Europe. But having become acquainted, on arrival in London, with the facilities offered by the association, the post-graduates have decided to delay their journey to Austria, and have taken out a modified course in London. As has been said many times in these letters, London presents advantages for post-graduate medical training possessed by, perhaps, no European city. Its clinical material is unrivaled and to Americans the fact that it has a common language is no mean point in its favor. The drawbacks are that there is a lack of organization and that the financial situation is not satisfactory. If the medical profession of London would grapple with the problem with the enthusiasm and zeal its importance deserves, there is little doubt that London would soon take its rightful place as the first post-graduate center of Europe, at any rate, for English-speaking post-graduates.

Address of Sir James Crichton Browne at the English Conference of the Sanitary Inspectors' Association.—The thirty-fourth annual conference of the Sanitary Inspectors' Association, which commenced at Bath on August 31, was rendered notable by a stirring valedictory address by Sir James Crichton Browne, who resigned the position of president after a tenure of twenty years. Sir James's address was largely taken up with the growing social evil. He said that the subject was of such a character that one would rather not refer to it in a public assembly, but knowing what he did of the horrors of the disease it would be culpable prudery if he refrained, at such a meeting, from indicating what he believed was the one sure way, and that was not a clinic, of coping with a grave and growing social evil. He pointed out that during the past year 2,023 deaths in England and Wales were due to syphilis, and 2,103 to other venereal diseases. These figures, however, afforded not the slightest conception of the havoc wrought by these maladies. Not less than 10 per cent. of the population of the large English towns were infected with syphilis, and a much larger proportion with gonorrhea. Gonorrhea was prolific of sterility, blindness, and of rheumatic and joint affections, and syphilis was the direct cause of a vast number of cases of abortion, miscarriage, stillbirth, and infant mortality and as a hidden assassin, was undoubtedly responsible for a large number of deaths attributed to other causes, such as aneurysm, angina pectoris, Bright's disease, and cerebral hemorrhage. Syphilis was the sole cause of general paralysis of the insane, which killed 2,000 people in Great Britain annually, and it was the inexorable bane of those men they saw staggering about with locomotor ataxia.

The speaker went on to say that the disease could be prevented, and if he were asked why it was not prevented, the answer must be because of ignorance and negligence on the one hand, and ecclesiastical prejudice and short-sighted morality on the other. All were agreed that the proper and infallible preventive against venereal disease was chastity and marital fidelity; but these had failed and failed lamentably; our troubles had accumulated, and we had now within our reach a physical preventive which must not be ignored until moral preventives had been reinforced and proved effectual. There was the clearest and most definite medical evidence that the spread of venereal disease could be prevented by the adoption of methods of self-disinfection. The first suggestion of this was met with shouts of protest. It was pronounced a premium on vice and an encouragement to promiscuous sexual intercourse by removing the risks attending it. He then proceeded to criticize severely the policy of those who held views antagonistic to those of the Society for the Prevention of Venereal Disease. The speaker laid stress on the point that the deterrent effect of venereal disease was greatly exaggerated. If it was an effectual deterrent, why was the disease so disastrously prevalent? In any campaign against venereal disease many measures were necessary. There must be the suppression of unqualified quacks and herbalists, who had done so much mischief and the prohibition of their alluring advertisements. There must be established a network of clinics and hospitals throughout the country in which treatment by the most modern and approved methods could be carried on, and hostels for the prolonged treatment of women and girls. There must be laboratories in which pathological investigation and diagnostic work could be carried out. Contacts must be supervised and all disclosed cases followed up. But, above all, the public must be educated as to the incidence and dangers of venereal disease and as to preventive measures, among which immediate personal disinfection must take the first place. He was convinced that that was the best weapon for combating venereal disease.

The Study of Pathology.—Pathology is a subject which cannot be studied too closely by the medical student, or, perhaps, more especially by the post-graduate medical student. The correct diagnosis of disease is absolutely essential if the treatment is to be successful, and the foundation of an ability to detect the origin of disease with even fair accuracy is laid by the intelligent comprehension of good text-books, although, of course, the coping stone of this knowledge is only placed by clinical experience and by the opportunity of making post-mortem examinations. In the presidential address at the recent meeting of the British Medical Association at Newcastle, given by Dr. David Drummond, particular emphasis was put upon the need for facilities for more post-mortem examinations. This need is obvious and so is that for reliable text-books of general pathology.

Obituary.—Dr. Herbert Edmund Cuff was drowned at Burnham Overy on the Norfolk coast on August 15, last, in an effort to save his two daughters, aged 15 and 12, respectively, who were bathing and got into difficulties. Doctor Cuff's wife witnessed the tragedy from the shore. The endeavor to save the children was unavailing, and she saw her husband and her only two children go down before her eyes. Doctor Cuff was principal medical officer to the Metropolitan Asylums' Board. He was an exceptionally able man, endowed with the tact and common sense essential to one in control of an immense staff as that of the Metropolitan Asylums' Board. He was beloved and respected by all his colleagues, and his tragic end came as a severe shock to all who knew him.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 15, 1921, clxxxv, 11.

1. Legislative Aspects of Vaccination. Samuel B. Woodward.
2. Cancer. John E. Talbot.
3. The Etiology of Hysteria. Max Baff.
4. Report of Two Cases of Blastomycosis. Willard Boyden Howes and Plinn F. Morse.
5. Surgical Aspects of Abdominal Tuberculosis in Children. W. E. Ladd.
6. The Value of Quantitative Perimetry in the Study of Post-Ethmoidal Sphenoidal Sinusitis Causing Visual Defects. Clifford B. Walker.

2. Cancer.—John E. Talbot offers a line of thought which gives a new conception of the process involved in the production of cancer. He points out that there are at least three well known and established syndromes which result in cancer. First, the race that eats very hot rice suffers from cancer of the esophagus, which affects only the men and not the women. This is undoubtedly due to the fact that the men eat at the first table, so to speak, and thus get the rice at its hottest. Second, another race whose custom it is to wear a charcoal stove against their abdomen suffers from cancer of the abdominal wall, which is almost unheard of elsewhere. Third, among our own race there is an association between cancer of the lip and the frequency of smoking a clay pipe. These three well known clinical entities have given basis for the belief that cancer is in some way due to chronic irritation. In each of these forms of irritation there occurs a death of surface epithelium which is a normal process and calls for replacement of the germ cells of the skin. There are two extraneous influences acting, an abnormal temperature and a call for a great increase in rapidity of replacement. This process stimulates the germ cells of the affected tissue to activity greater than is physiological. The process not only calls for rapid reproduction of physiological cells, but also stimulates *an increased reproduction of germ cells* themselves. In order to keep this rapid reproduction process in physiological control, each new germ cell must acquire a trophic nerve attachment. Failing in this we have a germ cell containing the inherent power of reproduction, provided it has sufficient food supply and is kept at the proper temperature. Unless this nerveless cell is controlled by acquiring its trophic nerve connection, we have the exact situation present in cancer of rapid cell reproduction without physiological trophic nerve control. This point of view places bacteria and the dissociated cell of the complex organism on a like basis. The great difference between these single cells, the bacteria and the dissociated tissue cells in their action on the complex organism lies in the fact that the bacterial cell is a foreign invader to which the complex organism has developed a partial or complete defense or immunity. The by-products of the dissociated cells, however, are of the same nature as the by-products of the other similar tissues of the body, and the complex organism is, therefore, unaware, so to speak, of the local process until it overwhelms the life processes of the complex organism. It is suggested that the mechanism for maintaining the interrelationship of tissue growth is the sympathetic nerve system, more specifically spoken of as the trophic nerves.

3. The Etiology of Hysteria.—Max Baff states that the study of a large number of cases of hysteria shows that, although profound emotional shock is the cause of onset of an hysterical convulsion, it is not the cause of hysteria itself. Hysteria is not caused by intense worry or by concentration of the mind upon itself. The emotional shock simply acts as a cause for the patient to lose her conscious mind, and thus be thrown into a subconscious mind, or the "unconscious." Hysteria is not hereditary. Perhaps it runs in families because parents give to their children the same treatment during life which they themselves received when children. That which is hereditary is the baby constitution, the infantile and undeveloped self-control. As children the hysterics have always had their own way, and the practice of giving to children anything they desire is full of folly and independence is sadly lacking in them during their future years. When an individual of this type is confronted by misfortune, instead of fighting it, she goes into an hysterical attack, thus substituting for her conscious mind her unconscious mind, which brings her back to the days of her childhood when all was serene. Psychoanalysis, coupled with a study of the manner in which the patient goes through her emotional demeanor, will discover to her her weaknesses and her failures which gave her a diminution of self-control.

Journal of the American Medical Association.

September 17, 1921, lxxvii, 12.

1. Multiple Renal Calculi, Unilater and Bilateral: Some Observations. J. T. Geraghty, John T. Short, and Robert F. Schanz.
2. Prostatectomy in Bad Surgical Risks. H. G. Bugbee.
3. The Toxin Treatment of Dermatitis Venenata. Albert Strickler.
4. End-Results of Reconstruction Operation for Ununited Fracture of Neck of Femur. Armitage Whitman.
5. Treatment of Ununited Fractures of the Neck of the Femur by Bone Transplants. Charles Davison.
6. The Clinical Diagnosis of Heredosyphilis. Henry Stoll.
7. Granuloma Inguinale (Granuloma Venereum; Granuloma of Pudenda; Ulcerative Vulvitis; Serpiginous Ulceration of Genitals, Etc. Kenneth M. Lynch.
8. Action of Radium and Roentgen Rays on Normal and Diseased Lymphoid Tissue. Isaac Levin.
9. The Operative Lengthening of the Femur. Vittorio Putti.
10. Studies on Aneurysm. I. General Statistical Data on Aneurysm. Baldwin Lucke and Marion Hague Rea.
11. Coccidiosis in Man as a Possible Sanitary Problem in the United States. Frank G. Haughwout.

3. The Toxin Treatment of Dermatitis Venenata.—Albert Strickler has investigated the following problems: (1) What curative influence does the toxin of *Rhus toxicodendron* possess on the symptoms and course of dermatitis venenata due to poison ivy or oak? (2) Is it possible to desensitize individuals against dermatitis venenata produced by poison ivy, oak, or sumac? (3) What is the probable duration, and what constitutes the best method of desensitization? As a result

of his experience with thirty cases, and also that of Alderson and Petch, he concludes that: (1) The intramuscular injection of the toxin of *Rhus toxicodendron* or the toxin of *Rhus venenata* can cure the dermatitis produced by poison ivy, oak, or sumac. (2) As a rule, the subjective symptoms associated with this affection disappear or are greatly modified within twenty-four hours after the first injection is given. (3) No more than four injections are necessary to produce a cure, two injections are usually sufficient. (4) The injections are given intramuscularly at twenty-four-hour intervals. The dose of the diluted toxins varies from 0.5 c.c up to 1 c.c., although as high as 2 c.c. can be given. (5) The result in the writer's series of cases was secured without the use of any local applications whatsoever. (6) It appears highly probable, in view of the results obtained by various observers, that it is possible to establish a desensitization to ivy poison and oak poison. The desensitization is probably temporary in character, and one that has to be renewed from time to time. (7) The intramuscular injections combined with administration by mouth offer the most logical procedure, and the one best calculated for obtaining a most satisfactory result.

6. The Clinical Diagnosis of Heredosyphilis.—Henry Stoll. (See MEDICAL RECORD, July 2, c, 1, p. 39.)

7. Granuloma Inguinale (Granuloma Venereum; Granuloma of Pudenda; Ulcerative Vulvitis; Serpiginous Ulceration of the Genitals, Etc.).—Kenneth M. Lynch finds that in his community as well as probably throughout the South, if not throughout the nation, a fairly prevalent condition has been passing under the general class of venereal sores and has not been recognized as it has been in other parts of the world (notably in warmer countries) as an entity. He concludes that there is a type of pure case, but there are also cases in which the condition is similar, if not identical, and Donovan's organism present, but which appear to be secondary to or at least associated with other conditions. In all the cases reported the Donovan organism was obtained in smears, the more acute and progressive the lesion the larger numbers present. In the treatment of these cases U. S. P. commercial tartar emetic in a 1 per cent. solution in physiologic sodium chloride solution or distilled water, and sterilized by filtration, was employed. The usual procedure was to start with 3 c.c. of the 1 per cent. solution diluted to 10 c.c. with either sterile physiologic sodium chloride solution or distilled water, increasing the dose 2 c.c. every third day until 12 c.c. of the undiluted 1 per cent. solution was reached. In granuloma plus syphilis tartar emetic is used between the injections of arsphenamin. When it was possible to do so the lesion was completely excised and healing supported by tartar emetic injections. In the pure condition healing has resulted in fairly extensive lesions within four or five weeks, and even in the most extensive persistence in treatment will effect results in time.

10. Studies on Aneurysm.—Baldwin Lucke and Marion Hague Rea report general statistical data on aneurysm obtained in an analysis of 321 aneurysms of the heart and its valves, the aorta and the aortic branches. In 12.000 post-mortem examinations at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania, 321 "intracorporeal" aneurysms occurred in 268 or 2 2 per cent. of the patients examined post-mortem. The main facts brought out are that aneurysms are more frequent in the United States and Great Britain than in the Teutonic countries. This may be accounted for by the existence of different spirochetal strains possessing selective affinities and being particularly prevalent in certain countries or races, or by a predisposing influence on the vascular structures of racial characteristics. The aorta is more often involved; the various aortic branches are relatively rarely the seat of aneurysms. The most frequent age period for aortic aneurysm is the fourth and fifth decades. Aneurysm occurs at an earlier age in the negro than in the Caucasian race. Aneurysm occurs about four times more frequently in males than in females. Practically all writers are in accord on this point. Aneurysm is relatively more common in the negro than in the Caucasian. In fifty-three patients, 20 per cent., in this series multiple aneurysms were found. It is not uncommon to find one aneurysm diagnosed yet two or three are discovered at autopsy. The clinical diagnosis was made in 43 per cent. of these cases. Aneurysms frequently escape clinical detection. The conditions most frequently mistaken for aneurysm are asthma, chronic endocarditis, chronic myocarditis, pulmonary tuberculosis, and mediastinal tumor.

11. Coccidiosis in Man as a Possible Sanitary Problem in the United States.—Frank G. Haughwout recalls that in 1918 he called attention to the growing number of cases of human coccidiosis that were being reported from the war zones abroad, and ventured the opinion that war conditions were not unlikely to bring about a spread of the parasites involved. He now claims that the prediction is on a fair way to be fulfilled, and points to the records of eleven cases of coccidiosis discovered in the United States since he wrote the paper. To these he adds another case. Of the cases reported seven occurred in men who had been in service overseas, and four in home service troops. He thinks it desirable to follow the peregrinations of these infected soldiers and to inquire into the histories of the apparently autochthonous cases. The condition suggests an interesting epidemiological problem whose study should now commence with the seemingly early development of the infection in the United States. In view of the high resistance of the cysts to chemical reagents and disinfectants and the high degree of vitality of coccidial cysts in general, the parasite is far more dangerous from the enidemiological point of view than the other protozoa of man.

British Medical Journal.

August 27, 1921. No. 3165.

1. Diagnosis and Treatment of Cystitis. J. F. Dobson. Alfred Parkin.
2. Bladder Growths and Their Treatment. Sydney MacDonald.
3. Open Prostatectomy. J. W. Thomson Walker.
4. Introductory Remarks Before the Section of Preventive Medicine and Industrial Diseases. Thomas Oliver.
5. Discussion on the Effect of Health Legislation on the Health of the People. W. E. Elliot.
6. Discussion on the Importance of Industrial Medicine to the Community. E. L. Collis. Kenneth Goadby.
7. Luminal Contrasted with Bromide in Epilepsy. F. Golla.
8. Recurring Dislocation of the Shoulder Joint. T. Lindsay Sandes.

7. Luminal Contrasted with Bromide in Epilepsy.—F. Golla has observed a total of 125 cases of epilepsy for a period of not less than eighteen months. The results show that of these 36 cases were either not improved or deteriorated under luminal treatment, while the remainder did better under luminal than under bromide. The cases most beneficially affected by luminal were those occurring at frequent intervals, and the cases least affected were those whose fits occurred in bouts at considerable intervals of time. Golla hesitates to believe that luminal exercises a selective action on those forms of epilepsy in which the fits occur with the greatest frequency; it is more probable that a class of epileptics exists which is more refractory to bromide treatment than others; such a class would obviously show the greatest number of fits when treated by bromides, at the same time these patients are not less susceptible to luminal than their fellows, and consequently it is with these cases that the drug shows its most marked effect. The doses of luminal employed rarely exceeded six grains a day of the sodium salt. The drug is as a rule well tolerated and most patients found that they were brighter and more cheerful after a change to luminal from bromide treatment. In twelve cases, however, the patient complained of giddiness and drowsiness. By reducing the dose of the drug toleration was secured in all but four cases. There has in no instance been any signs of the formation of a drug habit, and suspension of the treatment has never given rise to any disturbance. There is a tendency in all cases for the number of fits to increase slightly during the first two months of treatment. The cases suffering from diurnal fits showed a startling superiority of luminal over bromide treatment.

The American Journal of the Medical Sciences.

August, 1921. clxii, 2

1. Acute Arteritis Complicating Pneumonia. Georg Dreyfus Head.

2. Periarteritis Nodosa. Morris Manges and George Baehr.
3. Urticaria, Classification of Types and Its Causes. George L. Lambright.
4. The Value of Basal Metabolism Studies in the Diagnosis and Treatment of Thyroid Diseases. Albert H. Rowe.
5. Blood Changes in a Gastrectomized Patient Simulating Those in Pernicious Anemia. H. R. Hartman.
6. Streptococcic Hemolytcus Empyema. James I. Johnson.
7. Internal Hydrocephalus in a Syphilitic, Probably Due to Intraspinal Treatment. Albert Keidel and Joseph Earle Moore.
8. Ozena and Its Relation to Tuberculosis. Fred H. Linthicum.
9. Diabetes Mellitus, Syphilis and the Negro. I. I. Lemann.
10. Studies on the Dosage of Digitalis in Children. Hugh McCullough and Wayne A. Rupe.
11. Pedunculated Tuberculosis of the Peritoneum: Perslucht; Extreme Infrequency of the Condition in the Human; Report of a Case with Discussion of Bovine Infection. Henry M. Ray.
12. The Sequelae of Epidemic Encephalitis. William Boyd.
13. Mechanism of Lowered Resistance Following Exposure to Lowered Temperature. Lewis A. Bibb.
14. Therapeutic Pneumothorax Complicated by Hydropneumothorax and Pleurisy, with Effusion on the Untreated Side. Report of a Case. Barnett P. Stivelman.
15. Edema of the Glottis in Obscure Deaths. Myrtelle M. Canavan.

2. Periarteritis Nodosa.—Morris Manges and George Baehr report a case which is unique even for this rare disease, since it is one of the few in which the diagnosis was made during life. This has been done in four other cases, in only one of which has the diagnosis been verified at autopsy. The patient, a man 39 years of age, was admitted to the hospital apparently suffering from an acute abdominal condition, for which an exploratory laparotomy was performed. This revealed periarteric nodules in the mesentery, all the arteries in the mesentery and pancreatic region being involved. Similar nodules were found in the intestinal wall. The nodules were at once recognized as those of periarteritis nodosa. During the two months following the operation the patient became much improved. The only new symptom was failing vision, due to a fibrinous exudate on the temporal side of the optic nerve heads. This was associated with a low-grade nephritis. He was readmitted to the hospital about three months after the operation. At this time the only nodules that could be found were several along the right temporal and brachial arteries. No other nodules developed during the remainder of his life, which terminated with a chronic bronchopneumonia and advanced nephritis. Detailed autopsy findings and pathological studies are presented. The case is remarkable because the vascular lesions found at autopsy represent the end stage of a periarteritis nodosa, in which the acute periarterial inflammatory process had long subsided and the disease was progressing toward healing. Death occurred from renal insufficiency due to the gradual atrophy of tubules and replacement fibrosis interstitium consequent upon the gradual and progressive reduction in the circulation through the diseased renal vessels. Only one other case of similar nature is recorded in which all the arterial lesions found at autopsy had advanced to the stage of healing. This case was reported by Spiro. From the standpoint of etiology the case is important because it gives very positive support to the contentions of those writers who maintain that syphilis is not the cause of the disease. Two Wassermann tests were made, one early and the other late in the course of the disease; both were negative, and nothing of a syphilitic character was found in any of the pathological examinations. All the evidence that has been presented would indicate that the disease is of an infectious nature, the cause of which is as yet unrecognized, and which for some unknown reasons attacks the walls of the medium-sized arteries, with a predilection for the mesenteric, renal, hepatic, pulmonary, cardiac, and cerebral vessels, as well as those in the skin and muscles of the extremities. From the clinical side the case is of interest because of the occurrence of abdominal symptoms simulating an acute surgical condition. This can well be understood when it is recalled that the branches of the celiac axis are the most frequent site of the lesion.

8. Ozena and Its Relation to Tuberculosis.—Fred H. Linthicum calls attention to the fact that ozena, though not an uncommon disease, has been relegated so strictly to the sphere of the rhinologist and the laryngologist that it is but little known outside of these specialties. He sets forth evidence and reports a number of cases pointing to the frequent association of tuberculosis and ozena together with some experimental work done on the subject in the department of laryngology of the Johns Hopkins Hospital. The lesions of ozena are confined to the mucous membranes of the nose and pharynx and may extend to the larynx. They are characterized by the formation of greenish black crusts, with a sickening odor. While the writer has found an acid-fast bacillus in the nasal secretions of ozena, it is not identical with the tubercle bacillus. Nevertheless, because of the frequent association of the two conditions, he decided to try tuberculin treatment in ozena. He succeeded in collecting nine patients with ozena, seven of whom consented to take the tuberculin treatment. All of these showed improvement after longer or shorter periods of treatment, though in one instance the initial improvement was followed by relapse. By improvement is meant cessation in the discharge and odor and a betterment of the general condition. In none of the cases was the atrophy in the nose affected. In some the sense of smell returned to a certain extent.

10. Studies on the Dosage of Digitalis in Children.—Hugh McCullough and Wayne A. Rupe have attempted to determine the amount of tincture of digitalis that is necessary to produce certain effects on the heart of children in order to establish whether the relationship between body weight and dosage that has been recently established for adults is directly applicable to children, or if not, what modifications are necessary in order to base the dosage of the tincture of digitalis on the body weight of children of various ages and weights. From observations conducted on thirty-six children they conclude as follows: (1) The results show that between eight and twenty kilos of body weight, or up to the approximate age of four years, children respond more readily to digitalis than do children above this weight and age. It would seem that older children with normal hearts require a larger amount per unit of body weight than is necessary to produce an effect in adults with heart disease. (2) There is considerable variation in the amount of digitalis necessary to bring about a response in the hearts of children. (3) Vomiting was noticed to be one of the early signs of the effect from digitalis administration, often occurring before there were any alterations in the electrocardiogram. Changes in the electrocardiogram were not constantly found in all the cases in which a digitalis effect was obtained. The most common change observed in this group of children was the appearance of a sinus arrhythmia. Alteration in the size and direction of the T wave occurred in a small number of cases.

Long Island Medical Journal.

August, 1921, xv, 8.

1. Analysis of Operative Demonstrated Lesions of the Gall-Bladder and Bile Ducts from the Standpoint of Early Diagnosis. Royale H. Fowler.
2. A Thorough Understanding of the Anatomical Structure of the Respiratory System Requisite to the Treatment of Diseases Thereof. George Wesley Beatty.
3. Acute Lymphadenosis. Probably of Streptococcic Origin. Henry Joachim.
4. Studies of Basal Metabolism, Preliminary Report. Louis C. Johnson.
5. Schneider's Test in Pernicious Anemia. E. S. Platou.
6. Whooping Cough, Second Attack. Archibald Smith.
7. Is Hypothyroidism Curable? Siegfried Black.

1. An Analysis of Operatively Demonstrated Lesions of the Gall-Bladder and Bile Ducts from the Standpoint of Early Diagnosis.—Royale H. Fowler asserts that there is no doubt that the near and remote results of disease of the biliary tract should be classed as sequels of hematogenous or lymphogenous infection. The various lesions are but degrees in a process of reaction to irritants, not definite entities, but represent a sliding scale of infective changes due to varied virulence and type of the organism and to a variable resistance on the part of the gall-bladder itself. A résumé of cases is used to illustrate the terminal pathology of the gall-bladder and bile ducts. This shows that (1) the average age of these patients at operation was 42 years, 4 months; (2) the average duration of symptoms referable to the stomach before operation was 4 years and 10 months; (3) the average duration of symptoms referable to the gall-bladder before operation was about 3 years; (4) the average age at which infection of the gall-bladder was known to have existed was 30 years and 5 months. These cases may eventuate in cancer

if allowed to go untreated. In cholecystitis or the pregallstone stage there is one treatment—cholecystectomy; the mortality should not be over 2 per cent. Then there will be no recurrence. In the second stage, for stone limited to the gall-bladder, there is one treatment—cholecystectomy. The mortality should also be low and the postoperative morbidity *nil*. These operations in general are performed on young adults. In the third stage, that of terminal complications, the patients are more advanced in years, there may be cardiorenalvascular changes which have occurred in the long interval since the onset of gall-bladder infection. Here one must consider cholecystectomy whenever possible, drainage operations, and anastomsis. The mortality in this stage may be 15 per cent. A cure may be expected in more than 70 per cent. of cases by cholecystectomy. More than 20 per cent. will be improved. The 10 per cent. of failures should be investigated further.

5. Schneider's Test in Pernicious Anemia.—E. S. Platou reports a case in which tentative diagnosis of pernicious anemia and pulmonary tuberculosis was made. Believing that the Schneider test might throw light on the diagnosis, this test, slightly modified, was employed. The values obtained from the test in a large series of extractions has established the following facts: (1) That the presence of urobilinogen in the bile in considerable amounts is a pathological finding. (2) That urobilin does not occur in the duodenal contents of a normal fasting adult in values exceeding 1000 units of dilution. (3) That diet has no influence on the values of either pigment. The test probably has its greatest usefulness clinically in differentiating cases of pernicious anemia from obscure cases of severe secondary anemia resulting particularly from carcinoma and hemorrhage. In the former the values generally run extremely high; in the latter they are not increased above the normal. In the case reported values of 4000 units on one occasion and 4800 on another were of distinct advantage in the diagnosis in view of the patient's youth (18 years) and the absence of neurological findings.

Bulletin of the Johns Hopkins Hospital.

July, 1921, xxxii, 365.

1. The Theories of Blood Coagulation. Jules Bordet.
2. On Certain Variations in the Form of the Human Electrocardiogram. Edward P. Carter and Francis R. Dieuaide.
3. A Statistical Note on Encephalitis. Raymond Pearl.
4. The Therapeutic Significance of the Gram Reaction. John W. Churchman.
5. The Treatment of Placenta Previa Together with the Anatomical Description of Two Specimens. William B. Thompson.
6. On the Supposed Life Cycle of Bacteria. Hilding Bergstrand.
7. The Capacity for Phagocytosis Shown by Polymorphonuclear Leucocytes in Dead Animals and After Preservation in Salt Solution. Howard B. Cross.
8. The Ingestion of Melanin Pigment Granules by Tissue Cultures. David T. Smith.

2. On Certain Variations in the Form of the Human Eleetrocardiogram.—Edward P. Carter and Francis R. Dieuaide summarize their observations on variations in the amplitude and direction of the waves of the QRS complex as follows: (1) Variations in the amplitude (including extremely low values) and direction of the QRS complex and transient notching of R and S in the human electrocardiogram occur not only in lead III, but also not uncommonly in the other leads, especially in records of abnormal hearts. (2) These peculiarities are dependent upon the relation of the electrical axis of the heart to the planes of the leads. Tables are given showing the angles at which conspicuous variation is present in each lead, and the angles between which fairly marked variation occurs in each combination of two leads. The terms "stable" and "unstable" are suggested with reference to the variability of the leads. (3) Variations are due in some instances to shifts in the relative position of the heart; in others to pathological changes in the bundle tract and to alteration in the relation between the ventricles; in a great many others to causes at present unknown.

3. A Statistical Note on Epidemic Encephalitis.—Raymond Pearl presents a careful and exhaustive analysis of the figures on the incidence and mortality from epidemic encephalitis in New York City during the years 1919 and 1920. These data, he points out, are the most extensive in existence and fairly represent about all the basis of a statistical character which exists for forming an intelligent opinion *now* about the statistical features of this important disease. The conclusions he reaches are as follows: (1) In the year 1920 the case incidence of epidemic encephalitis increased in New York City nearly five-fold over 1919. At the same time the case fatality rate increased from 26 per cent. of the attacked to 37 per cent. of the attacked. It is believed that this increase in case fatality rate is a real phenomenon; it is certainly statistically significant. (2) The seasonal incidence, as judged by monthly distribution of cases was significantly different in 1920 to what it was in 1919. (3) The peak of mortality in an epidemic outbreak may be expected to occur from 23 to 37 days *after* the peak of case incidence (morbidity). (4) There is a significantly larger proportion of males among the attacked than there is in the general population, or, put in another way, males are especially susceptible, to a statistically significant degree. (5) Deaths occur among males no more frequently in comparison with females than would be expected from the normal proportions of the two sexes in the population at large. (6) The disease is not more likely to attack either males or females at one age than at another. The age distribution of attacked cases, in other words, does not significantly differ in either sex from the age distribution of the general population. (7) The age distribution of deaths does not differ significantly in both sexes from the age distribution of the population. There appears to be a definite tendency for the disease to be more fatal in the higher age groups.

7. The Capacity for Phagocytosis Shown by Polymorphonuclear Leucocytes in Dead Animals and After Preservation in Salt Solution.—Howard B. Cross describes observations upon the polymorphonuclear leucocytes and other cells made under the most varied circumstances. The suspensions were sometimes kept in the refrigerator, no other precaution was observed to preserve the cells, and no special effort was made to prolong their life. It was found that polymorphonuclear leucocytes sometimes take up and digest bacteria within the body after death. In one instance these phagocytes remained alive within the body for eleven days after death and were still capable of energetic phagocytosis. Leucocytes suspended in physiological salt solution, provided a trace of serum be present, may remain alive and manifest considerable phagocytosis for a considerable length of time. Marked changes in the temperature of the phagocytes after separation from the body do not destroy and often do not alter the capacity of the leucocytes for phagocytosis. Polymorphonuclear leucocytes which had retained their functional capacities for three days within the dead body were removed and after being kept several days in a test-tube were still capable of energetically phagocyting bacteria. Phagocytes from the blood and exudates seem to possess equal tenacity of function. Human leucocytes are capable of sustained independent existence.

Western Medical Times.

August, 1921, xli, 2.

1. Rehabilitation and the Disabled Soldier. John L. Mandracchia.
2. Pyloric Relaxation and Inhibition. W. H. Foreman.
3. Birth Control vs. Reason. Thomas Webster Edgar.
4. Chronic Bowel Trouble. Robert T. Morris.
5. Constipation. Atwater L. Douglass.
6. A Dark Lining for a Silver Cloud. Howard Crutcher.
7. Case Reports of Gonorrhea Treated with Vaccines. S. Sterling Stahl.

2. Pylorie Relaxation and Inhibition.—W. H. Foreman states that pyloric relaxation and inhibition are influenced by: (a) Organic obstructive disease at the pylorus, or (b) functional interference due to disturbance in the upper or lower gastrointestinal tract or reflexes from disturbed function in other structures. Functional disturbances at the pylorus are frequent. Organic disturbances are relatively rare. Motor, secretory, and sensory symptoms in the stomach, due to functional disturbance of the pylorus, are very similar to gastric symptoms in organic disease at the pylorus. The roentgenogram is of relatively little value in the diagnosis of disturbances of pyloric relaxation and in-

hibition since the diagnostic symptoms are chiefly motor. For the same reason the fluoroscope is of great value. Disturbed secretion is an incident of functional or organic pathology in or out of the stomach. However, the presence or absence of free acid in the stomach considerably modifies gastric function and influences healing of gastric or duodenal ulcer.

Le Progrès Médical.

August 13, 1921, xlix, 33.

Acute Hyperthymia.—According to Benon, who gives several case histories, acute hyperthymia without delirium appears in subjects who have undergone some painful moral experience. There is present a fixed idea with an intense development of emotional or affective manifestations. It was seen in subjects who were forced to enter the ranks during the war, leaving behind either young children or important business interests, there being no one available to take over the responsibility. But it is, of course, possible that this factor was only casual in its operation, and that the condition was endogenously motivated. Under the conditions just mentioned other factors could certainly coöperate, as military rigors. This type of psychosis resembles simple melancholia, and usually passes for such, but the author makes a distinction. The fugues exhibited by these patients are not readily accounted for. The most plausible explanation is that they rest on hallucinations. They are amnesic in character, so that the subject cannot supply self-analysis. The author, although commonly using the term hyperthymia for these cases, speaks on one occasion of an "affective dysthymia" as defining the condition. The term hypothymia is applied to dementia præcox. Moral shock, fixed idea, periods of amnesic ambulatory activity, serve chiefly to differentiate this condition from other psychoses and psychoneuroses. Recovery often follows.

Le Progrès Médical.

August 20, 1921, xlix, 34.

Hypotensive Action of Tincture of Garlic.—Loeper and Debray refer to certain uses of garlic in medicine—in pulmonary tuberculosis, and other pulmonary infections. The common method of exhibition is by inhalation. They have recently tested its use by the mouth in doses as high as 40 drops daily. There were no untoward effects. The tincture is eliminated by the lungs much more slowly than natural garlic, the breath being impregnated with the drug for some hours. In old pulmonary sclerosis this period is considerably prolonged. The same retardation is seen in stasis and cirrhosis of the liver, a fact which has been utilized in testing the hepatic functions. In the present paper the authors are interested chiefly in the hypotensive action of the drug, which was in evidence in numerous cases of high blood pressure tested for the occasion. The fall is not striking, but in the very high tensions there is a considerable lowering which in a given case might be decisive. The period of latency is 30 to 40 minutes, and the favorable effect is often apparent even on the following day. We are not so well supplied with hypotensives that we can afford to ignore this new addition which will doubtless find employment despite the unesthetic odor which it imparts to the breath.

La Presse Médicale.

August 17, 1921, xxix, 66.

Sixty-six Gastrectomies for Cancer.—Olivier reports this series, the type of operation being the Billroth II. Ten patients failed to withstand the intervention, this including all fatalities within the operative period. In one-half death resulted from post-operative pulmonary complication. There were three deaths from shock and two from peritonitis. It should be stated that this series of 66 cases covers a period of 26 years, dating from 1895. Of the entire series 18 have been operated on during the past three years under local anesthesia. During the latter short period there has not been a single fatality. But in dissociating the series it makes the mortality up to 1918 no less than 25 per cent., while this is offset by the zero mortality of the recent series. Of the 56 patients who withstood the intervention 41 are dead and 13 are living, two others being unaccounted for. Of the 41 decedents 16 died during the first post-operative year and 13 others before the third year. The remaining 12 died at various intervals beyond three years—all the way from four to twenty years. Since no less than seven patients survived the five-year limit, they may with qualifications be added to the 13 actual survivors. This is true especially of three who survived from eleven to twenty years, dying of intercurrent disease. On the other hand, a number of the actual survivors have been operated on too recently for statistical purposes. The author claims 27 per cent. of three-year survivors.

La Presse Médicale.

August 24, 1921, xxix, 68.

Rectocolic Rupture from Compressed Air.—Jean contributes an exhaustive article on this subject, the literature of which goes back to 1911, when Lenormant in France and Andrews in the United States published the known material to date. There are now upon record at least 25 cases. Since most of these run to type the two recent observations of the author, both in 1920, will serve to visualize the affection. The first subject was a boy of 15 who worked with rock drillers. One day he had an altercation with a driller, who in anger or rough play directed the nozzle against the boy's anal region. The pressure was 26 atmospheres. The nozzle did not even touch the boy's person, but soon after he collapsed from pain due to distention of the bowel with gas and rupture, and was taken to the hospital. The distention was colossal, and vital functions were almost suspended. After antishock treatment had caused some improvement laparotomy was at once performed, as it was only too evident that intestinal perforation had occurred. So great was the damage done that an extensive resection of the lower bowel was found necessary. The patient recovered. The second case in a man of 36, a worker, was purely accidental. The man was seated crosswise on a bench with the anal region jutting over the end. Beneath was the hose, sharply kinked. A rupture at the kink caused a powerful discharge of compressed air against the perineum. There followed colossal distention of the abdomen and subcutaneous emphysema. Laparotomy with resection of a portion of colon was followed by recovery.

Journal de Médecine de Paris.

August 20, 1921, xl, 23.

Prophylaxis of Cancer.—Pauchet deals especially with the rôle of intestinal stasis in the genesis of cancer of the stomach. In general there are three causes of cancer, two of which we know, while the third we are ignorant of. The two known factors are local irritation of many kinds on the one hand and some kind of chronic intoxication on the other. The third factor, which we do not know, may be a living organism or cellular vice. In cancer of the stomach the local cause is usually an ulcer and the accessory factor constipation and autointoxication. The latter as a rule goes back to infancy—there has always been a stercoremic element. Some prefer to call the condition cholemia. It is for the most part silent. In youth at least the subject is healthy and vigorous. Only by palpation do we bring out the presence of colonic stasis. Even in later life the subject remains at times unconscious that anything is wrong with him. In many cases, however, autointoxication is clearly in evidence. In recent years it has been easy to demonstrate the presence of stasis with the *x*-ray. Naturally the various clinical manifestations of intestinal stagnation, as outlined by Lane and others, may be more or less in evidence. Secondary enterocolitis may lead directly to cancer of the bowel. The author carefully outlines the relationship between stasis and local irritation on the one hand and the development of colonic cancer on the other. The small bowel is relatively immune and stasis is not a factor here, for its liquid content protects it from irritation by solid particles. There are mechanical reasons why stasis and ptosis of the colon favor the development of juxta-pyloric ulcer, both gastric and duodenal. These are bound up with an exaggeration of the normal duodenojejunal kink.

Book Reviews.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. 1921. Thirty-ninth year. Price, $6.00. New York: William Wood and Company.

AFTER looking through this volume one is amazed at the enormous amount of information which it contains. It seems that the editors and contributors have gleaned the medical literature and abstracted what was worth while, and here present it in handy form to the busy practitioner and student. There is no physician who would not benefit by a perusal of several pages of this volume. Among the articles which have attracted our attention may be mentioned those on the Chemistry of the blood; Cytology of the blood; Cerebrospinal fever, and the meningococcus carriers; Influenza, and the value of prophylactic inoculation; Smallpox, with its new method of treatment by applying a saturated solution of potassium permanganate; Arterial tension, and the method of measuring it; Heart disease, and the newer methods of examination by the electrocardiograph and skiagraph; Psychotherapy; Epilepsy; Encephalitis lethargica; Diabetes; and Deficiency diseases. The book is of handy size, is well printed, has ample illustrations, and is equipped with a good and serviceable index. The references to the bibliography are of service, and are placed at the end of each article; they take up but little room, and do not interfere with one's reading. Altogether, this is one of the most useful publications of the year.

FRENCH-ENGLISH MEDICAL DICTIONARY. By ALFRED GORDON, A.M., M.D. (Paris), Late Associate in Nervous and Mental Diseases, Jefferson Medical College; Late Examiner of the Insane, Philadelphia General Hospital; Neurologist to Mt. Sinai, to Northwestern General, and to The Douglas Memorial Hospitals; Member of the American Neurological Association; Fellow of the American College of Physicians; Corresponding Member of the Société Médico-Psychologique de Paris, France; Member of the American Institute of Criminal Law and Criminology, etc. Price, $3.50. Philadelphia: P. Blakiston's Son & Co.

THIS book will be found a useful aid by readers of French medical works whose knowledge of the language is not very profound. The vocabulary seems to be quite full, fuller than is necessary, indeed, since it includes many terms, like liquor sanguinis, phlegmasia alba dolens, and others, which are no more French than they are English. The English equivalents are satisfactory and the book may be commended to readers of French treatises on medicine, but we would warn the user not to trust to the pronunciation of the French words as here given—it is horrible! SSehssahmohéed is, we are told, the way a Frenchman pronounces sésamoïde; ssrehng is seringue; skvahméh is squameux; nehpohzshéha (but this surely must be a misprint) is nephogène; and so on all through the book. The dictionary could be greatly improved by omitting the figured pronunciation.

THE ALLEN (STARVATION) TREATMENT OF DIABETES. With a Series of Graduated Diets. By LEWIS WEBB HILL, M.D., Junior Assistant Visiting Physician, Children's Hospital, Boston; Alumni Assistant in Pediatrics, Harvard Medical School, and RENA S. ECKMAN, Dietitian, Massachusetts General Hospital, Boston, 1911-1916. With an Introduction by RICHARD C. CABOT, M.D. Fourth Edition. Price, $1.75. Boston: W. M. Leonard, 1921.

THE Allen treatment of diabetes is known to most physicians by name, but to many by name only. Those who wish to inform themselves of the rationale of the method and the details of its execution (and all should for, according to the experience of those who have given it an extensive trial, there is no better treatment of diabetes known today) cannot do better than study this little book. It will take but an hour of their time and it will be an hour well spent. In addition to a description of the method and a number of case reports, the book contains a series of graduated diets which will serve as guides for the feeding of the patient, various recipes for palatable dishes for the diabetic, and a statement of the starch content of a number of "diabetic foods" on the market.

SURGERY, ITS PRINCIPLES AND PRACTICE. By Various Authors. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volumes VII and VIII and Desk Index. Price $25.00. Philadelphia and London: W. B. Saunders Company, 1921.

THESE two volumes are supplementary to the well-known system of surgery in six volumes, the publication of which was completed in 1913. Since that time there has been a very large addition to our surgical knowledge, derived in greatest measure from the war experience, and that, in addition to the natural increment in seven or eight years, is embodied in these new volumes. The contributors to the two volumes, of over 1800 pages, number seventy, many of them men who saw service in the British or American armies during the war. The articles are not all dealing with new subjects, for many of them are merely supplementary to those appearing in the earlier volumes, bringing the matter there contained down to date. The illustrations, about a thousand in number, are excellent, most of them being original. Those who possess the earlier volumes of this work will find these two volumes and the new Index to the complete work indispensable. This index is very full and satisfactory. The preface, containing a brief review of the war lessons, the farewell to the contributors, and remarks concerning *fides germanica*, will be read with interest.

DIAGNOSTISCHE UND THERAPEUTISCHE IRRTÜMER UND DEREN VERHÜTUNG. INNERE MEDIZIN. Zwolftes Heft. Krankheiten des Gehirns und des Verlängerten Marks. Von Geh. Med.-Rat. Prof. Dr. E. MEYER. Price, 33 M. Leipsig: George Thieme, 1921.

THE General Section of this work has to do with the chief symptoms of intracranial disease, as headache, vertigo, etc., and numerous syndromes of the motor, sensory and special sense nerves. There are special chapters on speech disorders, reflex disturbances and localization. The special section has eight chapters on the following subjects: Meningitis, circulatory disturbances, encephalitis, cerebral lues, progressive paralysis, brain tumors, hydrocephalus and congenital defects with a concluding one on the medulla and pons. One would naturally expect to find a great number of case histories to illustrate the possibility of diagnostic errors, but only a few are cited. The scope of the book is largely that of differential diagnosis but more stress than usual is laid on the therapeutic blunders.

MANIC-DEPRESSIVE INSANITY AND PARANOIA. By Professor EMIL KRAEPELIN of Munich. Translated from the 8th German Edition of the "Textbook of Psychiatry," by R. MARY BARCLAY, M.A., M.B. Edited by GEORGE M. ROBERTSON, M.D., F.R.C.P. (Edin.), Professor of Psychiatry in the University of Edinburgh, etc. Price 21 shillings. Edinburgh: E. & S. Livingstone, 1921.

THIS work is a companion volume to the same translator's "Dementia Præcox and Paraphrenia," the two books making up the total of Kraepelin's textbook on the endogenous psychoses. The editor does not allude to the earlier English version edited by Johnstone, which went through an edition as recently as 1913, but this was made originally from the second German edition while the present is from the eighth German.

BALLIÈRE'S NURSES' COMPLETE MEDICAL DICTIONARY. Edited by CONSTANCE M. DOUTHWAITE,, Member of the League of Nurses of St. Bartholomew's Hospital, London. Second Edition. Price, $1.25. New York: William Wood & Company, 1921.

THIS little volume will be welcomed by nurses. It gives the pronunciation and meaning of probably all the technical terms which a nurse is likely to meet; it also includes the chief symptoms of the different diseases, and the nursing treatment indicated in these conditions. At the end of the book is an appendix giving the meaning of various abbreviations, tables of weights and measures, and a very complete outline of the symptoms and treatment of the different forms of acute poisoning. We have examined several of the pages with care, and have been struck by the general accuracy and completeness of the book.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held March 4, 1921.

DR. SEWARD ERDMAN IN THE CHAIR.

Retroperitoneal Tumor Causing Obstructive Jaundice.—Dr. JOHN MUNN HANFORD presented this patient, a man 53 years of age, who first came under his observation a little over two years ago. He gave a history of steadily increasing jaundice, loss of twenty pounds in weight, dark urine, and clay-colored stools. The jaundice varied in degree from time to time but never disappeared entirely. Physical examination revealed flabbiness, and other evidences of poor nutrition. A firm, movable, good-sized, globular mass was felt in the right upper quadrant. The finger could be pressed in deeply between the mass and the liver edge. The liver edge seemed normal though a little lower than the normal level. The *x*-ray of the stomach suggested a new growth of the pyloric region. The blood clotting time varied from four to 13½ minutes. The Wassermann was negative. The blood was otherwise relatively normal. The stools showed fat and fatty acid crystals. The clinical diagnosis was carcinoma of the pyloric region of the stomach causing obstructive jaundice. Operation February 24, 1919, through a transverse incision, revealed a movable, ovoid, cystic, though firmly encapsulated, tumor located in about the midline, in front of the second and third lumbar vertebræ, behind the head and neck of the pancreas, which, together with the pyloric end of the stomach, the duodenum, and the common bile duct were pushed forward. The gallbladder was quite distended but otherwise apparently normal. The bile was cultured and a non-hemolytic *Staphylococcus aureus* grown from it. The first and second portions of the duodenum and the head of the pancreas were adherent to the surface of the tumor. No lymph glands were found enlarged. The right kidney was normal. The posterior surface of the mass seemed too densely adherent to the vena cava to warrant removal. It was first thought to be a cyst, but no fluid could be aspirated. Instead a bit of pale, soft, pinkish tissue, resembling that of a cellular malignant neoplasm, was aspirated from the center of the mass. A cholecystduodenostomy by suture was done, and the wound closed. The post-operative course was very satisfactory and the man had been improving apparently ever since. The jaundice quickly disappeared and he had regained his weight and strength. He now had a small umbilical hernia and there was an impression of slight increase in the size of the mass on abdominal examination. The pathologist's diagnosis upon the tissue from the center of the mass was round-celled sarcoma. This diagnosis had been confirmed by several well known and expert pathologists. The case was presented as an instance of a rather unusual tumor which had proven less malignant than the pathologists indicated, and was presented also for advice as to its further treatment. Since removal seemed to be hazardous he felt that *x*-ray therapy was indicated and that perhaps it should have been used from the time of his post-operative convalescence.

Inflammatory Tumor of the Cecum in a Child.—Dr. EDWARD D. TRUESDELL presented this case, a child admitted to St. Luke's Hospital, August 2, 1920, with the diagnosis of acute appendicitis. The history was that the child had become sick on the day of admission with pain in the right lower quadrant, nausea, and vomiting. There had been three similar attacks during the past few months, accompanied by pain in the right lower quadrant and vomiting. A mass could be felt in the right lower quadrant resembling a movable kidney. The mass was smooth, freely movable and slightly tender. A cystoscopic examination was made and the kidneys found to be in their normal position. The leucocyte count was 10,700, and the differential count showed 78 per cent. polymorphonuclears. The preoperative diagnosis was appendicitis with abscess, probably of the movable type. At operation the tumor was found to involve chiefly the anterior wall of the cecum and the lower portion of the ascending colon. There were no enlarged lymph nodes and the appendix was seen in the lower portion of the mass. There was nothing to indicate the diagnosis of tuberculous tumor, and it did not appear to be malignant, hence it seemed fair to remove the appendix rather than to incise and anastomose the bowel. The appendix was only 1¼ inches long and much thickened, and on section showed a little mucopurulent pus in the center. The pathologist reported that the condition was that of chronic appendicitis. The wound healed primarily. The patient was examined on August 22, eighteen days after the operation, and the tumor found to be decidedly smaller than before operation. Another examination was made on September 8, after the patient had been in the country for two weeks, and a further decrease in the size of the tumor noted. At examination in January no evidence of any tumor could be found. The pathologist's report showed no evidence of tuberculosis. The patient's general condition had improved very materially since the operation. He believed the patient had an inflammatory induration of the cecum following upon chronic suppurative appendicitis.

Dr. CHARLES EVERETT FARR said he had been present at the operation and he wished to congratulate Dr. Truesdell on his good judgment in not attempting to do anything to the cecum, although the tumor had the earmarks of a tuberculous neoplasm.

Dr. ROBERT T. MORRIS said the clinical history in this case was strikingly suggestive of tuberculosis. With an ordinary inflammatory condition recovery would be more rapid than it was in this case. Here it was about as long as one would expect if the condition were tuberculous and recovery instituted by hyperleucocytosis excited at the time of operation. He had had a number of these cases in which he had not operated, except to remove the appendix. He had then instituted general treatment for tuberculosis. He had never excised the cecum in these cases and the patients made a good recovery from the local condition in about the same length of time that this patient did. Some of the patients had developed other phases of tuberculosis subsequently.

Dr. EDWIN BEER said this group of cases was a very important one because of the difficulty in diagnosis. He had had at least four cases similar, and one absolutely identical with the case presented by Dr. Truesdell, and in that particular case all the physicians who examined the case thought it was a case of sarcoma of the kidney. There was a movable tumor filling the right flank posteriorly and anteriorly. The only symptoms evident were right iliac pain, nausea and slight temperature which had been going on for months. The differential diagnosis rested between a retroperitoneal inflammatory condition and a tumor of the anterior portion of the kidney. The patient presented by Dr. Truesdell was an absolute counterpart of this case of retroperitoneal inflammatory tumor. In all of his cases Dr. Beer said rapid recovery followed removal of the appendix without touching the cecum.

Dr. SEWARD ERDMAN said he had the feeling that inflammatory swellings in the region of the cecum of long duration were in the large majority of cases tuberculous. He recalled that he had reported six cases of such tumors, five of which were shown to be tuberculous by pathological examination, and in the sixth case it was still questionable whether or not the condition was tuberculous. That tuberculosis could not always be demonstrated in these cases was not to be wondered at when one considered that 4 or 5 inches of a tuberculous cecum might be removed and a thousand sections examined without finding definite tubercles. One frequently found a marked inflammatory reaction around an acute or subacute appendix, and this often melted away after the appendix was removed. But where the tumor was of the hyperplastic tuberculosis type, encroaching on the lumen of the bowel, he believed that resection of the cecum was definitely indicated.

Resection of Elbow Joint for Ankylosis.—Dr. REGINALD H. SAYRE presented this patient, a young woman who had come under his observation about a year ago with an ankylosis of her right elbow. Dr. Sayre presented *x*-ray plates showing the condition at that time. The arm was so stiff that she was unable to use it. She was very desirous of having a movable joint because a stiff elbow greatly interfered with her

work as a dressmaker. He therefore made an incision, pushed back the ligaments, sawed off the lower end of the humerus, scooped out an apology of a cavity for the ulna, covered the humerus with fascia from the outside of the arm, and thus reconstructed a joint. The ligaments were too loose and she was left with a lump on the outer side of the elbow, but function was remarkably good. He expected at a future time to operate again to add the element of supination and pronation now absent, owing to ankylosis between the radius and ulna.

Ankylosis of the Elbow and Its Treatment by Arthroplasty.—Dr. WILLIAM R. MACAUSLAND of Boston made a lantern slide demonstration of his operation for ankylosis of the elbow. There were two methods of dealing with this condition: (1) excision which gave good motion but not good elbow stability, and (2) arthroplasty. Murphy had devised a method of arthroplasty by which the biceps fascia or fat was placed between the bone surfaces of the newly-formed joint. The objection to this method was that there was likely to be a sloughing of the biceps region from which the fascia or fat was dissected and at times there was a necrosis of the fat graft. The object of arthroplasty was to obtain a stable gliding joint. The method to be demonstrated he had used in 34 cases with more satisfactory results than were usually obtained in ankylosis of the elbow. The operation was as follows: A curved incision was made from one condyle to the opposite condyle passing over the middle of the olecranon. The skin and superficial fascia were dissected up to a base line at the end of the incision and then retracted. The skin and fascia were dissected back a little on both sides and on the forearm end of the incision. The ulnar nerve was dissected out of its sheath and gently retracted with gauze. A straight incision was made down to the bone over the condyle so as to elevate en masse the tissue that would serve as a new capsule. The olecranon was then sawed across and separated. The capsule, fascia, and ligaments were dissected back to allow the lower end of the humerus to protrude out of the wound. A new intercondylar surface was formed as nearly as possible like the normal one. A shoemaker's rasp was used to file off the new surface. A piece was then removed corresponding to the olecranon fossa in the normal humerus. The olecranon was then trimmed so as to take the new humeral head. The joint surfaces should fit accurately before the fascia was applied. If too much of ends of the bone was removed a flail joint resulted. The fascial flap was then dissected from the right leg on the outer side of the thigh. This fascia free from all fat was placed about the new humeral condyles so that all rough surfaces were covered, and was held in place by a purse-string suture. The fascia, ligaments and old capsule were then sutured with chromic gut. The olecranon was sutured with double chromic gut and the skin closed with silk-worm gut.

Dr. PERCY WILLARD ROBERTS said the Section was much indebted to Dr. MacAusland for this demonstration. Last winter he had had three or four cases at his clinic at the Hospital for the Ruptured and Crippled in which the results had been very unsatisfactory. This led him to ask to be invited to Boston to see how Dr. MacAusland performed his operation. He had been very much impressed with its advantages. In the first place the approach to the joint was excellent, and, secondly, every step was well worked out for the purpose of obtaining a smooth sliding joint. He had especially been impressed with the careful way in which the procedure had been thought out. It was a relatively short operation, and while he had not seen the results he had talked with those who had, and they were in accord in stating that Dr. MacAusland was very conservative in his claims. He obtained not only motion, but the very important factor—stability. Speaking of using a shoemaker's rasp for smoothing off a bone surface, those who were doing bone work where smooth surfaces were desirable would do well to invest 25 cents in a shoemaker's rasp. He had been using one in his operation for hallux valgus. Dr. MacAusland's operation, as a whole, was just what he had shown it to be on the screen; it was well planned and well worked out.

Dr. SAYRE emphasized what Dr. MacAusland said about the advantages of the fascia from the thigh. He had tried using a flap taken near the ankylosed joint, using a flat flap taken from the fascia of the biceps, and recalled one case in particular in which it had been very doubtful for some time whether the skin flap would not slough. Dr. MacAusland's plan of using the fascia from the thigh was much better as there was less likely to be sloughing and necrosis. It was also much better to form the deep cavity for the head of the ulna. There was less likelihood of the ulna sliding out if the cavity was constructed in its original shape in the end of the humerus.

Dr. WILLIAM L. SNEED stated that after hearing Dr. MacAusland several years ago he had become very much interested in this operation, and had been thinking of one other phase of the matter, with reference to pronation and supination. The idea had occurred to him that if the orbicular ligament and periosteum were saved and a portion of the head of the radius taken out opposite the lesser sigmoid cavity of the ulna, and this ligament and fascia sutured over to the head of the radius, it might be possible to secure pronation and supination in a way that did not interfere with stability of the joint secured by the operation as Dr. MacAusland performed it.

Dr. MACAUSLAND said there were two types of cases in which this operation could be used—traumatic and infectious. The traumatic was the best type for operation. In the infectious type one had to wait until the infection quieted down and the joint became ankylosed. In a tuberculous case one never knew whether the infection was eradicated, for years after one might still find a walled-off focus. In non-tuberculous infections one might operate at a time well beyond the period when any dormant infection might be present. Our views in regard to operating after infection had been greatly changed by our war experience, and he thought now that operation should be delayed for two years following bony ankylosis. The 34 cases in which he had performed this operaton had been ankylosed for years. Usually he had not gotten the cases until eight or ten years after ankylosis had taken place. Under no conditions would he operate on an infectious case under two years. Whether an arthroplasty should ever be done on a tuberculous elbow was a question which had provided a great deal of discussion. He had done such an operation in one instance some five years after infection seemed to have subsided. He had questioned whether it was the right thing to do, but inasmuch as the results had been good, Dr. Whitman said he was justified in doing the operation. Certainly one should not perform such an operation under five to eight years after the infection had appeared to subside. As to Dr. Sneed's remarks about pronation and supination, he had decided that if he could get motion with the thumb up that was all he would attempt to secure. He had not aimed at the refinements, the patients had not asked for pronation and supination, and he had never offered it. However, he approved of the idea.

The X-Ray Diagnosis of Tuberculous Glands of the Neck.—Dr. JOHN MUNN HANFORD read this paper, which was illustrated by lantern slides. He stated that his reading and observation had given him the impression that calcification of tuberculous glands of the neck had failed to attract its full share of attention. There was an almost unanimous agreement among pathologists that calcification in a cervical lymph gland, or in tissue associated with a cervical lymph gland indicated tuberculosis, and nothing else. Simple lymphadenitis, Hodgkin's disease, lymphosarcoma, carcinoma, cysts of the neck, and other lesions which might be confused with tuberculosis here, did not present calcification or other changes showing increased density in an *x*-ray plate. A calcified artery might give a shadow but this was apparently rare. In the presence of an *x*-ray shadow corresponding in location to definite disease in the neck, this disease might, with almost 100 per cent. of accuracy, be diagnosed tuberculosis. Of *x*-ray plates taken under Dr. Imboden at the Presbyterian Hospital on 31 patients with lesions of the neck, 15 patients showed calcification corresponding to the lesions. Of these 15 patients 7 were proven tuberculous by the microscopic examination of excised tumors. The remaining 8 showed such large circular areas of density as to leave no argument about the diagnosis of tuberculosis. Of the 16 patients who showed no evidence of calcification

in the neck, 12 were proven tuberculous by microscopic examination or by guinea-pig inoculation. Of the other 4, 2 had a definite pulmonary tuberculosis and the other 2 were probably tuberculous. From these findings Dr. Hanford concluded that nearly 50 per cent. of cases of tuberculous lesions in the neck might be definitely diagnosed by the roentgen ray. Whatever the percentage of incidence, evidence of calcification was sufficiently frequent in these cases to warrant the everyday use of the *x*-ray.

Stated Meeting, Held April 1, 1921.

DR. SEWARD ERDMAN IN THE CHAIR.

Unusual Type of Cervical Adenitis.—Dr. EDWARD W. PETERSON presented this patient, a man 29 years of age, who came to the Post-Graduate Hospital in February, complaining of a swelling in the right submaxillary region which he had had for two years. A careful search revealed no focal infection. The glands were involved from the angle of the jaw to the clavicle. It was thought at first that the man had tuberculous adenitis. He was shown for two reasons: First, the type of approach; this was an inverted V-shaped incision which made it possible to clean out the glands from the angle of the jaw to the clavicle; and, secondly, because of the report which came from the laboratory. There were two masses, one about the size of an egg and the other considerably smaller. There was an extensive periadenitis suggestive of the patient's having had too much *x*-ray treatment without success. The report showed that the mass consisted of a conglomerate mass of lymph nodes, densely fibrous, with irregular caseous areas, partly calcified. The mass showed lymph glands partly broken down in one part, areas of irregular nodes, and areas where the cells predominated. There were epithelial cells and a few red blood cells in the tissue. The second specimen showed a similar picture which was not that of tuberculosis. There was very little inflammation and the cells were so atypical that they were suggestive of salivary gland mixed tumor or embryonic rest. The diagnosis of malignant, probably salivary gland tumor, was made. All the pathologists who had seen the section agreed that the tumor was of very malignant type. The patient, however, had gained twelve pounds and felt well. He still had some enlargement of the glands remaining which were very suggestive of recurrence. He was receiving vigorous *x*-ray treatment and it was hoped in that way to control their growth.

Lymphosarcoma of the Stomach.—Dr. PETERSEN presented this patient, a man 53 years of age, who was admitted to the Post-Graduate Hospital in December last. He was at that time very cachetic and anemic. His father died of cancer of the stomach, his mother of pneumonia, at the age of 80. The patient gave a history of having had pneumonia five years ago, and of having begun to suffer from indigestion about a year ago. He was not taking much food because of the vomiting and distress it caused. He had lost about fifty pounds in weight. There was a large mass in the upper part of the abdomen. The Wassermann reaction was negative. The blood count showed red blood cells 1,600,000, leucocytes 6000, polymorphonuclears 68 per cent., lymphocytes 32 per cent., 2 large and 30 small; hemoglobin 60 per cent. It was thought that he had either Hodgkin's disease or carcinoma of the stomach with involvement of the retroperitoneal lymph glands. From the severe cachexia and the size of the mass it was not thought that he had a chance in the world. A left rectus incision was made and the stomach found much enlarged, though the growth had not broken through. Two-thirds of the stomach was resected, removing the growth entirely. There was no involvement of the liver that could be made out. These cases were comparatively rare. In twelve years, Dr. Peterson stated that there had been but one other case of the kind at the Post-Graduate Hospital. Dr. Douglas in an article published in the *Annals of Surgery*, reported three cases, two of which were seen at Bellevue and one at St. Luke's Hospital.

Dr. JOHN DOUGLAS said that Dr. Petersen's case of lymphosarcoma of the stomach was interesting because of its rarity, and also from the standpoint of pathology. Of course sarcoma of the stomach was quite rare in comparison with carcinoma. About a year ago Dr. Douglas had had occasion to look up the literature on this subject when he reported three cases of his own. He collected 230 authentic cases, the majority found at autopsy, though there were some 92 cases operated upon, in 69 cases by resection. Since that time Dr. Haggard of Nashville had reported additional cases, several being primarily unpublished cases from the Mayo Clinic. These cases followed two types: First, a lymphosarcoma which was infiltrating, and, second, a spindle cell or round cell or mixed form in which the tumors were large. As he understood, the tumor in Dr. Petersen's case weighed 410 grams, which was almost a pound. Lymphosarcomas, as a rule, were not bulky but infiltrating and ulcerating and caused no stenosis of the pylorus, a feature which was quite characteristic of this type of lymphosarcoma of the stomach.

Dr. ERDMAN stated that there was at the present time a case of lymphosarcoma of the stomach on Dr. Pool's service at the New York Hospital. A gastroenterostomy had been done and a tumor was found in the distal one-third of the stomach. As the man's condition was not good enough to make it advisable to proceed with the radical operation a preliminary gastroenterostomy was performed. The man had returned for the second operation, but his condition was such that it did not seem advisable to attempt to remove the tumor. A section taken from the tumor had been examined and pronounced lymphosarcoma. Dr. Beer had presented a case of tuberculosis of the stomach in connection with which several interesting points were brought out, and Dr. Symmers, in discussing the case, brought out the point that lymphosarcoma of the stomach sometimes remained localized for a long period of time; it might be two years before the lymphoid cells broke away from their localized position and were poured into the circulation, causing the blood pictures of lymphatic leucemia.

Diverticulum of the Esophagus.—Dr. PETERSEN presented this case, a man 67 years of age, who gave a history of having had difficulty in swallowing with regurgitation of food, over a period of about ten years. The regurgitated material sometimes showed undigested food eaten many hours before. Associated with his dysphagia there was a chronic cough with some expectoration. The *x*-ray and esophagoscopic examination showed the presence of a pharyngoesophageal diverticulum of medium size. At operation an incision was made from the level of the hyoid bone almost to the sternal notch, along the inner edge of the sterno mastoid muscle. The esophagus was exposed and the diverticulum located without difficulty. The sac was freed and cut away, great care being taken to prevent any leakage. The stump was cauterized and closed over with a suture of chromic catgut and the first suture line was then inverted with a second row of sutures. A small wick drain was placed in the lower end of the incision, after the closure of the neck incision. After operation nothing was given by mouth for three days. Fluids were administered by rectum during the time. The patient made a prompt recovery.

Dr. WILLIAM T. DORAN reported that he had seen a case of diverticulum of the esophagus in a new born child. The diagnosis made when the child was five days old was pyloric stenosis. Examination with the fluoroscope and catheter revealed a stenosis of the esophagus. A gastrostomy was done and it was found that the child had not only a stenosis but a diverticulum.

Dr. DE WITT STETTEN stated that he had operated upon only one case of diverticulum of the esophagus, some twelve years ago. At that time he studied the subject and went into the literature quite exhaustively. He said he wished to retract something he said in 1909. At that time he recommended a preliminary gastrostomy on account of the high mortality of direct excision of the sac, namely over 18 per cent. He felt now that with the improved technique of Judd, Bevan, and others, a preliminary gastrostomy might be dispensed with except in cases of severe inanition. His patient was still alive at the age of 76 years and was entirely free from esophageal symptoms.

Epithelial Papilloma of the Kidney.—Dr. CARL

EGGERS presented this patient, a man 59 years of age. His chief symptoms were hematuria, weakness, and dyspnea. He had had periodical attacks of hematuria for about a year. Pain was present only when clots formed and had to be expelled. The patient was operated upon on May 7, 1920, a nephrectomy being performed in the usual way. The kidney was about normal size. The tumor was in the pelvis of the kidney, upon opening which a soft villous tumor presented. The pathologist (Dr. Felsen) reported that it was an epithelial papilloma.

Horseshoe Kidney.—Dr. EGGERS also presented this patient, an ex-service man, 23 years of age. The symptoms first manifested themselves while he was overseas, the outstanding one being pain in the upper abdomen when he attempted to lift anything, followed by a desire to urinate. A laparotomy was done and the kidney found to extend from the normal position of the kidney on the right side across the median line to the left side with the concavity upwards. It was about two inches wide by one inch thick and lobulated. It was decided that nothing could be done and the wound was closed. A subsequent cystoscopy with injection of the pelves showed that the kidney had two distinct pelves, that showed no communication whatever.

Fracture of the Skull in Children: A Statistical Survey of 100 Cases.—Dr. JOHN J. MOORHEAD presented this contribution. He stated that this group of cases was from the surgical service of the Harlem Hospital and comprised 100 consecutive cases treated by four visiting surgeons or their associates or assistants. The primary object of the survey was to ascertain the surgical results with and without operation. The age limits in the group ranged from 3 months to 16 years, the average being 6½ years. Various writers stated that in vault injuries the mortality was from 10 to 20 per cent., in basal injuries 30 to 50 per cent., and in combined vault and base injuries from 30 to 60 per cent. The speaker's statistics showed that in vault cases the mortality was 5 per cent., in basal cases 10 per cent., and in vault and basal combinations 11 per cent.; in other words involvement of the base in any form meant a mortality of 80 per cent. of the total. In the 26 fatal cases in this series there were multiple injuries in 9. The combination of vault and basal fractures was very common in adults, about 80 per cent. radiating from vault to base and *vice versa*. In children this proportion was less, for anatomical reasons, and in the writer's series aggregated 32 per cent. From the clinical standpoint there were four main types of skull injuries, and these conformed to the adult grouping: Type I. (a) concussion plus vault fracture; (b) concussion plus base fracture; (c) concussion plus both vault and base fracture. Type II. Concussion plus latent interval plus focal symptoms (at first irritative and later paralytic) plus definite and indefinite signs of vault and base fracture. Type III. Concussion plus persisting coma plus definite signs of vault or basal fracture, or both, with convulsions, spasticities, high temperature, rapid pulse, embarrassed respiration, and exitus. Type IV. Concussion plus vault or base fracture, or both, plus evidence of intracerebral pressure. The differential diagnosis was not particularly difficult except in Types I. and IV., in which concussion and meningitis were respectively confusing. Concussion meant immediate temporary unconsciousness usually associated with vomiting. If the elements of immediate onset with temporary duration did not exist, then the condition was not true concussion. Confusion between head injury, with or without skull fracture, could be definitely determined in only three ways, namely, through inspection, as by incising a hematoma, by spinal tap, or by *x*-ray examination. Inasmuch as the differential diagnosis between hematoma and depressed fracture was especially puzzling in children, it was the part of wisdom to incise and actually see and feel. *X*-ray interpretation was harder in children than in adults, because the suture lines were more puzzling, because the thickness of the bones varied, and because children often moved when the plate was being made. In making a spinal tap, an even admixture of blood and spinal fluid was pathognomonic of skull injury, but an uneven mixture was very doubtful. Blood pressure and eye signs had not been found as valuable in children as in adults. Types I and II were the recoverable groups; type III was practically always fatal; type IV often ended in recovery if meningitis was not of a virulent grade. In the vast majority of fatal cases death occurred within the first 48 hours, and in cases ending fatally after that period death was usually from meningitis, pneumonia, an eruptive fever, or other more or less related intervening causes.

The routine management was of importance. Any suspected case should be kept absolutely quiet until all objective signs subsided. In a conscious patient bromides were given by mouth or rectally. Urotropin was administered every four hours for several days. Ten per cent. argyrol or 3½ per cent. watery solution of iodine was instilled into the nose and ears twice daily. The bowels were moved by enemata daily. If the diagnosis was in doubt the scalp was shaved, careful bimanual palpation was made for hematoma and other thickenings, and, if necessary, such areas were incised. A spinal tap was performed to exclude basal fracture when necessary. In suspected cases temperature, pulse, and respiration were recorded every half hour. In doubtful cases the blood pressure readings and eye symptoms should not be neglected. The one cardinal indication for operation was *pressure*, and this could arise only from bone, blood, serum, pus, or foreign bodies. The extent of the lesion rather than the site was the cardinal rule as to operative indications. Operation might be demanded as immediate, intermediate, or late, depending upon the intracerebral lesion rather than upon the extracerebral site of injury. Operation was not advised as a routine, for it was their experience that intracerebral pressure due to effused blood was best relieved by spinal tap. When, however, the bony envelope was distorted by depressed fracture and when the hemorrhage was in the main cortical, operation was the best procedure. In unconscious patients little if any anesthesia might be needed until the pressure was released. In this series of 100 cases 12 were operated upon, 9 for vault, and 3 for combined vault and base fractures; in the former group 1 died, in the latter 2 died. It was often unnecessary to remove more than a small segment of bone, but much care was necessary to ascertain definitely by finger pressure that no portion of the inner table was left within. Post operative paresis of an arm or leg, secondary signs of localized or generalized intracerebral pressure, facial paralysis and eye and ear defects were often recovered from. If secondary signs of localized and generalized intracerebral pressure did not subside spontaneously, a spinal tap should be performed. This procedure was almost specific for post-traumatic headache and for certain types of vertigo in which the auditory and visual mechanisms were uninvolved. Epilepsy might be looked upon as a rare end-result in children who had sustained skull fracture. The further the injury from the motor-cortical zone the less the probability of epilepsy. Psychoses, mental impairment, and like conditions, were very rare sequelæ in the absence of grossly destructive lesions. In children cranial defects were much more likely to spontaneously close over than in adults, and thus in children one could confidently expect that such defects would rarely require surgical repair.

Lethal Factors in Acute Ileus.—Dr. FREDERICK T. VAN BEUREN, JR., read this paper, in which he said that the two questions "Why do people die of acute intestinal obstruction?" and "What are the factors responsible for the appearance of the symptoms: complex of acute ileus and which of them are essentially fatal?" must be answered provisionally at least, if they were to seriously attempt any improvement in the present mortality rate. He defined acute intestinal obstruction as a local condition associated with the sudden abnormal stoppage—from any cause—of the intestinal current between the stomach and the anus. Acute ileus he defined as a general condition whose symptom-complex appeared when acute intestinal obstruction—from any cause—had existed long enough to make its effects manifest. The proper treatment for acute ileus, whatever its underlying cause, was similar in every case; while the appropriate treatment for intestinal obstruction varied according to its mechanical, spastic, or paralytic character. Whoever failed to appreciate the practical difference between obstruction and ileus might readily fail to recall that the latter deserved its

proper treatment quite as much as the former. And, again, if he failed to apply his knowledge of this fact he would lose cases of acute ileus that he ought to save. Acute intestinal obstruction bore to acute ileus, roughly, the same relation that a wound contamination bore to systemic infection. One was a local condition and an underlying cause of the other. After developing this conception somewhat further, Dr. van Beuren applied it to a series of cases of obstructed or strangulated hernia together with cases of intestinal obstruction from all other causes operated upon for acute ileus at the Roosevelt Hospital during the past ten years. He had included the cases of obstructed or strangulated hernia because he wished to emphasize his belief that, in the interest of better mortality statistics for strangulated hernia as well as for other mechanisms of the underlying cause of acute ileus, they should be included and to make the point that acute ileus resulting from strangulated hernia deserved treatment quite as much as acute ileus arising from the common postoperative mechanisms such as bands and adhesions. The point was that ileus, whatever its underlying cause, deserved prompt treatment. The facts were that in strangulated hernia ileus, the hernia was the prominent feature; it received prompt treatment and the ileus did not. In ileus that arose from other causes than external hernia, the ileus was the prominent feature and neither the ileus nor the underlying cause received prompt treatment. Evidence of this statement could be found in the mortality statistics of intestinal obstruction from almost any general hospital. The death rate varied from 30 to 60 per cent., and averaged between 40 and 50 per cent. Their operative statistics showed that the mortality was less than 20 per cent. where operation followed within twenty-four hours of the onset of symptoms; over 70 per cent. where it was delayed seventy-two hours. Only one-third of their cases in which the elapsed time could be satisfactorily calculated were operated upon within twenty-four hours after the onset of symptoms. Only 12 per cent. of these cases originated in the hospital; the remainder were mainly emergency operations. These average mortalities, however, did not apply to every individual case. Cases were cited showing marked individual variations. It was perfectly clear that there were individual variations in resistance that partly determined the outcome. Low resistance was the first factor in the high mortality of acute ileus. It was for the most part beyond the surgeon's control, but a serious effort should be made to estimate the individual's resistance in each case, and to plan or modify the treatment in accordance with this estimate. There were two other factors which, if allowed to go on acting, would in the end prevail over the stoutest efforts of the organism to adapt itself. They were (1) intestinal damage and (2) the formation of poisons within the intestine. After deducing some of the evidence as to the independence or preponderant effect of either, Dr. van Beuren stated that he believed where massive gross damage was done to the intestine, its blood vessels and nerves, another deadly factor was apparent (3) *shock*. He preferred to believe that shock from some cause other than the absorption of intestinal poison played a major part in the outcome of certain cases of acute ileus. This peculiar condition which had not been satisfactorily explained appeared relatively early in cases of obstruction where a portion of the intestine had had its mesenteric blood supply occluded by volvulus, mesenteric thrombosis or other mechanisms of strangulation. From observations in humans and in animals he felt fairly safe in saying that the more sudden the onset of the blood stasis and the larger the amount of intestine involved, the greater the accompanying shock. A fifth factor predisposing to the fatal outcome of acute ileus was dehydration, due to the output of water by urine, sweat, respiration and especially vomitus, which was greater than the intake. This was by no means the least of the predisposing lethal factors in acute ileus. Dr. van Beuren stated that having outlined the factors which, in the patient's body, must be estimated and allowed for in one's plan for treatment, it would be unfair to forget those factors which one should combat in his own mind before he could effectively translate his plan into action. Timidity and delay on the doctor's part were just as fatal factors in acute ileus as any that had been ascribed to the sick man's own economy.

The Treatment of Erysipelas with Chinosol and Sodium Chloride.—Dr. WILLIAM C. LUSK read this paper, which will be published in full in the *Annals of Surgery*. The chinosol preparations employed were an ointment and a tincture. *The Chinosol Ointment*: ℞ Aquæ dest. (cold sterile) ʒss, to which add, and dissolve in the same, pulv. chinosol grs. x, then add sodium chloride (reagent) grs. iv, and rub up, first with lanolin ʒss, finally incorporating vaseline (white) ʒss, M. et Sig.: Chinosol ointment. This ointment had other uses. Applied 5 times in the 24 hrs., to normal or inflamed skin of both adults and children, by smearing it on, in the treatment of the erysipelas cases, it had caused not the slightest observable irritation. In two cases, however, the ointment, running into the eyes, apparently was the cause of a vascular injection of the sclera, which rapidly cleared up with the application of boric acid compresses. An ointment containing 8 grains of chinosol to the ounce, without sodium chloride, had caused skin irritation. *The Tincture of Chinosol with Acetone and Sodium Chloride.* ℞ Aquæ dest. (10 parts) ʒiss, ♏xlviii, which boil and make cold in ice-box; then add and dissolve chinosol powder (2½ per cent.) grains cxcii; then add 95 per cent. alcohol (70 parts) ʒxi, ʒi, ♏xxxvi; shake and add acetone (20 parts) ʒiii, ʒi, ♏xxxvi; shake and add without delay, because otherwise a precipitate of chinosol will soon begin to form, sodium chloride (reagent) grains xcvi; shake vigorously 5 to 10 minutes. A flocculent precipitate will now form which soon redissolves. The insoluble residue is sodium chloride. Let stand over night and then strain through sterile cotton. Sig.: Tincture Chinosol with Acetone and Sodium Chloride. This tincture also had other uses. In making up the tincture of chinosol the glass receptacles and utensils used, should be scoured with neutral sodium oleate, and should then be boiled in plain water. An alkali would precipitate oxyquinolin from the chinosol (oxyquinolin sulphate), so that soda should not be put into the water used for boiling. Nor should the glass be treated with hydrochloric acid. A glass vessel was preferable as a container. Iron would discolor the chinosol. This tincture of chinosol applied freely to the skin three times a day and twice at night had never been observed to cause any irritation, either when used alone or when preceded by an ether wash, even on the skins of young children.

The Treatment.—The routine treatment consisted in the use of the chinosol ointment for all adult cases of facial erysipelas and for erysipelas affecting all parts of the body in children, and the use of the tincture of chinosol, preceded by a wash of the skin surface with ether, for all adult cases of erysipelas of the scalp, trunk and extremities. Treatments were administered three times during the day, at 4 hour intervals, and twice at night. Owing to the fact that bacteria had been found by the speaker in considerable abundance in the subcutaneous fat beneath the normal appearing skin one inch in advance of the line of demarcation of the erythema, the area treated included a belt of the normal appearing skin, 3 or 4 inches in width, adjoining the line of demarcation. In cases of facial erysipelas, eye lids which had not swelled, were always included in the anointed area from the start. The ointment was applied by gently smearing it over the skin surface, generally by means of a wooden tongue depressor. An excessive amount of ointment on the eye-lids should be wiped off with cotton. The tincture of chinosol was painted on the skin surface in several successive layers, as drying of each took place, with a large camel's hair brush devoid of metal, following gentle washing of the skin with cotton dripping-wet with ether.

The Results.—The cases were admitted to the erysipelas ward of Bellevue Hospital between Feb. 10 and March 25, 1921. The test of the efficiency of the treatment was sought in the control of the spread of the erysipelas and not in the control of the temperature. There was a total of 95 cases, which comprised 71 cases of adult erysipelas of the face and scalp, of which 24 (33.8 per cent.) had no spread of the disease after admission, and 14 (19.7 per cent.) had no more than one day of spreading; 8 cases of adult

erysipelas of the extremities, of which 4 (50 per cent.) had no spread after admission, and 3 (37.5 per cent.) had but one day of spreading; 8 cases of children's erysipelas of the face, of which 6 (75 per cent.) had no spread after admission, and 8 cases of children's erysipelas of the trunk and extremities, of which 1 case (12.5 per cent.) had no spread after admission, 1 case had out one day of spreading, 1 case recovered early, 1 case had two days of spreading, 1 case twelve days, and 3 cases died. Out of 12 cases of erysipelas involving the back, in 8 (6 adults and 2 children) the erysipelas soon became checked, in 1 (a baby) it spread unchecked, and 3 died (2 malnourished infants and 1 puny baby). The speaker ("The Disinfection of Vitalized Tissues and the Healing of Wounds with Chinosol and Salt," *Annals of Surgery*, 1919, pp. 493-497) had demonstrated the ability of certain solutions of chinosol and sodium chloride to cause the destruction of scientific infection in fresh experimental wounds.

Meckel's Diverticulum: Invagination, Intussusception, Perforation, Resection, Recovery.—Dr. JOSEPH E. J. KING presented this specimen. He stated that the patient from whom the specimen was removed was a German soldier, who came into the hospital about 7:30 p.m., January 21, 1917, with the symptoms of a typical acute appendicitis. He was operated on about 8:15 p.m. Several days after the operation, the patient stated that in November, 1916, he had been taken sick with acute pain in the right side of the abdomen (right iliac region). From November 15 until December 22 he was treated in a hospital with ice caps, etc., for "chronic appendicitis." He was transferred to a base hospital, where this treatment was continued. Later he was sent to a convalescent home. Finally he recovered, and was sent to a substitute battalion, for light duty. From his battalion he obtained a furlough, and while en route to his home he was suddenly taken ill with violent abdominal pain, more on the right lower side. He was taken from the train at Oppeln and sent to the hospital. He was a well-developed man, 26 years of age, walked into the hospital from ambulance with his luggage, arms, etc. He presented the typical signs of acute gangrenous appendicitis. The operation was done through a pararectus incision of the usual length. Search was made for the appendix and cecum. Both were found to be congested but apparently were not the cause of the trouble. There was a considerable amount of seropurulent fluid present. The incision was enlarged upward and downward. About twelve inches from the ileocecal junction there was found an abstruction of the ileum. The proximal portion was distended, the walls were thinned out; the distal portion was collapsed. Intervening was a mass on the inside of the lumen of the gut, its character could not be ascertained. Opposite the attachment of the mesentery, on the dilated proximal portion, the tip of the appendix was attached, firmly adherent, so that the appendix was hammocked across from the cecum to this dilated ileum. The point at which the appendix was adherent represented the location of the previous perforation of the ileum. Resection of the ileum, with a portion on either side of the obstruction, was done, followed by a lateral ileocolostomy. Cigarette drains were inserted. The patient made a recovery as after an ordinary subacute or a favorable acute case of appendicitis. The specimen showed about 12 inches of the resected ileum. When the lumen of the gut was opened it showed an inverted Meckel's diverticulum, about 2½ inches long, turned outside-in like a glove finger. This mass was carried down the intestine by peristalsis and produced a partial intussusception. The obstruction was almost complete; only a probe could be passed by the diverticulum. This obstruction was followed by dilatation and perforation of the ileum.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 22, 1921.

DR. CHARLES G. CHILD IN THE CHAIR.

Postoperative Tetany.—Dr. WILLIAM P. HEALY reported these cases. He stated that tetany should not be regarded as a disease conception but as "a more or less localized manifestation of a convulsive nature—due to a large number of exciting causes—possibly with some single and unique underlying factor." It was not a common clinical factor and was rarely seen in adults. The epidemic form had never been reported in the United States. The researches of MacCallum and Voegtlin had suggested the probaole value of the calcium salts in the treatment of the various forms of human tetany. The cases which Dr. Healy reported were instances of postoperative tetany in adults after celiotomy for operations on the pelvic viscera. There were seven cases. The onset of the typical hand symptoms was observed as early as seven hours after operation in one case. The symptoms terminated within forty-eight hours in each case either in response to treatment or by the death of the patient. There were four deaths and three recoveries, the latter after the administration of calcium lactate by mouth. In the fatal cases, despite thorough postmortem in two, with careful antemortem blood studies, no positive information as to the probable or exact cause of death was obtained. The symptoms in the fatal cases were tachycardia, profuse diaphoresis, hyperpyrexia, epigastric distress, bilateral symmetrical spasms and contractions of the muscles, especially of the upper extremity, and convulsions. The prompt recovery in the fifth, sixth, and seventh cases satisfied them that they were dealing with a form of toxic tetany of chemical origin. The source of trouble was apparently finally traced to the glucose and sodium bicarbonate administered as a routine to most of the major operation cases. This was supposed to contain 5 per cent glucose and 5 per cent sodium bicarbonate in 8 ounces of water at a temperature of 100° to 110° F. It was given as soon as possible after the return of the patient from the operating room, and was repeated again in four hours. Through an error in calculation 1,200 grains of sodium bicarbonate was given with each enema instead of 130 grains and enough of this was absorbed in a short time to upset the normal relations between the sodium, potassium, calcium, and other ions in the neuromuscular tissues—resulting in the symptoms described. After reviewing the work of Münser, Greenwald, and Binger as to the action of neutral solutions of sodium salts, Dr. Healy said that the question was whether the condition was one of alkalosis due to the administration of an excessive quantity of sodium bicarbonate or a condition of sodium poisoning in which the symptoms resulted from a disturbed balance of normal relations between sodium, potassium, calcium, and other ions. His own impression based upon the prompt response to treatment with calcium salts was that these were cases of sodium poisoning and not of alkalosis.

Dr. ISIDOR GREENWALD said it seemed to him that anyone who looked over the histories of these cases would agree that the administration of sodium bicarbonate was responsible for the tetany. It was merely a question of the mechanism by which it acted. Sodium bicarbonate acted in three ways: First, it was an alkali and might cause "alkalosis"; secondly, it was a salt and caused changes in osmotic pressure, and, thirdly, it would seem that it should produce a disturbance in the balance of sodium and calcium and other ions. In regard to the action of other sodium salts: sodium chloride produced a disturbance in which the neuromuscular symptoms were most conspicuous; with sodium phosphate these were much less marked. In giving sodium bicarbonate, one of the most common results was respiratory failure. Tetany might be absent. Changes in osmotic pressure probably had something to do with the symptoms observed after injecting hypertonic glucose solutions, but there seemed to him to be no question but that some of the symptoms were due to the disturbance in the balance between the calcium and sodium ions in the blood.

Papillary Cystadenoma of the Ovary.—Dr. HARRY VAN NESS SPAULDING read this paper written in collaboration with Dr. John F. Erdmann, the statistics and case histories being taken from the records of the Post-Graduate Hospital. He stated that papillary cystadenoma was the most important surgical disease of the ovary. In a review of 5,000 pathological sections in the pathological department of the Post-Graduate Medical School and Hospital, cystic disease of the ovary was found to constitute 200, or 4 per cent., and

of these 200, 36, or 18 per cent were papillary. A review of the observations of others showed that the frequency varied from 10 to 27.4 per cent of all ovaries. In addition, 13 of Dr. Erdman's private patients operated upon elsewhere than at the Post-Graduate Hospital and three of the writer's cases were incorporated. While the histogenesis of ovarian cysts was very confusing, the most probable development was from a cellular perversion of the germinal epithelium. A review of a series of papillary sections impressed one with two facts: (1) The very gradual transition, with no line of distinction from the benign to the malignant, and to the typically carcinomatous picture; and (2) that a simple, apparently benign papillary area might exist in the same section with a complex or malignant field, from which clinically one could only conclude that there was no clinical method whereby the degrees of malignancy could be determined except by the microscope. The last word was therefore that of the pathologist. Microscopical examination in the present series indicated that 23 per cent. were benign; 16.6 per cent. premalignant; and 50 per cent. malignant; 22.2 per cent. were bilateral and 13.8 per cent. multiocular. Therefore out of 200 cases of all types of ovarian tumors, 12 per cent. were malignant or premalignant papillomas. Other observers had shown a higher percentage of malignancy. Every warty or papillary intracystic deposit and every secondary cyst, however small, should be sectioned for malignancy. These tumors showed a strong tendency to bilateralism and general metastasis was not rare. Bilateralism, especially as related to the solid form of ovarian tumors, usually indicated a carcinomatous process elsewhere in the body. All bilateral ovarian tumors demanded a careful examination of the abdominal viscera and breasts. In papillary cystadenoma of the ovary there was no specific ovarian symptomatology. The subjective symptoms were in every case referable to other organs and the objective symptoms were vague, uncertain, and often absent. The symptoms were dependent largely upon the size of the tumor and whether or not rupture or pedicular torsion had occurred. The accumulation of fluid in the peritoneum and its accompanying symptoms were among the first signs noted by the patient. This was an advanced symptom and indicated rupture, peritoneal metastases, and often malignancy. Every woman with ascites without sufficient explanation in the liver, heart, peritoneum, or kidneys, should be laparotomized even though bimanual examination gave negative results. Papillary cysts were particularly prone to become cancerous, but clinically there was nothing to suggest malignancy for a long time. In the event of malignancy, however, both the size of the abdomen and the emaciation generally increased. Many cases showed marked cachexia and asthenia, and these cases were apparently malignant from the beginning. These growths rarely showed the rapid progress of neoplasms associated with other glandular or structural tissues. Of the series of cases at the Post-Graduate Hospital 66.6 per cent were malignant or potentially so. Certain conclusions with reference to prognosis could be drawn: When a cyst was removed intact without peritoneal contamination, it lost its prognostic interest, however malignant the pathologist might report it later. There was always that indeterminate personal equation which could not be solved by the prognosis in other cases; prognosis as to recurrence improved with the age of incidence; in a certain number of cases in which rupture had occurred and the peritoneum was abundantly studded with warts, ovariotomy had proven a sufficient therapeutic measure to cause a regression of the remaining irremovable peritoneal deposits. They felt that this was quite exceptional and while such patients might linger for a number of years, yet they would finally succumb to the toxic exhaustion of the malignant peritonitis. They considered papillary ovarian tumors potentially malignant and if ruptured they usually eventuated in malignancy. In adenocarcinoma recurrence was probable and mortality high. Every ovarian cyst must be removed intact by abdominal section as soon as discovered. If unilateral oophorectomy was performed the patient should be periodically examined. Careless or rough handling, resulting in intra-abdominal rupture, tapping to reduce the size of the tumor, and the vaginal approach could not be too strongly condemned. Radium should be employed in cases in which the ovaries or the peritoneal implants could not be surgically removed.

Dr. WILLIAM P. HEALY emphasized the point that sometimes one came across a case of this type of papillary cystadenoma in which the condition was apparently inoperable; a celiotomy was done and one reached the conclusion that it would be unwise to remove the mass or even a part of it, and the abdomen was closed. He had had such an experience some years ago and had had the patient remain under his observation. She had had a papillary cyst of the left ovary, filling the whole left side of the abdomen and apparently inoperable. After the operation the fluid accumulated much more slowly than before and a year later bimanual examination led him to believe that, while the tumor mass was much more extensive than at the time of the exploratory laparotomy, it was a type suggesting the possibility of removal. He then did an exploratory laparotomy and found it possible to remove the tumor. He did a complete hysterectomy, and the patient survived and had remained well. There remained, however, numerous small wart-like excrescences on the bowel and parietal peritoneum which subsequently regressed after the removal of the greater portion of the tumor mass. So it was well to bear in mind that papillary cyst adenocarcinoma was something a little different from what we were accustomed to understand as cancer.

Dr. CHARLES G. CHILD expressed the opinion that this paper was one which would have a tremendous influence on our knowledge of ovarian pathology in the future. Dr. Spaulding had brought out the point that the incision should be large enough to permit the removal of the tumor without any attempt at aspiration for the purpose of reducing its size. That was a most valuable point. It was a distinct mistake to tap a cyst before attempting to remove it through the incision. If there had already been a spontaneous rupture of one of these cysts one could be almost sure that it was a malignant papillary cystadenoma and that there was little use trying to remove it. In operating on a papillary cystadenoma, if one was going to be satisfied with removing a single ovary, the other ovary should be kept under observation and if it showed any signs of enlarging it should be at once removed.

Dr. LEROY BROUN expressed his appreciation of the amount of work that had been expended in the preparation of Dr. Spaulding's paper, and said he was interested in the Doctor's statement that one in five ovarian tumors was papillomatous; he thought the ratio was one to four or one to three. He was glad to be corrected. The importance of this subject was brought out by Kelly twenty-five years ago when he stated that all ovarian cysts should be regarded as malignant until proven otherwise, which could only be done by removal. Dr. Broun did not agree with Dr. Spaulding and Dr. Child as to the necessity of the large incision. A tumor could be aspirated without scattering transplants if one used a small needle and took proper precautions. At the Woman's Hospital, in the case of a good sized tumor that would necessitate an incision beyond the umbilicus in order to remove it intact, they made a liberal incision to the umbilicus and exposed the tumor. They then aspirated with a small needle fitted to the rapid aspirating exhaust. In doing this the cyst wall was caught up on each side of the needle as soon as it became sufficiently flaccid to get a grasp. The cyst wall was in this way steadily drawn out of the abdominal cavity as it became more flaccid, and the adhesions could be more easily separated, so that there was less risk of rupturing the thinner portions of the wall of the cyst and scattering its contents.

Dr. SPAULDING, in closing the discussion, said that he had the highest respect for Dr. Broun's opinion, nevertheless, he felt that there was no mechanical method of tapping an ovarian cyst, regardless of how carefully the technique was carried out, that was not accompanied by some leakage. With the use of a small needle it required a long time to evacuate a large cyst, and at times the cyst contents were so gelatinous that they would not readily pass through the needle; or the cyst might be multilocular and then several attempts had to be made to evacuate the various loculi.

Episiotomy in Primiparous Labors.—Dr. S. J. SCADRON presented this communication, in which he emphasized the importance of the proper management of the second stage of labor. In his experience, as well as in the service of the Jewish Maternity Hospital, lacerations of the lower birth canal occurred in about 45 per cent. of all primiparous labors, and in about 10 per cent. of multiparous births. Experience had taught him that a timely median incision in the raphe anterior to the sphincter would prevent the over-stretching or tearing of the urogenital structures and the bladder attachments. As the presenting part further descended the levator ani muscle, and to some extent the transverse perinei, were called upon to functionate, the head tried to escape from under the pubic arch and through the vulva orifice in a forward and upward direction. This action of the head normally displaced the muscular structures backward encircling the greatest circumference of the advancing head posteriorly. If the action of the muscles was interfered with by a prolonged second stage, rigid perineum, or large head, the perineum became glistening and markedly distended; the anus became dilated early. One could hardly appreciate that at this stage there was an impending tear of the perineal structures, and that an episiotomy was indicated. Sometimes one found that the posterior commissure began to tear before there was this marked bulging; this was evidenced by slight hemorrhage. A timely incision would save the perineum. After the incision was made the head could easily be expressed with gentle hand pressure from above. In breech extraction the perineum should be excised before the breech was delivered, thus rendering it easier to bring down an unexpected extended arm without lacerations, and easier to deliver the aftercoming head. The technique of median episiotomy was simple. The forefinger was placed in the vagina during a uterine contraction and the hymenal ring would be felt as a tense band. With a straight blunt-pointed scissors an incision was made in the midline severing the tissues of the urogenital septum. The incision should be made gradually, not in one sweep; it should extend from one to one and a half inches on the skin surface of the perineum. It might be extended, if necessary, by cutting slightly away from the anus; if still more room was required the incision might be extended vaginally away from the rectum. In lateral episiotomy the incision was made through the skin, subcutaneous, and adipose tissues; here too the cut must be long enough to permit the expulsion of the presenting part; the incision was gauged as the presenting part advanced with each pain. In the repair of episiotomy the writer preferred plain gut. The wound was closed by interrupted buried sutures and the margin of the skin brought together by a continuous suture of the same material. Primary union was the usual result and the patient experienced very little or no perineal pain. It had been his experience that with the median incision there was better union than with the lateral incision and practically no scar tissue. The lateral episiotomy should be performed in cases of persistent occipitoposterior positions, especially when attempts at rotation were made with forceps. The writer also preferred the lateral incision in cases of breech extraction in a primiparous patient with a well developed child.

Dr. FREDERICK C. HOLDEN said he was always glad to hear another paper on episiotomy, the idea being that the more papers we had on the subject the more likelihood that those still opposed to the operation might come over to the idea that there was something in it. He used it in about 90 per cent of his primiparous patients. The results were excellent though he did not think it always prevented cystocele. One frequent mistake was that it was not done soon enough. It should be done before too much stretching had occurred.

Dr. HERVEY C. WILLIAMSON said he did not see how a median episiotomy was going to prevent a cystocele, as it was not done as he understood it until the head was on the peritoneum, and if there was going to be a cystocele the damage had occurred before the episiotomy was performed. He asked if a median episiotomy was performed a second time, and, if so, whether it was successful. He said he had always preferred the lateral incision.

Dr. CHILD said that Dr. Scadron's paper gave very well the indications for episiotomy and except in certain minor details he agreed with him fully. He had practised episiotomy for many years, ever since he had studied in the Rotunda Hospital of Dublin, but he had always used the lateral incision. At this point in labor our main thought was to prevent a solution of continuity of the tissues between the vulva and the rectum, and yet with median episiotomy the very condition was produced that we wished to avoid. The median incision was also directly in the line of lochial discharges, and was especially liable to infection if the incision was closed with catgut. In operations about the vagina he always used silkworm gut. There should be a thorough inspection of the vagina between pains and as soon as one saw that the limit of stretching had been reached and that little tears were beginning to appear in the vagina or fourchette then was the time to make the cut, but only through one levator ani muscle. This did not separate the transverse fibers of the levator ani muscles as the median incision did.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

KRITISCHE WERTUNG DES FRIEDMAN-MITTELS. By Drs. H. ULRICI, H. GRASS and S. MEYER. Published by Johann Ambrosius Barth, Leipzig.

REPORT OF THE PHILIPPINE HEALTH SERVICE By VICENTE DE JESUS, M.D. Published by Manila Bureau of Printing.

THE INTERNATIONAL MEDICAL ANNUAL. 564 pages. Price $6. Published by William Wood & Company, New York.

PROSTHETIC DENTISTRY. By DOUGLAS GABELL 237 pages. Published by the Oxford University Press, American Branch, New York.

AIDS TO CHEMISTRY. By WILLIAM PARTRIDGE. 280 pages. Price $2. Published by William Wood & Company, New York.

AIDS TO OPERATIVE SURGERY. By H. C. ORRIN. 236 pages. Price $1.75. Published by William Wood & Company, New York.

A MANUAL OF SURGICAL ANATOMY. By CHARLES R. WHITTAKER. 429 pages. Price $3.50. Published by William Wood & Company, New York.

INFANT MORTALITY IN NEW YORK CITY. By ERNST CHRISTOPHER MEYER. Published by the Rockefeller Foundation, New York.

LEHRBUCH DER GESCHLECHTSKRANKHEITEN. By Dr. MAX JOSEPH. 217 pages, illustrated. Price 54 marks. Published by Georg Thieme, Leipzig.

ONANIE UND HOMOSEXUALITÄT. By Dr. WILHELM STEKEL. 525 pages. Price 120 marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

FOOD PRODUCTS. By E. H. S BAILEY. 551 pages. Price, $2.50. Published by P. Blakiston's Sons & Co., Philadelphia.

GREEK MEDICINE IN ROME. By SIR T. CLIFFORD ALLBUTT. 633 pages. Price, 30s. Published by MacMillan & Co., London.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By JOHN GLAISTER. 902 pages. Price, $7.50. Published by William Wood & Co., New York.

ESSAYS ON SURGICAL SUBJECTS. By SIR BERKELEY MOYNIHAN. 253 pages. Published by W. B. Saunders Co., Philadelphia.

PENNSYLVANIA HOSPITAL UNIT IN THE GREAT WAR. By VARIOUS WRITERS. 251 pages. Price, $5.00. Published by Paul B. Hoeber, New York.

LIFE AND TIMES OF AMBROISE PARE. By FRANCIS R. PACKARD. 297 pages. Price, $7.50. Published by Paul Hoeber, New York.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY. Third Series, Vol. II. 650 pages. Published by the Government Printing Office, Washington, D. C.

Miscellany.

The Cocaine Traffic in Paris.—Courtois-Suffit and Giroux give some of the details of this industry. Paris is the center of the French trade in "coco," as it is familiarly called. The headquarters are in the Montmartre district where the drug is peddled in the cabarets and dance halls. In the Latin Quarter the youth take it out of bravado without a thought of the consequences. It is sometimes called "foolish powder." The habit is eminently social in character and its devotees of all kinds meet in a democratic fashion and take a pinch all around. All sorts of ruses to avoid detection prevail. A fine cat made its habitual resting place over a caché worth thousands of francs. A traveling musician with a mandolin visited bar after bar, drew a crowd by singing and then took the drug from his instrument and offered it for sale. American troops on leave who had obtained cocaine from the Germans immediately after the armistice hurried to Paris to peddle it without any idea of criminality. Aviators found excellent opportunities of this kind. Gangs of peddlers hastened with their supplies into Belgium, Switzerland, and Spain. Pharmacists and their errand boys alike took part in the traffic, the latter naturally on their own account. Documents were forged and falsified when necessary. The profit on the German drug when retailed in Paris was 2,500 per cent. in some cases. There was, of course, the usual falsification. The addict is often forced to become a peddler to get his or her own supplies.—*Gazette des Hôpitaux*, June 25, 1921, xciv, 50.

Moving Pictures of Psychoses.—At a session last autumn of the Zürich Cantonal Medical Society, Dr. Hans Maier brought up the subject of the great importance for psychiatry of cinema demonstrations of the behavior of insane patients (*Schweizerische medizinische Wochenschrift*, May 12, 1921, li, 19). For decades affective behavior has been studied by Zürich psychiatrists, who have specialized in mimetic and pantomimic manifestations. The yield here supplements that of the association tests of Bleuler and Jung and of study of the psychogalvanic reflex at the hands of Veraguth, etc. While in other clinics the stress has been laid on convulsive phenomena, paralyses, etc., in cinematographic representations, at Zürich there has been a special study since 1917 of mimetic and affective behavior. The first pictures were taken at a velocity of 16 individual images per second, which was later increased to 25. The desideratum is a speed of 60 to 80, but this would prove very expensive. The author showed in his exhibition, in connection with 16 patients, 268 meters of film with 13,400 individual images. The patients were subjected to the same psychic stimulation or irritation, as follows: A taste irritant, two smells—one pleasant and one disagreeable; a needle prick, and a noise. According to the psychosis of the individual patient, both quantitative and qualitative differences were seen. A careful study of the films makes it possible to measure and analyze the muscular anomalies with ease and accuracy.

Death of Porak.—This distinguished obstetrician died on May 27, 1921, and his funeral oration was delivered at the tomb by Doléris. He was born in Paris in 1845, and his youth was influenced by several possibilities, including law, literature, natural science and medicine. The latter finally won out, after he had taken his B.A. in 1866. He was a hospital externe during the period 1867-72, and an interne for the ensuing two years. He graduated in medicine in 1878 and his thesis on icterus neonatorum was honored by a silver medal. By 1880 he had decided to devote his activities to an obstetrical career and he became chief of clinic to Depaul, who in certain other respects seems to have been his ideal. At a very early period in his career he obtained charge of two important maternity services, which he retained during the active period of his life—one was head of the obstetrical department of La Pitié and the other chief of the Paris Maternity School. His life seems to have been largely that of a technician and he wrote many interesting and valuable papers, but his chief service was in the direction of puericulture. During the first decade of the present century he was abnormally active in the domain of infant conservation, the most vital of French problems today. Outside of technics he was distinguished for his knowledge of the abstract sciences and linguistics. His personal attainments brought him into contact with many celebrities and he appears to have had a genius for friendships which caused him to be very sorely missed by hundreds of admirers. Despite the fact that the deceased had reached the ripe old age of 76 years, his obituary notice suggests that he was cut off prematurely.—*La Presse Médicale.*

Protecting Oysters From Infection.—In the *Gazette des Hôpitaux* for May 10-12, 1921, xciv, 37, Courtois-Suffit and Bourgeois outline a campaign intended to prevent the sale of contaminated oysters and other shellfish. They begin by stating that the method known as stabulation or flushing the oysters with antiseptic solutions works only in the laboratory. This is a surprise, for in the United States it has been shown to be quite practicable to irrigate the live oyster with hypochlorite solutions. In place of this resource there is only the method of complete bacteriological control as practised in Holland. Here there is no attempt made to disinfect shellfish already contaminated, but only to supervise the sound oyster and his kin. Thus far there is no legislation to compel the French oysterman to keep his product clean, but the Minister of the Merchant Marine furnishes bacteriological control on request. The oysters and their beds are then examined and the proper recommendations made. Certificates of cleanliness are issued if desired. During the war the oysters of the Mediterranean litoral were known to be badly contaminated. Two methods were employed to correct the situation, viz., stabulation and removal of sound oysters to reserve beds. The authors state that neither method is trustworthy owing to failure to sterilize or to opportunity for reinfection. As a matter of fact, they did not prevent the development of many cases of oyster typhoid. In Holland the state has for some years had exclusive responsibility for the purity of the oysters, and as a result shellfish typhoid has completely disappeared. The authors, therefore, recommend the full Holland plan to the French Government.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 15. Whole No. 2657. NEW YORK, OCTOBER 8, 1921. $5.00 Per Annum. Single Copies, 25c.

Original Articles.

MANAGEMENT OF BONE AND JOINT INJURIES.*

BY A. P. STONER, M.D., F.A.C.S.

DES MOINES, IOWA.

THE principles of the treatment of recent fractures has undergone but few changes as the result of our recent military experiences. Mobilization with extension when necessary, by means of external splints, still holds first place; indeed, many surgeons with the widest experience in the war, maintain that with few exceptions all fractures are better treated by this method than by any form of internal splinting. The Thomas leg and arm splint, practically unknown before the war, came into universal service as the best mechanism for transporting and for holding the fragments in their normal approximation and alignment during the healing process.

Most war fractures were compounded, and compound fractures do not tolerate foreign materials, not even tendon or gut. These fractures are always infected, and metals and other foreign materials, including the bone graft, will inhibit the healing process. Even after the most thorough débridement of the soft structures still their application is unsafe. In compound fractures with much comminuted bone, before removing any fragment, it must be clearly established that it is completely devoid of its blood supply. Even in the presence of much suppuration spiculæ of bone may retain their osteogenetic power provided part of the periosteum remains intact, and it will finally unite and aid in filling up important gaps between the fragments.

In fractures involving a joint, the position in which the limb is placed immediately after reduction has much to do with maintaining the fragments in position.

A fracture of the neck of the femur requires flexion and abduction of the limb with extension longitudinally and laterally. With the aid of the Thomas splint and accessories for extension, it is rarely necessary to resort to operative measures for fracture of the femur. If the fracture is in the lower third, the leg should be flexed upon the thigh and extension applied in direct line with femur by means of tongs inserted into the lower fragment; the points of the tongs should not be inserted into the cancellous tissue and only deep enough to avoid their slipping. The tongs may be utilized to advantage in fractures of the lower third of both bones of the leg. Autogenous bone grafts or the steel plate, however, are to be recommended for fracture of the tibia and fibula when difficulty is encountered in reduction or in maintaining the fragments in position.

The Jones extension arm splint and the Thomas leg splint are equally effective in the treatment of fracture of the shaft of the humerus. Either of these splints may be fashioned out of iron rod ¼ inch in diameter and fitted to each individual case by the surgeon. The joints of the splint may be brazed in any machine shop in a few minutes' time. When the injury is in the vicinity of the shoulder joint, or in the joint, the arm always should be secured in the abducted position. In such injuries, if the arm is permitted to rest against the chest wall until healing takes place, much difficulty may be experienced in getting it up into abduction, while on the other hand the arm will readily come down to its normal position as soon as the splint is removed, since there is no muscular rigidity to overcome, and gravitation lends a natural and constant aid to its resumption. Likewise, in fracture or other injuries of the ankle joint complete dorsal flexion of the foot should be maintained.

Care should be exercised that undue pressure is not made upon the axillary nerves by the shoulder ring of the Thomas or Jones splint. The autogenous bone peg steel plate or wire nail, however, when judiciously applied in fractures of the extreme upper or lower ends of the humerus, offers one of the best means for securing the fragments. Most fractures that involve the elbow joint are best treated with the forearm completely flexed upon the arm, Jones position.

In fractures of the lower end of the radius involving the wrist joint, it matters very little in what position the hand is placed relative to its position with the forearm, whether it be hyper-extended, straight or even flexed.

Complete reduction is the all-important thing in the treatment of Colles' fracture, so that the anatomic alignment of the fragments of the bone may be as nearly normal as possible; this, I believe, may be accomplished in all cases. In the majority of these accidents the lower fragment is literally driven into that of the upper. The force that breaks the bone is continued upward until the soft cancellous structure of the lower fragment becomes more or less completely embedded into the firmer structures of the shaft above.

Often it is impossible to dislodge the fragment by traction upon the hand, but it is easily unlocked by forcibly hyperextending the hand; then while the hand is still in this position, traction is made upon

*Read at seventeenth annual meeting American Association of Railway Surgeons, Chicago, October 6, 7, 8, 1920.

the hand, and the lower fragment is pressed downward as the hand is straightened out. This fragment is still further worked into place with the thumbs while traction in a straight line is continued upon the hand by an assistant. Once the reduction

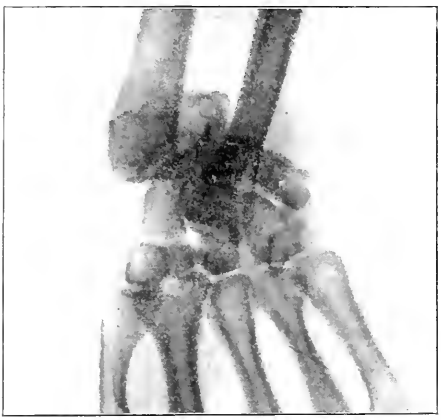


Fig. 1.—Case I, *a*. Fracture lower end of radius with complete dislocation of lower fragment backward and inward together with carpal bones. Caused by cranking an automobile. Anteroposterior view.

is completed it is not easily displaced. Now, however, begins a very important part of the treatment —that of reestablishing function of the wrist joint. Indeed, the setting of any bone is but one of the important steps in the procedure that requires weeks or months to re-establish normal function.

In the so-called Colles' fracture, if the hand and

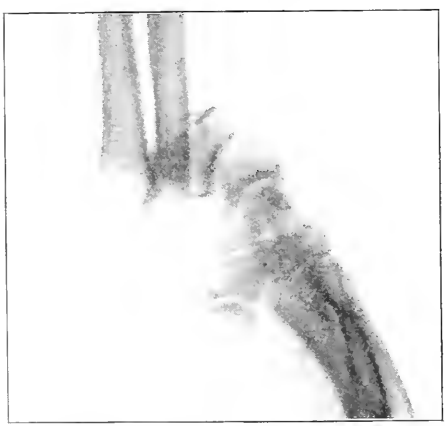


Fig. 2.—Case I, *b*. Lateral view. Note that the articular relations of the lower fragments with the carpal bones which go to make up the wrist joint has been little if at all disturbed.

arm be secured and kept in any one position without active or passive movements until the healing process is completed, the patient will be rewarded and the doctor chagrined by a more or less complete ankylosis of the wrist joint which may involve the elbow and shoulder in limited motion and much pain, especially if the arm is constantly carried in the proverbial sling. The fingers will remain stiffened by the inflammatory process of the tendon sheaths in the vicinity of the fracture.

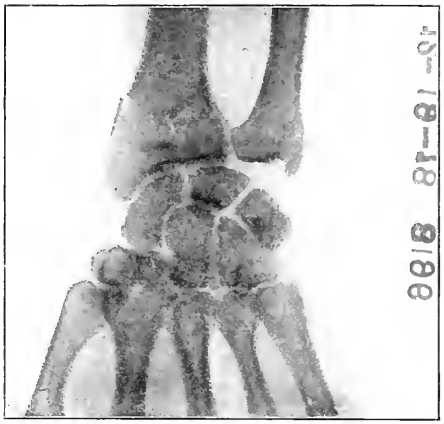


Fig. 3.—Case I, *c*. After reduction. Note the normal anatomical relations of the ulna and radius, and the nearly perfect alignment of the fragments of the fractured radius

For years I have used the circular plaster cast, converting it as soon as it has hardened into an antero-posterior splint for securing the fragments. However, this is a matter of personal choice and any well-padded splint may answer equally well. The fingers and thumb are to be left entirely free and active motion begun and continued as soon as the patient awakes from the anesthetic. On the

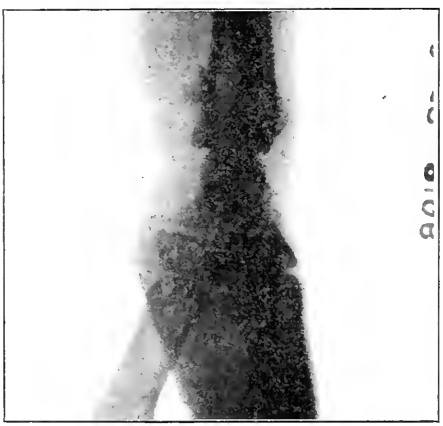


Fig. 4.—Case I, *d*. Lateral view after complete reduction. Note the normal angle of the articular surface of the lower end of radius in its relation to that of the carpal bones which form the wrist joint. Full range movement of the joint was re-established after second month.

second day the splints are taken off, the wrist joint is massaged and the hand may be slowly and carefully flexed and extended by the surgeon. These procedures are repeated daily or twice daily thereafter. The anterior splint is dispensed with on the

third day and the posterior splint is discarded in 10 days, after which time the patient is encouraged to flex and extend the hand by muscular action alone. Massage is continued until the function of the joint is restored. Unfortunately, owing to the

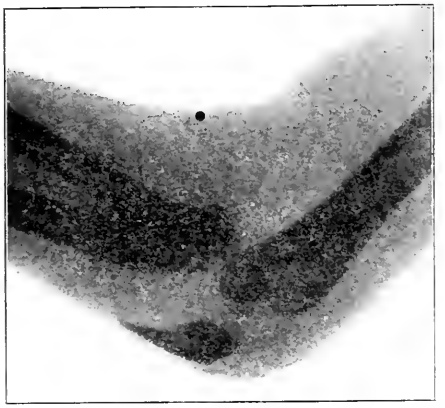


FIG. 5.—Case II. *a*. Complete fracture of olecranon process. The flexor muscles have drawn the bones of the forearm forward. It would have been impractical without operative measures to dress the arm in a straight position, the fragments could not have been brought together into their normal anatomical relations.

danger of displacing the fragments, one is not at liberty to manipulate all joint fractures as one may handle the wrist joint after Colles' fracture. A very large percentage of fractures of the lower end of the radius really need no splinting, for once complete reduction is effected it requires consider-

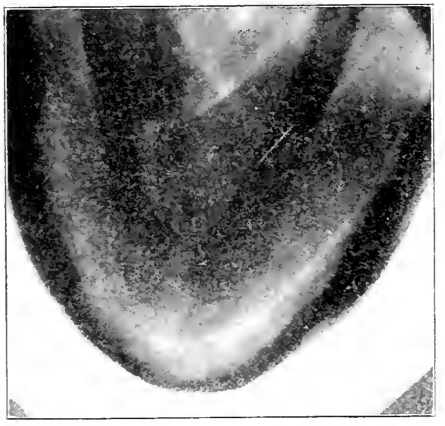


FIG. 6.—Case II. *b*. Plaster paris dressing applied with arm hyperflexed (Jones position). Note how accurately the fragments have fallen into place. Normal movements without pain were reestablished in this six-year-old boy within sixty days.

able force to disturb the relations of the fragments.

So much has been written recently upon the subject of war injuries of bone and joints that one hesitates to undertake a rehearsal of or add anything to the voluminous literature now being compiled. The military aspect of this discussion deals with the writer's experience in the treatment of fractures and dislocations while serving in the U. S. Army Base Hospital at Ft. Riley, Kan., where all casualties were treated during the training

FIG. 7.—Case III. Simple fracture of surgical neck of humerus, woman of 70, from being struck by an auto. Note the spicula of bone completely detached, lying below the head. Note also the abnormal angle between the head and shaft at side of fracture.

period of soldiers at Camp Funston. In addition to this work, I was privileged, through the courtesies extended by the chiefs of the orthopedic service, Maj. M. H. Rogers of Harvard University and Maj. F. D. Dickson of the University of Pennsylvania, to observe and associate with them in the treatment of many other interesting joint and bone cases. Most of these cases as well as those under my immediate supervision during the latter months of service, were gunshot injuries incurred overseas from 4 to 6 months prior to admission to the hospital at Ft. Riley.

In some cases the soft structures were healed,

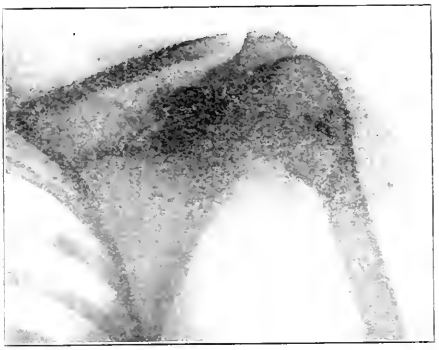


FIG. 8.—Case III. *b*. After four weeks' treatment with extension by means of a Thomas splint, the arm being kept at nearly right angle to the body. The spicula of bone has apparently united with the shaft. The anatomical alignment of the head and shaft is nearly normal. Normal movements of the shoulder resulted in six weeks' time.

other cases presented large areas of unhealed soft tissues, still others presented a sinus leading from the surface down to necrosed bone or cartilage. It should be the rule always to operate wherever there is a discharging sinus leading from the sur-

face down to the bone, regardless of a negative *x*-ray plate.

It goes without saying that all such cases in which evidence of bone disease is shown by the *x*-ray should be subjected to sequestrectomy. Every

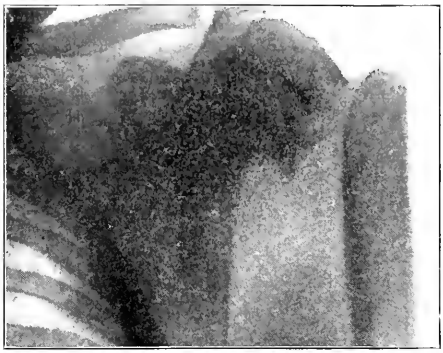


FIG. 9.—Case IV, *a*. Compound comminuted fracture, surgical neck of humerus. Caused by falling earth from a cave-in.

vestige of the diseased area of bone requires removal, relieving the bone of all pockets and gutters, by biting and chiseling away all overhanging edges of normal healthy bone cells. The bone curet alone is ineffectual for the removal of necrotic bone. More is required than that of merely scraping the bone. After sequestrectomy the wound should be immediately packed with Dakinized gauze and left in place 24 to 48 hours, after which the regular technique of chlorinization is instituted. This treatment renders what otherwise would be foul-smelling suppurating wound of the soft structures, a sweet and healthy healing surface without odor. Sloughing muscle and fascia melt away under its influence with surprising rapidity, while it effects no injury whatsoever to the living structures. Bacterial counts should be made at frequent intervals, and the wound may be closed when it becomes sterile. Experience has shown that a wound may be safely closed when the average is 1 organism in 5 fields in 5 or 6 successive counts. Such wounds never contain streptococcus or Welch bacillus.

It remains to be seen what the ultimate result of war-wrought bone necrosis will be. The poor resistance of bone to infective processes is well known. The general resistance of the soldier, however, was so much above the average civilian with osteomyelitis, the result of blood stream infection, that the prognosis in the former case should be more encouraging. It is well known that chronic osteomyelitis is a very intractable thing from whatever source it may spring and repeated operations often fail in eradicating the process, it certainly appears to be true in war infections of the bone.

The treatment of joint injuries remains one of the most unsettled questions of the principles and practice of surgery. The pendulum has swung back and forth between that of complete rest for certain periods and of immediate passive motion. It is only recently, however, that Willems of Ghent has demoralized all the staid surgical traditions in the treatment of infected joint injuries, and his principles are likewise applicable to simple joint injuries—by the immediate adoption of active motion. In infected knee joint injuries, for example, instead of rest, extension and drain, Willems has supplanted it by immediate active motion without extension after cleansing it and completely closing the joint. If pus forms in the joint it is reopened and the patient continues to flex and extend the leg at frequent intervals as before, and is made to walk while the joint is still open. These movements keep the joint emptied of pus and prevents ankylosis. The ankle joint is similarly treated. In elbow injuries the patient is made to flex and extend the forearm upon the arm as soon as he is awake after operation.

In practicing the restoration of function in joint injuries from fractures of opposing bones, account must be taken of the dangers of displacing fragments, and the proper course to pursue must often be left to the judgment of the surgeon in the individual case. Sir Robert Jones (*Surg., Gyn., and Obstet.*, January, 1920) recently formulated the following rules to be used as guides, namely:

That forcible movements are rarely indicated. If pain occurs after manipulation and is of short duration, movements may be continued. If pain occurs for lengthy period after manipulation rest is indicated. If the increased range of movement is maintained after manipulation, further movements may be safely prescribed. If in spite of movements, even in the absence of great pain, the range is continually diminishing, rest is indicated. The duration of pain when tissues are relaxed, rather than its intensity, should be our clinical guide. In overcoming adhesions and in subsequent manipulations, the joint should be put through its various movements only once. The oft-repeated pump handle movements applied at each sitting are never useful and often start inflammatory symptoms. Voluntary movements can safely be allowed and should be encouraged. They are not followed by obstructive reaction.

In some intractable cases with limited motion

FIG. 10.—Case IV, *b*. A bone peg was procured from the shaft of the tibia and driven at an obtuse angle into the head of the bone to aid in holding the fragments together. The broken end of the shaft was first sawn off square. The arm was dressed on an aeroplane splint at right angle to the body.

in which complete flexion and extension are impossible without eliciting great pain, I have found that after a few days of complete rest the patient is able fully to flex and extend the limb without pain. Dislocated joints after reduction should be put to

rest in plaster-of-paris for a few days when massage and slow passive motion should be practiced daily until function is restored. Hot fomentations or dry heat may be used to advantage.

By the aid of the *x*-ray any dislocation may be studied and the relations of the displaced bones so completely established that a novice should be able to effect their reduction. By this means one should obtain an accurate conception of the route through which the dislocated bone has passed, as well as the probable position assumed by the extremity during its excursion.

To return the parts to their normal position it is only necessary to reverse the route through which the articular surface passed during the accidents.

401 Iowa Building.

USE OF ROUND LIGAMENTS IN RETRODISPLACEMENT OF THE UTERUS.

By ASA W. COLLINS, M.D., F.A.C.S.,

San Francisco, Cal.

In order to understand the problem that confronts the surgeon when he undertakes to correct a malposition of the uterus, it is necessary to have clearly in mind what the normal position of the uterus should be, how it is maintained in its normal position, and also the mechanism of the process by which the uterus becomes reflexed, retroverted, or prolapsed.

Motility is one of the characteristics of the uterus, for it is in no sense a fixed organ. It is displaced backward when the bladder is distended, and slightly displaced forward when gas or feces are present in the rectum. The changes in intraabdominal pressure that occur at every respiration cause a corresponding change in the position of the uterus.

Physiology.—Passing to a consideration of the physiological arrangements that make it possible for the uterus to respond to all these changes of position and yet return to its normal place, mention should first be made of the broad ligaments. These ligaments serve as supports for the uterine appendages, and also conduct the blood vessels to the uterus. Moreover, they inclose muscular bands that, reaching from the sides of the pelvis to the uterus, limit the movements of the uterus from above downward, as well as from one side to the other. These ligaments are composed of bands of fibrous tissue, with an interlacing of smooth muscular fibers.

From the posterior surface of the uterus to the lateral parts of the sacrum we find the uterosacral ligaments which hold up the cervix in the hollow of the sacrum. When the body is held in an upright position, the muscular fibers of these ligaments tend to elevate the cervix rather than to retract it, so that they are, in a sense, the suspensory ligaments of the uterus. According to Stewart McKay, the muscle fibers that run in the uterosacral ligaments are more or less continuous, not only with the fibers of the uterus, but with the muscular fibers of the bladder about the region where the ureter enters. There are also muscular bundles running from the sides of the bladder, below where the ureter enters, to the vagina, and again from the vagina to the walls of the rectum. This intimate relation of the muscular fibers of the bladder and vagina certainly helps to give some support to each organ, but the sacrouterine ligaments receive most aid from the uteropelvic ligaments which run in the broad ligaments at either side of the uterus, forming a sort of sling from side to side.

The round ligaments do not help to hold up the uterus; their function is to control to a certain extent the excursions of the fundus. They hold the fundus forward in such a way that the upper part of the posterior surface of the organ receives the intraabdominal pressure. The fundus is displaced toward the sacrum, upward and toward the back when the bladder is distended; when the contents of the bladder are discharged the round ligaments draw the fundus forward again.

Thus it is seen that, while the broad ligaments have a lateral pull upon the fundus, so that they limit its motion from side to side, and the infundibulopelvic ligament aids in keeping it steady, the round ligaments serve only to regulate its excursions from the normal position. The ligaments that have the most important part in keeping the uterus in position are the uterosacral, for they elevate and suspend the cervix, thus maintaining the fundus in a forward position. From the lateral walls of the pelvis the superior and inferior uteropelvic ligaments suspend the uterus on either side.

Lastly, the decussation of the muscular bundles coming from the uterosacral ligaments and the uteropelvic ligaments with the fibers of the cervix, as well as those of the base of the bladder, form an elastic diaphragm around the roof of the vagina, which not only helps to keep that canal up in position, but also serves to form a floor upon which the bladder and uterus rest. Thus the uterus and vagina are kept in position by being suspended from above and supported from below.

The normal position of the uterus, therefore, is seen to depend upon the proper fixation of the ligaments that maintain it. Should they lose this fixation the result would be that after the bladder and rectum are evacuated the elastic elements of the folds of Douglas will not be exerted, and the vaginal portion will remain in the anterior part of the pelvis. When the bladder fills again, the body of the uterus is pushed back, and with the ever-continuous filling and evacuation of the bladder and rectum the uterus eventually gets into a position where the effect of the pressure of the abdominal contents is not so great on its posterior as on its anterior surface, and the fundus will remain where it has been forced into the hollow of the sacrum. Continued intraabdominal pressure will usually force the uterine body still further down until it becomes completely retroflexed.

Retrodisplacements.—The examination of a woman who has borne several children, and whose uterus has been in a retroflexed condition for some length of time, will usually show that the broad ligaments are thickened because of the presence of varicose veins, a frequent occurrence with uterine retrodisplacements. The uterus itself is usually not injured by the displacement. It is the resulting torsion of the ovarian vessels with the

varicose development in the upper portion of the broad ligaments, and often of the infundibulopelvic and ovarian ligaments, that produces chronic congestion of both ovaries by extension of the uterus itself. Simple retroversion often

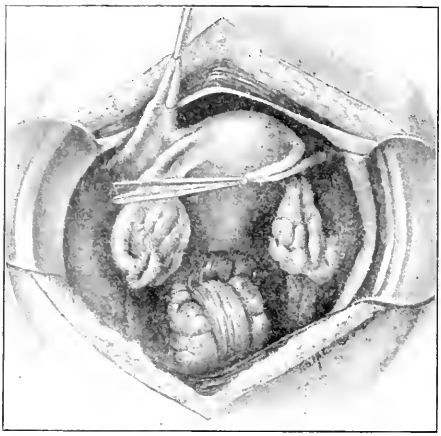


FIG. 1.—The forceps to the right shows the method of testing the point for beginning the denudation. Forceps to the left shows round ligament denuded, the peritoneum being incised and pressed backward.

produces no symptoms, but, as Pozzi[1] has declared, even if the displacement does not constitute a disease in itself, it renders the displaced organ very liable to attack from any source, as the circulatory changes produced by the increase in venous tension, which this position entails, tend to cause and increase inflammation both in the uterine cavity and upon the surface. Retroflexion is likewise often accompanied by a prolapse of the adnexa, and this in turn will give rise to distressing nervous symptoms, all of which are greatly enhanced when any inflammation takes place.

There have been many modes of operating for the relief of this condition of retroflexion, but we shall consider here only those that employ shortening of the round ligaments to accomplish that end.

A vaginal operation to shorten the round ligament has been devised by Wertheim, Byford, Bode, Ries, Vineberg, and Goffe. The underlying idea of all was to make an incision in the anterior fornix, through which a loop of round ligament was drawn. This loop was then fixed by pulling it toward the vaginal incision, where it was made fast by various devices.

The Alexander operation is typical of the "button-hole" method. This was performed in the year 1881 by both Alexander and Adams, although Alexander's account was not published until two years later. Kellogg[2] in 1888 performed the type of operation now most usually done. In 1916 he again published an account of his procedure, which he termed "blunt-hook dissection." A separate external incision is made for each ligament which is pulled through and attached by its thickest part to the aponeurosis of the external oblique at the upper angle of the puncture. This operation cannot be done upon fat women. Neither is it always successful with others, because in cases where the uterus has been retroflexed for a long time the fundus will have so increased in size that it will be below the place where the round ligament is attached. So, when traction is brought to bear by pulling the round ligaments instead of bringing up the fundus and straightening out the uterus, it will assume a still further position of retroflexion.

If the cases of retroflexion are complicated by ovarian and tubal difficulties or adhesions, an external operation, such as the Alexander,[3] will not suffice. The abdomen will have to be opened and intraabdominal shortening of the round ligaments performed. Gill Wylie folded the ligaments back upon themselves and united the folds, and Matthew Mann has also introduced a similar method. J. Clarence Webster[4] inserted a pair of forceps from behind through the broad ligament, grasped the round ligament and pulled it back and fastened it to the posterior face of the uterus. Baldy's[5] modification of this was to sever the round ligament, then with forceps to seize the proximal end of the distal portion which he fastened behind the uterus.

Ferguson and Gilliam drew the ligaments through perforations made on both sides of a median incision in the rectus muscle.

Stewart McKay[6] thus sums up the scope of the operations that may be performed on the round ligaments for the treatment of displacements of the uterus: The Alexander is an ideal operation for uncomplicated cases of retroversion and retroflexion, also for retroflexion complicated by adhesions, provided always that the adhesions can be broken down through the internal ring. It is useful in dealing with prolapsus in its early

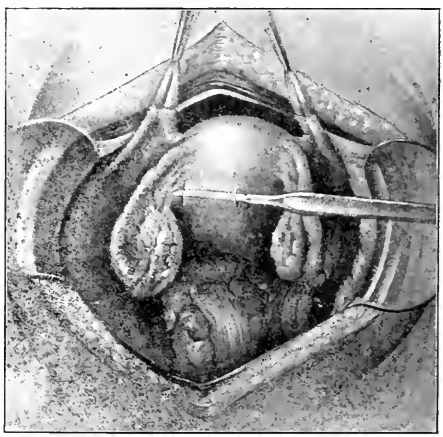


FIG. 2.—Both ligaments show the peritoneum retracted and the knife making the puncture.

stages, but it is valueless if the prolapsus is advanced. Intraabdominal shortening of the round ligaments is an efficient means of correcting and overcoming retroflexion of the uterus, although it has no effect on prolapsus.

Carey Culbertson[7] of Chicago employs the Webster technique in round ligament shortening, but believes that its use should be limited to a uterus that is relatively normal in size, free from pathology, and still in the years of child-bearing activity. It is not to be recommended when the outer parts of the round ligaments are noticeably thin, nor when the uterus is unusually heavy, as in marked subinvolution, extreme fibrosis, or chronic endometritis. Neither should it be employed in a uterus that contains fibroids or other neoplastic growths. Its use should be limited to cases where subsequent pregnancies are anticipated and where the tissues involved indicate its feasibility.

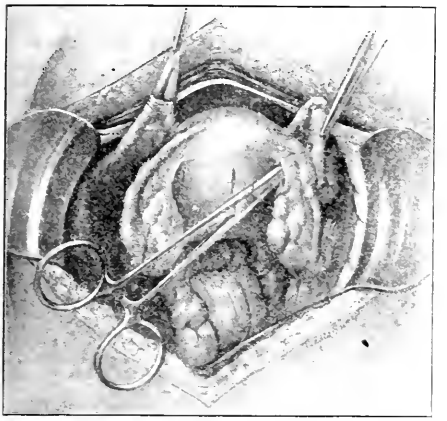


FIG. 3.—The ligaments are drawn under the Fallopian tubes and ovarian ligaments by forceps as shown in the illustration, or by a chromic ligature around the ligaments.

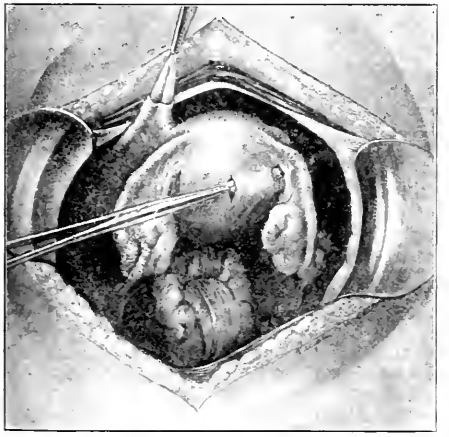


FIG. 4.—Each ligament is pulled through the stab wound in the uterus and sutured together by two chromic sutures.

Author's Operation.—In March, 1916,[8] I published an article describing an operation that I had been performing for two years, and since that time I have had opportunity to follow up many of the cases. The method employed is as follows: The uterus is held in normal position, the round ligaments are caught with Kelly forceps and brought toward the median line until the forceps meet behind the fundus, where the ligaments will eventually be sutured. At the point where the forceps has grasped the ligament, a circular incision is made around the ligament, cutting through the peritoneum. The forceps now grasps the denuded muscle of the round ligament and the peritoneum is peeled back for about an inch from either side of the forceps. With a thin-bladed knife a vertical incision about one-half inch long is made in the median line of the fundus posteriorly about opposite the uterine attachment of the ovarian ligament. From this point the knife is made to pass horizontally underneath the peritoneum and a short distance in the muscle and emerge close to the broad ligament. The same procedure is carried out on the opposite side. The denuded portion of the ligament is now drawn through the broad ligament underneath the tube and ovarian ligament, and another forceps placed through the uterine stab wound will draw the ligament to the median line. The same procedure is carried out on the opposite side. The two ligaments meeting in the median incision of the uterus are held together by suturing them with two chromic catgut sutures. Another chromic suture is placed from the uterus through the ligament at the site of the lateral incisions in the uterus and the operation is completed by closing the three incisions with plain catgut interrupted sutures.

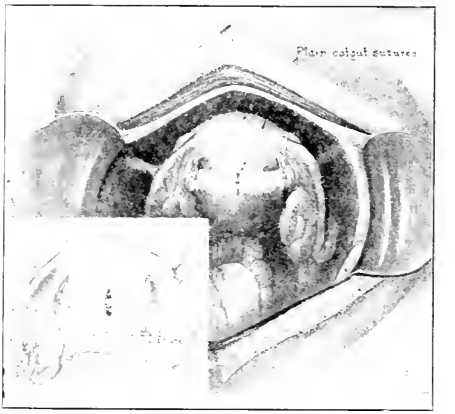


FIG. 5.—Insert shows ligaments sutured together with chromic catgut. The three incisions are closed by one plain catgut suture.

Comment.—A round ligament operation will hold a badly prolapsed uterus in position if the pelvic floor is properly repaired and the pelvic organs given their normal support, and no part of the pelvic anatomy will hold the uterus forward better than the round ligaments.

Round ligament operations have been unsuccessful for the following reasons: Too much reliance has been placed upon them as a means of supporting the weight of the uterus and adnexa; all previous operations have been peritoneal

attachments, which give way and cause the uterus to fall back or be drawn to either side; the Gilliam operaton has caused intestinal obstruction, is a suspension operation, and the Alexander operation can be used only in uncomplicated cases, which are very rare.

In conclusion, I wish to state that the operation herein described has met the test of time. It is safe. There are no raw edges, no adhesions to follow, and it permits the round ligaments to serve the uterus to the best possible advantage.

Conclusions.—1. It is a muscle-to-muscle attachment with no possibility of pulling away to one side or the other. 2. It is not a peritoneal attachment which forms an adhesion and will stretch or give away altogether. 3. There is no interference with pregnancy. 4. The uterus remains mobile. 5. No bladder nor other subjective symptoms follow. 6. It supports the ovary and relieves the varicosity of the veins of the broad ligament.

REFERENCES.

1. Pozzi, S.: System of Gynecology. Paris, G. Masson, 1892.
2. Kellogg, J. H.: Simple method of shortening the round ligaments. MEDICAL RECORD, lxxxix, 719, April 22, 1916.
3. Alexander, W.: Practical Gynecology, With 15 Years' Experience in Shortening Operation of the Round Ligament. Edinburgh, Neil, 1899.
4. Webster, J. Clarence: Textbook of Diseases of Women. Phila., W. B. Saunders, 1907.
5. Baldy, J. M.: Intra-Peritoneal Shortening of the Round Ligaments. *N. Y. Med. Journal*, April 14, 1906.
6. McKay, W. J. Stewart: Operations Upon the Uterus, Perineum, and Round Ligaments. London. Baillière, Tindall and Cox, 1911.
7. Culbertson, Cary: Ligament Shortening in Treatment of Retroflexion of the Uterus. Surg. Clin., Chicago, 179, February, 1920.
8. Collins, Asa W.: An Operation for Retrodisplacement of the Uterus. *Amer. Journal of Surgery*, March, 1916.

126 POST STREET

AN UNUSUAL PITUITARY CASE.

BY WILLIAM N. BERKELEY, A.B., B.Ph., M.D.,
NEW YORK,
ATTENDING INTERNIST, GOOD SAMARITAN DISPENSARY.

F. S., now 18 years old, female, single, living in Brooklyn, American-born, of Jewish parents, stenographer, first came to my clinic nine years ago. Her mother brought her for some intercurrent medical complaint which required no special treatment, and she was well in two or three days. Family history negative except as noted below. Stature normal.

Noting that she "blinked" continually, we referred her to Dr. C. B. Broder, of our Eye Department. Dr. Broder made the diagnosis of interstitial keratitis, and for this she was treated for some time, improving slowly. Her Wassermann was negative.

Two years later her mother brought her to me again. She had grown, and was a good-sized girl for eleven years,—well grown,—nothing more. She now had certain symptoms of renal disease. Her urine was examined at once, and showed abundant albumin, red blood cells, and epithelial casts,—also a marked positive reaction for glucose. We could never get a good 24 hours' specimen, but casual samples tested as high as 2 per cent. sugar. Inquiry showed that her mother and two of her mother's sisters had or had had diabetes. (One of the latter had since died at about 42 years of age, of diabetic gangrene).

Neither the patient nor her mother could be convinced of the gravity of the girl's condition. Ambulatory treatment failed entirely from lack of cooperation on the family's part. I therefore presently referred the girl to Mt. Sinai Hospital. Here she stayed some weeks, but later returned to us, still running albumin and glucose as before. Yet all this time her general condition seemed good; her blood pressure was low, and her physical examination negative.

She now disappeared again from observation, and two years later reappeared,—thirteen years old. She said she had had no treatment, and had eaten what she wanted. Her urine was now normal as far as we could determine—no albumin, no glucose.

Profile radiogram of skull, showing the large anterior and posterior clinoids (indicated by arrows) encroaching on the sella turcica.

She had grown and fattened, had a bright color (her own!), well developed breasts, and all external signs of puberty, though she was said not yet to have menstruated.

Three years later she again came about some intercurrent trouble. She appeared to be in perfect health; no albumin, no sugar. Blood glucose carefully determined at this time showed 0.110 per cent. (two hours after breakfast). She asked for a letter that she might be admitted to the list of "Farmerettes" for that summer (the European war was in full blast). She said she still had not menstruated.

After dropping from sight for two years more her mother brought her in January of this year (1921), desiring treatment for the persistent amenorrhea.

At this time her weight was 149 pounds (clothes on); her height, five feet, three inches in stockings.

Her blood pressure was 112 systolic (mercury manometer); color a little pale; intelligence fully normal. She had no headache; her visual fields were reported from the Eye Department to be unrestricted; her urine was entirely negative. She was working every day.

Wishing to find out something of her pituitary function, we had our radiographer, Miss Stich, make profile films of her skull. A print of one of these is shown herewith. Dr. J. M. Steiner, of New York, has kindly described the condition for me as follows:

"*Sella Turcica.*—Both the anteroposterior and perpendicular diameters of the sella are materially reduced in size. This is due very largely to the excessive size of both the anterior and posterior clinoid processes. Both the anterior and posterior clinoid processes are unusually large in width, and the posterior clinoid processes incline sharply forward and I believe are adherent to the anterior clinoid processes. The floor of the sella is smooth and rounded and without evidence of erosion or destruction.

"*Bones of the Cranial Vault.*—Both the inner and outer plates are a trifle thicker than one would expect to see in the average adolescent of eighteen years, and I believe that there is an unusually large amount of lime-salt deposits in the bones for a person of this patient's age. There is a complete closure and ossification of the sutures, and there is no evidence of erosion or destruction of the bones of the cranial vault.

"*Diagnosis.*—The plate creates an impression of overgrowth, excessive lime deposit, and extremely large accessory nasal sinuses, even the mastoids being distributed over a wide area, and I believe that this whole picture might readily be the result of what appears an anomalous condition of the sella turcica and possibly its bony pressure on the pituitary gland."

The condition suggested simple hypopituitarism as a provisional diagnosis, and therapeutically I did not think the case hopeless. I prescribed thyroid gland, to be followed a few weeks later by thyroid and whole pituitary combined, as soon as I should have determined the tolerance of the patient for thyroid alone.

Again, however, she failed to come back. When we last heard of her, she had stopped her medicine;—— "She would lose her job if she came during business hours," she reported. Her condition was said to be unchanged.

210 East Sixtieth Street.

TWO INSTANCES OF INVETERATE EPITHELIOMA FORMATION.

By Douglass W. Montgomery, M.D.,

and

George D. Culver, M.D.,

San Francisco, Cal.

As is well known epithelioma of the skin appears most frequently on the face, and is a disease of middle and advanced life, and occurs more frequently in men than in women. People vary in their susceptibility to developing these growths, but the following are instances of extreme propensity for such development.

On April 26, 1911, a man in excellent health, and thirty-five years of age, consulted us on account of a little fingernail-sized epithelioma in the hollow of the shell of the left ear. It had appeared like a blackhead one year previously. The lesion had a

Fig. 1.—Case of inveterate epithelioma formation. The figures represent situations in which seborrheic patches had degenerated into epitheliomata. The adhesive tape strips represent gold plaques in place.

well marked, characteristic, waxy border, and was quite hard.

We curetted it out and burnt the base with chromic acid. After the removal of the crust we x-rayed the surface. The healing was perfect, and there has been no return in this particular locality. Since then, however, he repeatedly has had epitheliomas in different situations on the face.

Fig. 2.—Same patient as shown in Fig. 1. The lower lip can be seen to be deformed. This is due to the action of the escharotical paste employed when he first consulted us.

For example, on October 13, 1911, he came in with a pea-sized nodular growth on the left cheek near the nose. This had begun as a small papule about one month previously. It was firm, had a raised rolled border and a rough fissured center,

and was surrounded by a narrow red areola. At times it was itchy. We treated this as we had the previous one with curetting, chromic acid and *x*-rays.

In the spring of the year following he came in with a flat wart of the forehead, and in the early part of 1913 he consulted us on account of epithelioma 0.25 cm. in diameter under the left nostril. This we curetted and burnt with trichloracetic acid. During the following summer a small crusted papule appeared over the left zygoma, which we treated in a similar way. In November, 1914, he arrived with a small epithelioma of the outer surface of the left tragus. This was curetted and found to be much deeper than at first anticipated. In fact, it buttonholed the skin. Here it may be remarked that epithelioma of the ear shell often shows itself as being particularly malignant, and in this patient the two worst epitheliomas were in this situation. This one we curetted and burnt out with chromic acid. In June, 1915, he again consulted us on account of a flattened, epitheliomatous disk about two millimeters in diameter on the nose. This was curetted and touched with trichloracetic acid. On October 23, 1915, an epithelioma had developed below the right corner of the mouth, which, on being curetted, left a deep, narrow cavity, which was burnt out with acid nitrate of mercury. On August 18, 1917, another epithelioma appeared over the right cheek bone. This was treated with radium. Another epithelioma appeared January 2, 1919, another on March 22, 1920, on the left side of the neck, another on the right side of the nose on August 12, 1920, another on the left cheek on March 9, 1921, and another April 30, 1921, on the left cheek.

As mentioned above, all these later epitheliomas have been treated with radium.

All the epitheliomas with the exception of the one in the left ear shell and one on the tragus of the ear were very small affairs.

The patient has a dull, oily complexion with very patulous sebaceous gland openings, and his skin is always unusually full of blood. The complexion is dark rather than fair. This is mentioned particularly, because people having a very fair skin are more subject to a multiplicity of epitheliomas than those with a dark complexion.

As the patient had a fatty skin, it was only natural to inquire into his fat intake. At one time he was taking more than sufficient butter and cream, but a diminution of this together with a lessening of his carbohydrates brought no noticeable amelioration.

As the actinic rays of sunlight are now known to be among the chief exciting causes of epithelioma of the exposed surfaces, and as the patient leads an outdoor life in the San Joaquin Valley where the sunlight in summer is intense, and the bright days are continuous, he was advised to wear a broad brimmed hat, lined with yellow or red, to absorb the noxious rays. These precautions, however, brought no noticeable relief. The greatest advance we made in the cure of this patient lay in the substitution of radium for the curet, cautery, and *x*-rays. The curet and cautery would ultimately lead to extensive scarring, and the frequent use of *x*-rays might finally cause senile changes, which are particularly to be avoided where cancer is concerned. The employment of radium is not attended by either of these defects.

Not long since a radium expert, who handles large quantities of radium commercially, exhibited his fingers, which were scarred with radium burns. He, however, had no fear of epithelioma developing from these radiations, as from *x*-ray burns. In other words, the action on the skin of *x*-rays and of the radiations from radium are similar, but by no means identical. This is especially true when the radium is heavily screened, so that only the finest wave lengths are employed.

The following is another instance of inveterate epithelioma formation:

In 1905, a farmer, thirty-eight years of age, called on us on account of an epithelioma below the left corner of the mouth. It was a rapidly growing lesion, and was both wide and deep. At that time we were employing arsenic, and the reaction from its application in his case was severe, and extended clear through into the mouth. On healing it left a permanent deformity.

Although he was a young man he had a great number of senile keratoses scattered over his face, some of which had degenerated into epitheliomata. The patient had a dry, irritable skin, and a fair complexion, such as burns but does not tan in the sun.

In a fatty organ such as the skin the history of any unusual intake of fat is interesting. This man for years used to come in from working in the field, at about 11 in the forenoon, and tip the top milk, almost pure cream, of a large pan into his stomach.

In the latter part of 1915 he was kicked by a horse in the left cheek, which left a wound which did not heal, and which developed into a large epitheliomatous ulcer, for which he consulted us in July, 1916. This was an interesting instance of a traumatism evoluting into a malignant growth. No lymphatic involvement developed from this, and a Wassermann reaction then taken was found negative. This ulcer was curetted and burnt out with chromic acid, and after separation of the crust it was treated with *x*-rays, under which it healed.

In the early part of this year (1921) he again consulted us. His face was mottled with keratoses, some of which had developed into rodent ulcers, and one into a coin-sized, fungating epithelioma. These were all treated with radium, heavily screened and retained in place for hours—the screening and time being varied according to the lesion.

This man's skin is quite different from that of the former patient, who has a dark, heavy, oily skin and a dark complexion, as contrasted with a fine textured skin and a light complexion. Yet both are subject in about an equal degree to the development of epithelioma.

As we look back over the histories of these two cases the first great advance in treatment was made by the employment of the *x*-rays, and the next still greater advance, by the introduction of radium.

The Excellencies of Radium.—Year after year radium continues to give off the same quantity of radiations; nothing retards it, nothing accelerates it, so that an operator having once become ac-

quainted with a radium plaque or tube, that factor for him is fixed. This holds as against an *x*-ray tube, which is very variable, and also as against radium emanation, which quickly deteriorates.

Another admirable feature is that being heavily screened it may be held in place for many hours, always exerting its influence. The advantage of this may be appreciated if one considers the nature of cancer, and the multiplication of cells in a growing tumor.

A tumor grows by cell division. The nucleus becomes active and the nuclear membrane disappears and the whole cell contents become scrambled together within the cell. Then two new nuclei form, the cell divides between them, and so two new cells come into being. It is probable that during the time that the nuclear membrane is absent, and what were the nuclear elements lie unprotected, the cell is particularly vulnerable. And as in a growing tumor the transformations are going on all the time, a prolonged exposure to gamma rays would catch crop after crop of these young cells. It would amount to the same thing as a prolonged sterilization. Even short interruptions, as exposures on successive days, would be equivalent to fractional sterilization.

The advantages of radium, therefore, in the treatment of these lesions are due to a number of physical peculiarities, as for instance, the steadiness and invariability of its action, its ease of application, and the length of time, running into hours, that it may be applied.

323 Geary Street.

IMMUNITY IN TUBERCULOSIS.

By OWEN PAGET, M.D.,

PERTH, WEST AUSTRALIA.

To those whose range of vision is limited by the microscope the test-tube and the autoclave, the study of immunity in tuberculosis must be as difficult as "Paley's Evidences of Christianity" or "Esoteric Buddhism" to the Australian Aboriginal.

But progress, however slow, is ever taking place, and the study of nature, clinical teaching, and observation, together with such excellent text-books on the nose and throat, as that of Professor Ballinger, enable us to grasp not merely the theoretical conception of such a proposition, but that in reality it is an everyday circumstance, and physiological not pathological in quality.

"Currente Calamo," the celebrated French anatomist Professor Testut thus described the sense of smell: "Les appareils nerveux terminaux destinés à recueiller les sensations odorantes, sont disséminés chez l'homme, comme chez tous les mammifères, sur les parois de deux cavités appelées fosses nasales. Ces cavités sont creusées, de chaque côté de la ligne médiane, dans le massif osseux de la face, au-dessus de la cavité buccale qui renferme l'organe du gôut, au-dessous de l'orbite où se loge l'appareil de la vision. Elles occupent, comme on le voit, la portion la plus élevée *du long conduit que parcourt la colonne d'air de la respiration, s'ouvant en avant en pleine atmosphère et débouchant en arrière dans le pharynx.*

On consulting Professor Ballinger's text book on the Nose and Throat, it is obvious that he too regards the nose as an organ of, or at least a passage for respiration. He further points out that the inspiratory current passes into the upper area of the nose, above the level of the edge of the middle turbinate. This is a matter of the utmost importance. In some animals it appears as if there was a bony ridge separating the inspiratory and superior current from the expiratory and inferior current.

One further point must be taken into account, and that is the relationship in size between the nose and the other structures in the skull.

An *x*-ray photograph of a hyena's skull shows that the nose, irrespective of soft parts, is equal to the combined capacity of mouth and brain. Some African deer show an even larger proportion, and even in man the area allotted to the nose and sinuses is very considerable. Having established the fact that the nose is an organ of respiration as well as of smell, and having further indicated that it must from the large area it occupies in such an important structure as the skull, be an organ of importance, it is worthy of attention to establish the relationship between these functions, and the possibility of the existence of others.

Except the necessity for the inspiratory current of air, to pass into the upper chambers of the nose in order that we may smell, the actual sense of smell as judged by the area allotted to it in the nose is apparently of secondary importance. Even in the lower animals, whose requirements in this direction are more obligatory, the olfactory nerve distribution is mostly confined to the septum nasi in the region contiguous to the superior turbinate. It appears from this therefore that the various structures in the nose, such as the turbinate bones, the ciliated epithelium, and the nasal sinuses, must have some respiratory purpose, or functions hitherto undiscovered. Under conditions of nature, the most obvious impurity in the air, we breathe, is dust. Whether on the plains of Australia or on the prairie land of Canada, dust is an accompaniment of the movement of animals, or the occurrence of winds. On examining men exposed to dust conditions of a severe character, as occurs in some branches of the gold-mining industry, it is found, that men who breathe through their noses, and this compulsorily with a handkerchief over the mouth, do not develop miner's disease or tuberculosis. Further, in such cases the particles of dust are caught by the hairs at the entrance of the nostril or are deposited only on that part of the septum in front of the anterior ends of the inferior and middle turbinates. Thus dust of the ordinary quality "per se" cannot pass beyond the anterior cartilaginous part of the nose.

But even artificial dust of such a buoyant character as tobacco snuff acts apparently in a similar manner. For snuff makers, I am creditably informed, work with a handkerchief over the mouth and not over the nose. From the foregoing, it is apparent that *the nose is the filter of the lungs.*

Initiated by the researches of Pasteur, science and the world in general have become aware that the chief dangers to our existence are minute organisms invisible to the naked eye. The further investigations of Koch proved that the causative

agent of the most maiming and incidentally highly destructive infection known to mankind was the tubercle bacillus.

Faced with the proposition that the nose contained various structures of unknown utility, and that the inspiratory air contains numerous organisms known to be harmful, interest is at once aroused as to the happenings when these two factors come into contact. And this the more so, since we are already clinically aware that the tubercle bacillus is peculiarly virulent in its action towards the pulmonary tissues.

At once the extraordinary phenomenon arises that although the inspiratory air passes, except in mouth breathing, first of all over the nasal structures, nevertheless clinical nasal tuberculosis is of infinite rarity, whereas 80 per cent. of mankind show definite tuberculosis lesions of the lungs post mortem. Surely a subject for wonder. At least it shows that the nasal epithelial cells have a different capacity from those lining the pulmonary structures. On consulting Professor Skillern's text book on the Accessory Sinuses of the nose, I find the statement that the cells of the nasal mucosa have been shown to possess special bactericidal properties.

At this point the study of the circulation of the air in the nose attracts attention. If a manometer tube is taken closed at its outer end and securely fastened into the side of a cylinder of cardboard, a working model of nose and sinuses is produced. When breathing through this cardboard cylinder, if the distal orifice is the same diameter as the rest of the tube, there is no movement in the manometer with inspiration. The more, however, the distal orifice is closed the greater is the movement in the manometer with inspiration. Finally with too great a closure respiration becomes too difficult and ceases.

In normal nasal respiration, the commencement of inspiration draws the air from the nasopharynx, which causes the air to flow out of the sinuses. This flow continues till the end of inspiration, leaving a partial vacuum in the sinuses. When expiration begins, the last of the inspired air containing oxygen, and occupying the space above the soft palate is drawn by negative pressure into the sinuses, and it is there held until the next inspiration. Examination of the skulls of lower animals with their infinitely complex turbinate and ethmoidal structures shows that it is next to impossible for the inspired air to pass through this region without coming intimately into contact with their structures. The study of the circulation of the air in the sinuses has shown us there, too, the intimate contract which must take place between the inspired air and the lining cells. Since these lining cells are not only ciliated but constantly moist, the inspired microorganisms must with absolute certainty be deposited on them and digested or otherwise destroyed.

On theoretical grounds therefore it is impossible for a nose breather to be infected with tuberculosis, since no microorganisms can pass this ingenious filter, if it is in proper working order. Further experiment shows that the capacities of the nasal epithelial cells are not limited to their bactericidal action.

If in a case of tuberculosis, insufflations of suitable dosage of bacillary emulsion of tubercle bacilli are made into the ethmoidal region, certain and constant improvement takes place. This definitely shows that these epithelial cells which line the mucosa in the upper regions of the nose are capable of forming antibodies. *Hence immunity in tuberculosis resolves itself down to the establishment of a proper inspiratory current through the upper regions of the nose.*

With the present day excellent text-books on diseases of the nose, I feel considerable diffidence in making suggstions in this direction. In fact it seems best to depict outlines only. Pure mouth breathers, as children with adenoids, are beyond the range of the present proposition, because obviously they make no use of their nasal functions. But of special interest are those persons, who are partial nose breathers, and yet suffer from postnasal pharyngeal catarrh, different degrees of ethmoiditis, and more often than not some fairly definite pulmonary lesion, with a marked tendency toward fibrosis.

Now I have treated considerable numbers of these cases with insufflations of tubercle bacillary emulsion, and with very good results. But in a certain quite definite percentage the improvement in the nasal and pharyngeal catarrh did not quite reach the finality of cure. Further attention to the circulation of air between the middle turbinate and the septum was speedily successful. The fault in these cases lies in the lack of proper flow in inspiratory air in the upper chambers of the nose. This may be due to a naturally close proximity of middle turbinate and septum, or the result of injury, or again very commonly to an hypertrophy or edema of the septal mucous membrane produced by the negative pressure of ineffectual efforts to breathe through the upper regions of the nose. A compensatory shrinkage of the mucous membrane covering the inferior turbinates sometimes takes place in these cases, so that the inspired air passes eventually too easily through the lower channels of the nose, with as disastrous results to the lungs as in mouth breathing.

It is interesting to note that insufflations of tubercle bacillary emulsion will sometimes cure asthma, and sometimes aggravate it. In the latter case the patients speedily benefit by treatment directed towards the establishment of a proper inspiratory current, and attention to spots either on the middle turbinate or septum obviously hypersensitive from overwork.

Immunity in tuberculosis depends on the proper anatomical relationship of the middle turbinate bone to the septum nasi, and the physiological capacities of the epithelial cells in the upper regions of the nose.

Catarrh of these latter structures is never chronic, if the inspiratory current is proper and adequate. On the other hand, paradoxical as it may seem, with an imperfect current tuberculous catarrh is extremely probable, and in my opinion, this is the nature of 80 per cent. of the cases which are classified broadly as chronic nasal catarrh. Fortunately this is of merely academic interest, since it is easily cured.

34 St. George's Terrace.

HEART MURMURS AND HEART DISEASE IN CHILDREN.*

By G. WERLEY B.S., M.D.

EL PASO, TEX.

EVERY examination of the heart in children must have as its prime object the question of prognosis; for the child's whole future may depend upon our decision. Our verdict may mean for the child a life of restriction, half-living, and thwarted ambition, or it may mean hope and a joyous looking forward to all that life may hold. To become proficient in the examination of the hearts of the young is worthy our best efforts and most earnest study. Other things equal he will be the best diagnostician who has the most knowledge at his command. Let us then consider a few facts:

In what percentage of children under ten years of age may we expect to find acquired heart disease?

Norris examined the statistics in two Philadelphia hospitals and one in Boston and found that among 16,120 sick children, heart disease was present in 1.4 per cent. Deutsch[1] found only 0.17 per cent. of chronic valvular disease in 52,281 cases of sick children collected from various German hospitals. Of 250,000 school children examined by school inspectors in New York City in 1918,[2] 1.6 per cent. showed cardiac defects. Of 28,000 school children in New York's lower east side, 700 were thought worthy of note because of some cardiac irregularity. These 700 cases were then passed upon by Dr. Robert Halsey and his staff of assistants at the Cardiac Clinic of the Post-Graduate Hospital; 167 were found to have organic heart disease. The other 533 of these 700 suspected cases were found to be functional and not organic. So among these 28,000 children there was about one in 200 with genuine disease of the heart. The statistics last cited show that the ordinary examiner suspects cardiac disease about three or four times too often. Applying this deduction to the 250,000 school children examined by school inspectors in New York City gives an actual incidence of about one-half of one per cent. of heart disease. The correctness of this estimate, I think, is confirmed by the fact that Norris found only 1.4 per cent. among 16,120 *sick* children. The statistics here collected embrace 346,401 cases and it would seem our deductions must come pretty near to giving us the truth. The high incidence of heart disease in the German Hospital of New York City (24 per cent.) and in the Great Ormond St. Hospital in London (10 per cent.)[3] must find an explanation in the special class of cases attracted by certain clinics.

Endocarditis is almost unknown in infancy. Holt found not a single case in over 1000 autopsies in children under three years of age.[4] In a personal communication Dr. Holt says that his further experience does not modify this statement. He also voices the opinion that much undue alarm is caused by the diagnosis of valvular disease where it does not exist.

Of 145 cases under 15 years of age, Holt found 14 under 5 years of age and 71 from 5 to 10 years of age. The age incidence of 150 fatal cases reported by Lees and Poynton was, up to 3½ years 1, first 5½ years 18, 5½ to 10½ years 105. In the second five years of life, heart disease is found about five times oftener than during the first five years. The only way to determine definitely and beyond question the incidence of organic acquired heart disease in children would be by the examination of large bodies of post-mortem statistics collected from hospitals for children. After much correspondence I have met with no success in gathering such information.

The question of acquired heart disease in children resolves itself largely into a study of rheumatism in its various manifestations. All the pediatricians whose works I have consulted, Fisher, Holt, Griffith, Kerley, and others, agree in assigning rheumatism as the cause in from 90 to 95 per cent. of all cases. White and Reed[5] hold that "rheumatic infection is almost the sole cause of chronic change in the mitral valve." This is in agreement with Cabot's[6] opinion that "no infection except the form of streptococcus manifested in rheumatism and chorea and primary acute endocarditis bears any known relation to mitral stenosis." Poynton[7] goes even further and says that "the peculiar effect of rheumatism upon the nervous system tends to produce disturbances of the heart, such as tachycardia, precordial sensations, irregularity of action, and even anginal symptoms." Chronic myocarditis is not common in children, but when found, we may generally look upon rheumatism as the cause.

Since rheumatism plays such an important rôle in the cardiac diseases of children the recognition of that ailment assumes first importance. Swollen, red, and tender joints are not always present. Rheumatism may manifest itself as a purpura, erythema multiforme, as rheumatic nodules, as chorea, pharyngitis, tonsillitis, muscular and growing pains, or primary endocarditis. Endocarditis is much more likely to complicate rheumatism in the child than in the adult. Scurvy, joint tuberculosis, and suppurative arthritis are to be differentiated from rheumatism.

Barker[8] is of the opinion that in children infectious (rheumatic) arthritis seldom has its origin in the teeth but is almost always due to tonsillitis, adenoids, or infected sinuses. Poynton thinks that chronic nasal and middle-ear catarrh may also be related to rheumatism. Unfortunately removal of foci of infection does not always prevent the recurrence of rheumatism. Some 30 per cent. continue to suffer as before (St. Lawrence). Established valvular disease is not helped by removal of the primary focus. I believe that more attention should be paid to discovering the primary cause of tonsillar and other head infections in children. My own belief is that stuffing with sweets and candies is largely to blame for the excessive prevalence of catarrhal infections and bad teeth in American children. It is my impression that among Mexicans, whose diet is more simple, tonsillitis and rheumatism are less common, also endocarditis.

The endocarditis of the infectious diseases does not frequently result in valvular deformity. This type of endocarditis is most frequently fatal. When recovery does occur, the cause does not persist and the damage is repaired with little resulting deformity. It is the persisting, chronic, slow-acting dis-

*Read before the El Paso County Medical Society, March, 1921.

ease that causes valvular deformity, such as rheumatism, syphilis, and sclerosis. Syphilis is not a common cause of heart disease in children. Of 84 children examined by Halsey at the New York Post-Graduate School, all suffering from chronic cardiac affections, only one gave a positive Wassermann reaction. At the same time 8 per cent. of these children had aortic insufficiency. Rosenberg[11] found only 4 cases of endocarditis in 1770 cases of scarlet fever. Acute endocarditis in influenza is rare,[12] but subacute endocarditis is a quite common and fatal sequela.

The two most common findings that cause suspicion of heart disease are irregular pulse and the presence of a murmur. Neither of these considered alone makes certain the presence of heart disease.

All forms of irregular pulse have been brought into seven varieties by the studies of Lewis, Mackenzie, and others. They are as follows: (1) Heart block; (2) Paroxysmal tachycardia; (3) Auricular flutter; (4) Auricular fibrillation; (5) Premature beats; (6) Sinus arrhythmia; (7) Pulsus alternans.

The only common form of irregular pulse in children is that due to sinus arrhythmia and that is purely physiological and is a sign of a normal heart. To take up these forms seriatum: Heart block is almost never seen in children. Of Lewis' 42 cases none were under 10 years of age.

Paroxysmal tachycardia occurs at all ages after the first decade. Lewis says that a single instance has been recorded in a child of 6 years. Through the kindness of Dr. W. L. Brown I was able to study the case of a girl in whom the attacks began at 12 years.

None of the 27 cases of auricular flutter observed by Lewis were under 20 years of age.

Premature beats are common in adults. They are of no value in determining the presence of heart disease. Of the 114 cases studied by Lewis only 2 were under 10 years of age. I have recently seen a case in a boy of 7 years sent to me by Dr. Jim Camp of Pecos, Texas. "Pulsus alternans goes with angina pectoris, high blood pressure, and fibrotic myocarditis," and is practically never seen in children.

Auricular fibrillation belongs to mitral stenosis and chronic myocarditis. Hart, in a personal experience of over 300 cases, saw only one under 10 years of age.

One may sum up the subject of the pulse as a diagnostic factor in the heart diseases of children by saying that in those rare cases where it points to cardiac defect the signs at the heart are generally unmistakable; and where the heart presents no abnormal physical signs the irregular pulse is of no significance. In at least 9 cases out of 10 the form of irregularity will be sinus arhythmia, a perfectly innocent physciological state of affairs.

If there is one error that dies hard it is the common belief that a heart murmur means a defective valve. Nothing is further from the truth, especially in the young. Lüthje examined 854 school children and found a functional systolic murmur in 612 (71.6 per cent.). Prof. Ruldolf[13] found functional heart murmurs present in 60 per cent. of the inmates of the surgical wards of the Sick Children's Hospital in Toronto. Hamill and Le Boutillier found accidental murmurs in 66.2 per cent. of 80 school children examined. This is not the place to discuss functional murmurs, but in many children exercise, excitement, or even a hot bath may cause murmurs to appear. The heart readily dilates in children, and in the presence of anemia and debility this may be more marked, causing valvular incompetence from stretching of the mitral ring. Lee Rice[14] of Galveston, Texas, studied functional murmurs in 303 soldiers. After 5 days' rest in bed the murmurs all disappeared except in 22 men. This shows how dangerous it is to reach conclusions from a single examination and how uncertain cardiac murmurs are in their diagnostic value.

I will conclude by setting down a few cautions and reminders:

1. The history is all important in making a diagnosis of heart disease in children. If there is no history of rheumatism in any of its manifestations the chances of making a mistake are greatly increased.

2. Remember that acquired valvular disease is extremely rare during the first three years of life and very uncommon up to the fifth year.

3. Remember that a systolic murmur alone is never sufficient to establish a diagnosis of valvular disease.

4. Remember that the heart of the child is extremely sensitive to vagus influences and the irregular pulse of a child is far more commonly physiological than pathological.

5. Remember that large collections of statistics show the comparative rarity of acquired valvular disease in children, much less than one per cent. of those under 10 years of age. Alarming statistics from hospitals that draw an excessive percentage of heart cases are not to be considered without explanation.

6. Remember that in children pain about the heart, palpitation, shortness of breath, fainting, and the like are generally due to an unstable nervous system and are not due to heart disease.

7. Diastolic murmurs, definite and permanent cardiac enlargement, a heaving apex beat, definite and well-marked thrills, heart block not due to drugs, auricular fibrillation, are reliable findings in making a diagnosis of organic heart disease. These are late symptoms. In children the diagnosis should be that of prospective heart disease so that actual and serious disease may be prevented.

REFERENCES.

1. Gerhardt's Hb. der Kinderkrank, 1878.
2. Report of the Society for the Prevention and Relief of Heart Disease, New York City.
3. MEDICAL RECORD, November 27, 1920.
4. Lowenburg: *Ther. Gaz*, November, 1920.
5. Holt, Text Book Diseases Children, 1906.
6. Griffith's Diseases of Children, Vol. II, p. 142, 1919.
7. Med. Clinics of N. Amer., September, 1920, p. 400.
8. Transactions Amer. Phys., 1914.
9. *British Med. Jour.*, March 2, 1918.
10. *Jour Dental Research*, March, 1920.
11. *Archives of Internal Med.*, October 15, 1920.
12. Harlow Brooks: Med. Clinics of N. A., July, 1920.
13. Sutherland: The Heart in Early Life, p. 85, 1914.
14. *Texas State Journ. Med.*, November, 1920.

401 ROBERTS BANNER BUILDING.

FRIGIDITY AND STERILITY IN THE FEMALE.*

By B. S. TALMEY, M.D.,

NEW YORK.

THE purpose of life is shrouded in deep mystery. The aim of creative evolution is unknown and apparently unknowable. Still, judging by appearances—and our entire knowledge is derived from the world of phenomena—the goal of life is to create new life. Sterile life is life wasted. Only the abnormal, the degenerate desire to remain sterile out of choice. The impulse for the preservation of the race is as imperious as the instinct of the preservation of the individual. Both impulses are interdependent. Without the individual there can be no race, and without a race the individual is unthinkable. The individual must procreate to create a race, and the desire for procreation, in the higher animals, stands in close relation to the impulse of copulation. The impulse for copulation is hence transcendental, the attraction of the sexes is mysterious like the attraction of the magnet to the iron, like life itself, like the universe, like the Creator and His creation.

Copulation is conditioned upon three faculties or potencies, and procreation requires an additional potency. There is necessary (1) the potency of voluptas, or the transcendental desire of the individuals of the two sexes to unite, (2) this union must give the two parties a certain satisfaction or libido. Where libido is lacking, union becomes disgusting and is avoided altogether. (3) There must be the facultas coeundi. If such faculty is missing either through lack of male erection or through the absence of the vagina or other female obstacles, then union is impossible. To these three requirements there is added for procreation another potency, the facultas generandi. There must be present living healthy spermatozoa and normal ova, and the genital tracts of both sexes must be pervious. If one of the four faculties is missing the individuals are suffering from impotence.

Idiopathic impotence of voluptas, except in the very young or in extreme old age and in homosexuality, is exceedingly rare. There is seldom an individual met with who is not more or less attracted by the opposite sex, who is lacking all sexual feelings. Inherited frigidity, or complete sexual indifference towards the other sex, the complete "natura frigida," is very seldom found except in low idiots. Sexual anesthesia is, as a rule, an acquired anomaly. When the gonads are degenerated or removed in early youth, the person is irremediably non-sexed, his attraction to the other sex is decreased to zero.

The second impotency is that of libido. This sexual deficiency is falsely misnamed frigidity. These patients are not frigid or cold at all, on the contrary, their desire for copulation is, as a rule, considerably increased, but they cannot find the desired satisfaction or libido in normal coition. This impotency is quite rare in men, but is quite frequent in women. These women have a great difficulty to experience the orgasm, or the orgasm is never experienced. The patients are thus suffering either from relative or absolute orgasmus retardatus.

The orgasmus retardatus may be real or only apparent. If the husband is suffering from ejaculatio præcox, then naturally the female orgasm will be retarded in relation to her husband's precipitated ejaculation. The real retarded female orgasm is mostly found in women who had practised excessive masturbation in their youth. This practice generally consists in an overstimulation of the clitoris at the expense of the cervix, which is the main participant in the copulative female orgasm. Through long and excessive masturbation the sensitiveness of the clitoris is greatly decreased. The copulating stimulation by the male organ does not suffice to evoke the summa libido. It requires a pulling, squeezing, pressing, or rubbing by stronger organs, such as thighs or hands to furnish the desired satisfaction. Only these organs which are capable to offer continuous stimulation are able to evoke the orgasm, the caducous penis never. Such women only experience fore-pleasure and remain dissatisfied. Never reaching the acme of libido, the patient is constantly avid for repeated union. Frigidity in her case is a misnomer altogether. It should rather be called calidity. She appears to be more passionate than her normal sister. She is lascivious and lustful in her manners. She is constantly on the alert for strong men. To the outsider she appears to be sex-obsessed, an erotic dynamo. Katherine of Medici and her namesake, Katherine of Russia, both suffered from orgasmus retardatus. An entire regiment of her guards could not satisfy the latter. She was sexually deficient. She suffered from the impotency of experiencing libido. Still she was not frigid. She had normal desires.

In the apparent or relative orgasmus retardatus, the woman is perfectly normal and is surely not frigid. The trouble lies with the husband who is suffering from precocious ejaculation, or it is caused by coitus interruptus. Normally the female orgasm appears a moment later than the male ejaculation. In this way the suction of the uterus* facilitates the entrance of the spermatozoa within the cavity of the cervix where they are lodged in an alkaline surrounding and thus secure against the deleterious effect of the acid vaginal contents. It is hence apparent that in coitus interruptus the female will seldom reach the orgastic stage. Scarcely does a day pass without some woman confessing to the writer that she has never reached the acme of libido.

In absolute impotentia of libido, the patients often break the rules of conventional morality. The moral woman who after long experience has found little satisfaction in union will finally become disgusted and try to avoid copulation altogether. In this sense the patient may be said to be frigid. But she only appears frigid; in reality she is calid.

*Read before the Eastern Medical Society, March 11, 1921.

*Three American authors have observed the suction of the uterus during the orgasm: Mundé (*Amer. Journ. Obstetr.*, vol. xvi, p. 846), Beck (*St. Louis Med. and Surg. Journ.*, September, 1872, p. 449), and Talmey (*N. Y. Med. Journ.*, June 23, 1917). Still there are enough doubting Thomases met with in American medical literature who do not believe in this uterine action. If a European professor had published such an observation, no American author would dare question its truth.

Her deficiency lies in the impotency of experiencing libido.

This lack of the female orgasm leads not seldom to the fourth impotency, the impotentia generandi, or to the sterile marriage. Sterility was and still is considered the greatest calamity that can befall the family. The ancients punished barrenness by the dimissal of the wife. They judged by appearances. The female conceives, carries, gives birth, and nourishes the child. Hence where there is no child she is at fault. The Roman law allowed the putting away of the wife for infecundity. Among the Hebrews a divorce was granted to the husband after ten years of childless wedlock. Nowadays we know better. Such a divorce should be granted to the wife and the husband should not be allowed to remarry. For in the great majority of cases it is the husband who is directly or indirectly the cause of sterility.

Idiopathic sterility is a rare occurrence even in the female. Absence of vagina, fetal or rudimentary uterus, absence or imperviousness of the tubes, absence or fibrous degeneration of the ovaries are not met with every day. Even the anomalies causing relative sterility, or a sterility which could be corrected by an operation, are quite rare. Few physicians have often seen an atresia vulvæ, vaginism, rigidity of the hymen, hypertrophy of the rugæ, excessive acid reaction of the vaginal contents, elongation of one lip of the cervix, thus covering apronlike the external os, stenosis of the os or of the cervical canal, polypi of the uterus, or exaggerated uterine deviations. All these anomalies will scarcely form one or two per cent. of the female sterility.

What the average medical man does find in sterile women are all kinds of inflammations, and the latter are seldom her fault. Inflammations of the carunculæ myrtiformes, or of the Bartholinian glands, endocervicitis, endometritis, metritis, perioophoritis, ovaritis, salpingitis, perisalpingitis, perimeteritis, etc., are, as a rule, caused by a gonorrhea of the husband. These inflammations form the main cause of female sterility. All the causes of idiopathic sterility, absolute or relative, are insignificant in frequency compared with male gonorrhea as the cause of sterility in the female.

The prophylaxis of female sterility is hence male abstinence from extramarital relations, especially from meretricious venery. If a generation or two would abstain from any relations with prostitution all venereal diseases would entirely disappear, and with this disappearance 90 per cent. of female sterility would pass from view forever.

The therapy of sterility must aim mainly at the removal of the main causes of sterility, endometritis and pelviperitonitis. These two afflictions are causes of sterility par excellence, and they are just the lesions seldom or never amenable to surgical treatment. Here electricity is almost the only remedial measure promising success. Electricity promotes the nerve tone, increases muscular activity, and quickens circulation. When the current passes through living tissues, the interpolar action of the positive pole, by contracting the capillaries is anodyne, sedative, anticongestive, denutritive, and antihemorrhagic. The interpolar action of the negative pole, by increasing the blood supply, is stimulating, congestive, derivative, and alternative, thus favoring absorption. These physiological qualities make electricity the best remedial agent in the treatment of endometritis, metritis, salpingitis, ovaritis, and pelviperitonitis.

Electric treatment has one serious drawback. The presence of pus must be excluded. Where there is pus, electricity is very dangerous and is strictly contraindicated. It may change a dormant innocuous suppuration into an acute suppurative process. But when, by a perfect diagnosis, pus can be excluded there is no better remedy than electricity in all catarral inflammations within the female pelvis.

Electricity is the remedy par excellence in sterility caused by orgasmus retardatus. The sexual excitement and orgasm of the female are not irrelevant to impregnation, as quite a few medical writers would like to make us believe. Dispareunia and lack of orgasm is not rarely the cause of sterility. Real orgasmus retardatus in the female is almost invariably caused by early masturbation which has permanently weakened the genital nerves. These weakened nerves are greatly benefited by the electric tonic.

Before beginning such electric treatment in orgasmus retardatus, it is necessary to ascertain first whether we are dealing with a true retarded female orgasm or only with an apparent retardation, the result of premature ejaculation in the male. In the latter anomaly, entrance into the vagina is effected with a fairly good erection, but immediately upon the entrance ejaculation takes place and the penis wilts. This ejaculation does not come in jets, and the sperma is rarely deposited at the mouth of the cervix. The premature flaccidity of the male organ accounts for the absence of the female orgasm, and the aspiration of the sperma into the uterine cavity does not take place. The spermatozoa have to rely upon their own motility to reach the uterus. Very often they fail, and the result is sterility. The Talmud knew this centuries ago; it says: "Kol shichvas zera sheano iorah kachez mezehas (Niddah 43a)," "a spermatic emission which does not shoot forth like an arrow can not fertilize." Spermatozoa deposited near the vaginal entrance, inside or outside of the vagina, may under exceptionally favorable conditions effect impregnation. But this will always be a very rare occurrence.

But this sterility is no more sterility in the female. The woman is entirely normal. It is the male who suffers from a kind of impotence. If such a man, suffering from premature ejaculation, be mated to a woman suffering from orgasmus præcox, the orgasm will appear in both mates synchronously, and the couple may be quite prolific. There is a perfect compatibility between such mates, just the same as if a sadist is married to a masochist, the couple may be considered happily married. Compatibility in marriage is always relative, never absolute.

In conclusion let us always bear in mind that of the four impotencies: (1) Impotentia voluptatis, impotence of voluptas, or absence of desire for erotic union, or true frigidity, the natura frigida, as the ancients called the anomaly, is exceedingly rare in men or in women. The transcendental attraction between the sexes is never absent in man

from infancy to old age. (2) Impotentia cœundi, the idiopathic impotence of copulation is also a rare occurrence in either sex. But the pathological or rather acquired impotentia cœundi is the impotence par excellence in the male, while in the female it is exceedingly rare. In acute genital inflammation copulation may be made difficult on account of the pain, but this is not real impotence in the strict sense of the word. If the woman is willing to bear the pains copulation is possible. (3) Impotentia libidinis, the idiopathic impotence of libido where the individual does not derive the least pleasurable feeling from erotic union is very rare. It is sometimes found in men in cases of grave neurasthenia. In women, on the other hand, this anomaly is the impotence par excellence. It is falsely misnamed frigidity; it ought to be calidity. The patients are not cold at all. (4) Impotentia generandi, the idopathic impotence of fertilization or sterility is also rare in either sex. But the acquired impotence of procreation is exceedingly frequent. Half of the sterile marriages are due to azoospermia of the male as a result of gonorrhea, and at least ninety per cent. of the other half, due to the female inability to procreate, is also caused by the infection the wife had received from her husband. It was ignorance which attributed the cause of sterility to the female. It is the husband who is, if not the immediate, at least the remote cause of even female sterility.

155 WEST 118TH STREET.

A REVIEW OF THE BLOOD AND URINE EXAMINATIONS IN 200 CASES OF CHRONIC FOCAL INFECTION OF ORAL ORIGIN.

BY ALBERT M. CRANCE, M.D.,

GENEVA, N. Y.

ACKNOWLEDGING that the subject of focal infection has been written upon to an almost exhaustive extent, there has, however, been little said or written about the effect of chronic infection of this type upon the blood and urine pictures. In reviewing two hundred cases which were definitely classed and diagnosed as focal infection, there has arisen a definite conclusion to be drawn therefrom. A total number of 1,574 cases were reviewed in order to obtain 200 clear-cut focal cases. In such instances where tuberculosis or syphilis might even have been a suspicious factor, they were stricken from the list.

Review of Cases.—One hundred and two were males; ninety-eight were females. 179 of the cases presented definite dental infection, out of which number 118 showed definite apical abscesses, either with or without pyorrhea. Sixty-one of this number showed pyorrhea and rarefaction alone with no apical abscesses.

157 cases showed definite infection in the tonsils. 151 cases presented enlarged submaxillary nodes.

Blood Examination.—The average haemoglobin was 75.8 per cent.

The red-cell count was apparently but slightly affected. Only eleven, or 5½ per cent., of the cases gave a count below four millions.

The white-cell count may be tabulated as follows:

No. of Cases		Percentage of Cases
58 ranged between	6000 and 6800.	29
55 ranged between	5000 and 6000.	27.5
9 ranged between	4000 and 5000.	4.5
3 ranged between	3000 and 4000.	1.5
0 ranged between	2000 and 3000.	0.0
1 ranged between	1000 and 2000.	0.5

In other words 63 per cent. of the cases showed a definite leucopenia.

A differential count was made in nearly all of the cases, but there was found to be very little deviation from the normal. There was apparently nothing of definite interest.

Urine Examination.—The urinary findings are very interesting. One hundred twenty-four, or 62 per cent., of the cases showed a definite albuminuria, out of which 90, or 45 per cent., were in class 1, 23, or 11.5 per cent., in class 2, 5 or 2.5 per cent., in class 3 and, 6 or 3 per cent., in class 4.* Two, or 1 per cent., of the cases gave a positive sugar reaction.

Discussion.—There are apparently two outstanding features in cases of chronic focal infection. One is that the majority show a leucopenia; the other is that a high percentage of the cases present an albuminuria. The fact, that a leucopenia in any given case is an evidence of lowered body resistance, gives rise to an important factor in treatment, whether it be medical or surgical. It seems perfectly obvious that, if certain foci of infection are keeping the body resistance in any way below normal, the foci should be removed before the best results may be expected to be accomplished. The fact that 62 per cent. of the cases showed a definite albuminuria seems to be quite sufficient evidence of the relationship between oral infections and albuminuria. In this paper, the writer does not desire to discuss the treatment of albuminuria, but it may be mentioned that by removing chronic foci of infection in such cases it has been observed that the albumin disappeared in a rather high percentage.

Conclusions.—In this series of 200 clear-cut cases of focal infection, 63 per cent. showed a definite leucopenia and 62 per cent. a definite albuminuria.

410 SOUTH MAIN STREET

DIETETIC TREATMENT OF CANCER.

BY THOMAS J. ALLEN, M.D.,

EUREKA SPRINGS, ARK.

IN a former article on "Food Combination (MEDICAL RECORD, July 2, 1921), I stated the reasons for concluding that the constitutional factor in cancer, its fundamental cause, is variation in feeding. I shall now state briefly the indications for treatment and for prevention drawn from that etiology.

Cancer is a more serious scourge than war, and thus far as difficult to control. But when we consider that the cells of the body have an individual, an independent, as well as a collective existence, it is a wonder that not more than one woman of every eight and one man of every eleven, above 45, now dies of cancer, while the rate increases in all civilized countries.

Cancer is a reversion in cell growth, incited locally by some form of irritation; but it is now generally agreed that there is a constitutional fac-

*Classes 1, 2, 3 and 4 refer to the degree of albuminuria—1 noting a definite small amount of albumin, and 4 an albuminuria of very severe degree.

tor, which establishes a predisposition, and the fact that it is not hereditary nor infectious, and that the liability of occupations, of races and of localities, varies greatly, clearly indicates that the major factor is some habit of living. As explained in the preceding article, the statistics, properly considered, clearly point to "something in the food," as Bertillion concluded, and this seems to be variation.

Harmony in cell growth prevents giantism, and we have abundant evidence to conclude that variation, always imminent, is prevented in the same way—through the secretions. Metchnikoff quotes Arnold in support of his view that defense against cancer is in some way effected by the internal secretions. It is clear from the reasons given in the preceding article how the digestive secretions may be disorganized by variation, and it is reasonable to conclude that the internal secretions are controlled by the digestive, the primary. It would follow, then, that the first step in the treatment should be to restore the balance by proper food; and, since the cancer rate doubles and trebles with increased variation, as shown by the statistics in the preceding article, it follows that it could be materially reduced by reducing variation. This implies a change in fundamental habits, but, improvement in nutrition is followed by an improvement in the relish for simpler, more wholesome food, that well repays the effort.

While I was formerly engaged in the treatment of chronic diseases, I frequently undertook the management of cancer cases; and, from considerable experience, I have concluded that cancer might be reduced as much as we have reduced tuberculosis in the past twelve years, since we gave up looking for a specific "cure," and began to treat it as a disease of faulty nutrition.

The search for a specific germ and a specific "cure" for cancer must prove futile. Parasites may in some instances furnish the local irritation that stimulates the cells to malignant growth when the constitutional condition is favorable, but the fact that cancer is not infectious indicates that there is no specific bacterium.

The same inherent forces that we know to be at work when typhoid fever, for example, has been established, overcoming the invader and providing for defense against it in the future, must be at work in every case of cancer. Occasionally the curative power, the *vis medicatrix naturæ*, prevails, even when hope has been abandoned; and, it is the proper aim of scientific treatment to aid these natural forces. We know how to do this in the case of boils, and, by the way, the invariable success of the yeast and charcoal treatment has emphasized the importance of constitutional treatment in that instance.

It is reasonable to suppose that, immediately the first reversionist cell asserts his amebic power of separate existence, the forces favoring organic organization are arrayed against the renegade. As in tuberculosis, these defensive forces often succeed in restoring the normal condition without our special cooperation; but, in cancer especially, there should be no delay. Experimentation with mice has shown that early removal of the tumor is favorable to recovery, but exclusive local treatment is wholly unwarrantable, and surgery may not always be the best local treatment. The evidence for the variation theory is so strong that proper dietetic treatment should not be neglected.

In the New York Cancer Hospital, in the Battersea, London, hospital, and others, a low protein diet has been used with good results. A diet that excludes flesh materially reduces variation; but the fact that the Eskimo and cannibals are immune and that the Salisbury exclusive beef diet is used with apparent success in the treatment of cancer, and that a few protein diet has been found better than a low protein indicates that an appropriate "few protein" (Bishop) or single protein diet, possibly a flesh diet, in some cases, would be better. An exclusive milk diet has been used with success.

In a case diagnosed carcinoma by several Pittsburgh physicians, I used (with other treatment, of course) a diet of whole wheat bread and milk, with cottage cheese, exclusively for eight months, with permanent success. In another, an extreme case, given up after the subject had been prepared for operation at the Galesburg, Ill., hospital, whole (brown) rice, with raisins, prepared in the fireless cooker (a complete, low-protein diet) was followed for more than a year, the patient recovering slowly and remaining well for nearly four years.

Changes in diet should be made gradually; and now the subject's likes and dislikes should be duly considered. I mention these two cases as illustrating the view that the chief consideration is uniformity of diet, the one using much cheese and milk with whole wheat being a rather high protein, the other quite low, but both proving successful.

Medicolegal Notes.

Erroneous Instruction as to Negligence in X-Ray Case.—The New York Appellate Division holds that it is error to give, in an action against an *x*-ray specialist for injuries to a patient in treatment, an instruction to the jury that the result of the particular treatment (which caused sores) might be regarded as some evidence of negligence, it having been proven that that specific result might come from proper treatment without negligence on the part of the physician in the case of a hypersensitive person, a disposition of the patient which cannot be known in advance of the test of actual treatment and its results.—Antowill v. Friedmann, 188 N. Y. Supp. 777.

Medical Opinion Based on Plaintiff's State of Prior History Held Inadmissible.—In a personal injury case, in which injury to the plaintiff's eyes was one of the alleged results, it was held that reversible error was committed in the examination of the plaintiff's expert witness on the question of whether the condition of plaintiff's eyes, arising from the injury sued for, was permanent. Over the objections of the defendant, the doctor was permitted to state that he learned from the plaintiff the condition of her eyes prior to the injury, but was not allowed to state what he learned. Thereafter the hypothetical question was put by plaintiff to the doctor, and among other things submitted as a basis for his opinion was what the expert had learned from her as to the prior condition of her eyes, couched in these words: "And taking into consideration further what you obtained from the examination of her with reference to her history." This was held error. The court said: "This was a very vital matter. The defendant had evidence tending to show that plaintiff was in an unfavorable condition prior to the injury, and many of the conditions claimed to have arisen from the injury are clearly shown to be conditions which might well exist in a young girl from other causes than the injury, which, according to defendant's evidence, was slight."—Borowski v. Wiles Biscuit Co. (Mo. App.), 229 S. W. 424.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, October 8, 1921.

COMPRESSED AIR IN MEDICINE.

A FEW weeks ago there appeared in the *Lancet* (August 13, 1921), the account of some interesting experiments on cats by H. H. Dale and Leonard Hill, whereby it was shown that these animals cannot be deeply anesthetized by nitrous oxide and oxygen until a certain degree of asphyxiation has been induced.[1] It then occurred to them to try the same mixture—eight parts of nitrous oxide to one part of oxygen—in the compressed air chambers at the Lister Institute. There was no difference in the mode of administration save that the air pressure was raised to about one and a half atmospheres. Deep anesthesia without any deficiency of oxygenation was brought about in this way. The extra half atmosphere of pressure would seem to have been sufficient considerably to increase the partial pressure of nitrous oxide and, at the same time, to bring that of oxygen nearer to that of sea level.

So impressed have the authors of this paper been by the results of their investigations that they recommend an operating room, constructed as a pressure chamber, and provided with an appropriate lock for ingress and egress. In a chamber of this sort they are convinced that deep anesthesia, without asphyxiation and without subsequent symptoms of poisoning may be obtained in the human subject. Mixtures of four, five or six parts of nitrous oxide to one of oxygen could, in their belief, be used in this way.

Apropos of these suggestions it is a matter of both interest and simple justice to recall that the eminent French physiologist, Paul Bert, not only made similar proposals more than forty years ago, but constructed a large pressure chamber, wherein operations were successfully performed on the human subject under mixtures of nitrous oxide and oxygen.[2]

In a paper read before the Academy of Sciences, November 11, 1878, Paul Bert said: "If we suppose the patients placed in an apparatus where the pressure can be raised to the equivalent of two atmospheres, the necessary tension will be secured by respiration of a gaseous mixture containing 50 per cent. of nitrous oxide and 50 per cent. of atmospheric air." We know of at least one physician of this city who, while a student of medicine in Paris, witnessed an operation (amputation of the thumb) performed by the late French surgeon, Péan, under this plan of anesthesia.

The next considerable advance in the use of compressed air in medicine was made by Dr. J. Leonard Corning, whose experiments and observations were suggested to some degree by his study of the pathogenesis of the caisson disease,[3] but likewise not a little by what he was able to glean of the immediate effects of compressed air upon those laboring in it. After referring to the undertakings of Paul Bert with nitrous oxide and oxygen Corning remarks that, "The objects of which I have been in search are quite different from the foregoing, and have reference not to the introduction of the remedy but to the *enhancement* of its effects *after exhibition*. . . . I shall endeavor to show that by far the most useful service derivable from compressed air is found in its ability to enhance and perpetuate the effects of soluble remedies (introduced hypodermically, by the mouth, or otherwise) upon the internal organs, and more especially upon the cerebrospinal axis."[4] This increase, this intensification of effect, is, without doubt, due to the augmented blood pressure within the body and more especially within the craniospinal canal, the increased pressure giving rise here to enhanced exosmosis in the capillaries of the brain and cord. That such increased blood pressure occurs within the internal organs is shown by the increased diuresis commonly observed in those under air pressure. The increase in pulse rate and blood pressure is likewise significant.

Space does not permit a more detailed account of Corning's achievement in this interesting field, nor citation of the numerous cases in which he made use of the principle above enunciated. We may add, however, that one of his recommendations discloses a rather unusual sense of psysiological fitness—that in which he sought further to localize the effects of treatment upon the intracranial organs by moderate instrumental compression of the jugular veins.[5] This expedient he resorted to in the management of certain forms of migraine. The whole question of the use of compressed air in medicine makes a strong appeal; it is matter for regret that the apparatus required is so elaborate and so expensive.

[1] Abstract in THE MEDICAL RECORD, September 17, 1921, p. 517.

[2] See "Artificial Anæsthesia and Anæsthetics." By Henry M. Lyman, William Wood and Co., New York, 1881, pp. 316, 318, and 319.

[3] "Observations on the Caisson or Tunnel Disease," MEDICAL RECORD, May 10, 1890.

[4] "The Use of Compressed Air in Conjunction with Medicinal Solutions in the Treatment of Nervous and Mental Affections," MEDICAL RECORD, August 29, 1891.

[5] "Pain in its Neuro-Pathological, Diagnostic, Medico-Legal and Neuro-Therapeutic Relations." By J. Leonard Corning, M.D., Philadelphia. J. B. Lippincott & Co., 1894, p. 264 *et seq.*

FOOD VALUES.

UNDER the auspices of the Red Cross in Vienna 200,000 unfortunate children are being fed on a diet prescribed on the strict lines of a Teutonic theory, but—and let us be thankful—there are two mitigating circumstances. The first is that the Lister Institute and Medical Research Council of London have sent out Dr. Harriette Chick and Dr. Elsie Dalyell with a competent staff to apply, in alternate wards, newer principles arrived at by English-speaking physiologists. The resulting comparison is expected to send the Teutonic abstract theory to join many other of its predecessors. The second is that only the stubborn commonsense of the public and the coming of peace prevented physiologists from imposing rations based on the same principle on ourselves and the nations who are our friends. Dr. Gowland Hopkins, Professor of Biochemistry in the University of Cambridge, England, told the whole story in his recent Huxley Lecture delivered at Charing Cross Hospital. The human body, like the animal body, requires a diet composed of the substances known as proteins, fats, and carbohydrates. The experience of countless generations has proved that diet, to be healthy, must be varied, must contain fresh as well as prepared or dried substances, and—an all important fact—that individuals differ.

But Rubner, of Munich, elaborating experiments made by many men in other countries, established the proposition that the conservation of energy holds in the human body, and promulgated the non sequitur that if a diet conveyed into the body the proper quantity of energy, the constituents of the diet were a matter of indifference. The idol of the calory came into being and Americans and other benighted races were invited and, strange to say, almost on the verge of being compelled to worship it. Measure the number of calories by burning so much animal or vegetable protein, so much suet or butter or margarine or linseed oil, or sugar or molasses, and you will know the dietetic value of these foodstuffs. Rationing authorities of the army and navy, of all kinds of institutions, and even the International Commission which proposed to distribute the available food supply among the nations, were handed the calorimetric system as the supreme and only necessary criterion.

American and English science has now fortunately come to the rescue of commonsense. Biochemists have justified the natural craving for a varied diet. They have proved the existence of substances known as vitamines and these are in quantities too minute to be detected by calorimetry, but nevertheless are necessary for health. Although protein, fat, and carbohydrate can be measured by calories, they are not equivalents. A minimum of each must be present before the animal organism can take full advantage of the others. The calory theory of food leaves out factors quite as important as the ethers, neglected by those physiologists who pretend to judge liquors by their value in alcohol. When diets are being prescribed and constructed, the energy value, the presence of vitamines, and such admixture as provides the limiting minimum of each chemical constituent, must be taken into consideration and allowed for. Perhaps we may be allowed to venture on a prophecy. Diets constructed even on the most up-to-date principle will not be found to be entirely satisfactory. "One man's meat is another man's poison," and biochemists will have to go quite a bit further in their nice investigation of the chemistry of the body if they are to provide a guide to nutrition more satisfactory than that of a normal appetite combined with an educated palate.

INSUFFICIENCY OF THE LIVER IN GESTATION.

THE subject of hepatic insufficiency received something of a jolt on one occasion when some critic made the statement that experiments along these lines mean only that there is an insufficiency of the organism as a whole, but that any attempts to localize it especially in the liver are ill-founded. However, we can readily qualify assertions of this kind to fit the criticism, the distinction often being verbal rather than material. In *La Presse Médicale*, xxix, 43, 1921, MM. Crainicianu and Poper of Bucharest publish an article on the subject in question. They first refer to a case recently reported in Paris in which a woman seven months gravid was seized with severe symptoms of toxemia of pregnancy which ended fatally with the picture of acidosis. Autopsy showed complete degeneration of the livers of both mother and child, all other organs being intact. In such a case we are justified in speaking of insufficiency of the liver as an end result of some disease, but this apparently has little in common with functional insufficiency, or diminished function due to beginning structural disease, in which conditions we desire to ascertain the functional capacity of the organ.

The authors cite two cases recently reported in Bucharest in which there was fatal insufficiency of the liver after delivery, and which, although death may have been determined by the chloroform given during instrumental delivery, were evidently of gestational origin. The authors appear to believe that these rare fatalities are simply an exaggeration of some process which may be common in a mild form in the gravida as a class; and therefore suggest that we should practise some routine test for hepatic function, either in all gravidæ or in those in which there is reason to suspect incipient toxemia. The choice of a method is most difficult and they enumerate the objections to the tests in common use. They ultimately bring up a reported test proposed recently by Widal and associates, of an induced hemoclastic shock. In the normal subject the liver after a protein meal arrests any incompletely disintegrated protein, but if

the organ is unable to arrest these bodies, their entrance into the systemic blood causes a so-called hemoclasis. Such a test is perhaps the first on record which may be said to apply strictly to the functions of the liver to the exclusion of other organs.

To make a trial of this Widal test the authors studied forty-seven gravidæ who were, so far as could be determined, free from previous disease of the liver. Daily examinations were made of the urine and the digestive leucocytosis. The urinary analyses were for the purpose of determining any disturbance of hepatic functions. The conclusions are given as follows: in 20 per cent. of gravidæ examined during the last month of gestation there was urinary evidence of biliary retention; while in 33 per cent. the digestion leucocytosis was altered in the manner required to speak of hemoclasis. A higher type of the same condition is the simple jaundice of pregnancy and a still higher degree is icterus gravis, the maximum. The presence of the digestive hemoclasis should lead to suitable diet, or if this test is not made the presence of bile in the urine should lead to the same result. Indeed, to be on the safe side, all gravidæ may be placed on the diet for sparing the liver. Chloroform is contraindicated in obstetric operations while ether also attacks the hepatic cell. Hence nitrous oxide-oxygen anesthesia should be the choice.

THE DIAGNOSIS OF NOCTURNAL ENURESIS.

THE etiology of this distressing condition is too frequently overlooked in practice, hence the frequent failure to effect a cure. The first thing to be done is to distinguish between the so-called essential incontinence and symptomatic incontinence, therefore the urinary tract should first of all be explored. Congenital defects, phimosis, and urethral polypi should be looked for, as well as balanoposthitis and urethritis, while the rectum should be explored for hemorrhoids—they occur in children—fissure, rectal prolapse, and oxyuris. The examination of the rhinopharynx should not be neglected nor the spine—Pott's disease—nor the nervous system—myelitis, infantile tabes, etc.

Cystitis is a common cause of incontinence in young children, but the latter is then more likely to be diurnal and is accompanied by pollakiuria and severe pain on micturition. Blood may sometimes be present in the urine, which is usually cloudy or even purulent. Cystoscopy should invariably be practised, while a systematic analysis of the urine for albumin, chlorides, urates, or uric acid should be made, as well as a cytological one for blood or pus, while a search for the colon or tubercle bacillus will frequently be indicated. In cases of suspected renal or vesical tuberculosis animal inoculations and tuberculin injections should be carried out. Vesical or urethral calculi will produce enuresis, but it will then be both diurnal and nocturnal, while much pain will be complained of. Exploration with a metallic sound, a cystoscope, or a urethroscope will remove all doubt. The kidneys should be carefully explored; separation of the urines should be done whenever the least doubt exists as to the diagnosis, since incontinence is symptomatic of the early phase of renal tuberculosis.

The incontinence of epileptics occurs at the end of the paroxysm, is more prone to be nocturnal, and occurs at intervals. Examination of the patient's tongue for bites and great physical fatigue in the morning will reveal the true nature of the enuresis of the previous night. The incontinence of hysteria follows a severe emotion, while psychic treatment may settle any hesitancy as to the diagnosis. Incontinence from overflow is rarely observed excepting in cases of transverse myelitis; it is both diurnal and nocturnal. Incontinence from laziness can be controlled by keeping the child up late for several nights in succession, or the threat of punishment will have a like effect. Simulators are more difficult to detect. They must be closely observed, but in children the promise of punishment will usually put a stop to the enuresis. Simulation is rare in children and is more apt to be met with in adolescents, especially in soldiers. It must not be forgotten that enuresis may occur during convalescence from severe illness; it is then nocturnal and will be cured by proper feeding and tonics.

The examination should be completed by a careful exploration of the vesical and urethral sensibility, the contractile value of the vesical motor system and the other sphincters; finally, the state of the central nervous system should be examined into, as well as the family history in this respect. It is therefore clear that a complete examination —both medical and urological—should invariably be made in cases of enuresis in order to obtain an exact notion of the diagnosis of the cause of the affection before undertaking any form of treatment.

PLURALITY OF RABIES VIRUS.

FROM several sources of recent date have proceeded accounts of a double rabies virus. One of these was from Italy (Puntoni) and another report is a continuation of work begun half a score of years ago by Bouffard at the Pasteur Institute. This author relates (*Annali d'Igiene*) that in French West Africa a form of canine rabies is endemic which is not transmissible to man. The afflicted dogs present the paralytic form of rabies. There is an alteration of "personality" in these animals which causes them to be known as "mad," but not in the sense of being dangerous to man. The "mad" dogs bite, but of many men known to have been bitten not one has been known to develop hydrophobia. Researches on these dogs have been pursued by a number of French investigators, and no doubt occurs that the disease in question is rabies. The virus has been inoculated with positive results into various kinds of small laboratory animal—rabbits, cats, and dogs, and the animals convey the disease to their fellows by biting. An

immunity of the native African is not responsible for the absence of the disease in man, because the Senegalese have frequently exhibited ordinary rabies after mad dog bites. There is clearly a second virus which may or may not represent an attenuation of the first. There is not the slightest evidence of such attenuation and it is no less likely that the second virus, as suggested from Puntoni's experience, is a mutation of the original.

Spontaneous Syphilis (?) in the Rabbits

In case it is definitely proven that the rabbit is subject to an autonomous syphilis of the same nature as human syphilis, this discovery will be one of the most astonishing on record. It would be the irony of fate that science had selected the rabbit as an experimental animal for the study of human syphilis and had obtained a great deal of curious information without once having suspected that the same animal is itself subject to the disease. There seems to be no doubt that the rabbit suffers from a spirochetosis which is transmitted by coitus and that the disease bears a strong resemblance to experimental rabbit syphilis; further the spirocheta of the natural disease is morphologically identical with *Treponema pallidum*. This information comes from Scherejewsky, who, we believe, was the first to cultivate the latter organism. An abstract in the columns of *La Presse Médicale* for September 3, 1921, xxix, 71, contains the sensational information that a woman with recent syphilis and a positive Wassermann claimed to have been infected by a pet rabbit which had some eruption. The medical men who reported the case examined the rabbit and found lesions of the prepuce and anus which contained spirochetes which they assumed to be treponemata. There were four rabbits in the household of which three were females, one of the latter being intact, while the others presented lesions at the vaginal entrance and had a history of recent abortion. Other rabbits who mixed with the first lot became infected. The question arises, did the rabbits infect the woman or did the woman infect the rabbits? While not wishing to impugn unjustly the veracity of the author's patent, we nevertheless must regard the latter sequence as the more probable.

News of the Week.

The American Public Health Association announces that its fiftieth annual meeting will be the occasion of a Health Fortnight, extending from November 8-19. The celebration will include three main divisions: A Health Institute, November 8-11; a Health Exposition, the largest affair of its kind ever held in New York, November 14-19, and the fiftieth annual meeting of the American Public Health Association, November 14-19. To focus the attention of the general public upon this celebration, November 13 will be observed as Health Sunday in many churches, and the week will be marked by numerous business and social organizations. Speakers prepared to talk authoritatively on health topics will be furnished on request to any of these organizations. The New York Chapter of the American Red Cross is cooperating with the general committee in arrangement for this service. As a permanent souvenir of the semicentennial and as a record of the work accomplished, a Jubilee Historical Volume, entitled, "Fifty Years of Public Health," will be ready for distribution during the Health Fortnight. Further information regarding the semicentennial may be obtained from the American Public Health Association, 370 Seventh Avenue, New York City.

Cholera in Russia and the Near East.—The latest information concerning the cholera situation in Russia, laid before Dr. Rupert Blue, who recently arrived in Riga, in connection with his general investigation of the health conditions of emigrants likely to be bound from Europe to the United States, indicates that the cholera epidemic in Russia is on the decline. The situation is not so encouraging in that part of Armenia which was the scene of war between the Turks and Armenians last winter. Here a population of 500,000 homeless and facing famine are falling an easy prey to the disease.

Child Health Work in Austria.—The new medical program of the American Red Cross, which went into effective operation on July 1, has given a new impetus to Austrian child health work. The Red Cross has taken over one hundred child health stations which were about to close for lack of funds, and has guaranteed financial support for a period of one year. Forty-one of these child health stations are located in Vienna. These will continue under the direct control of the respective organizations that have been administering them, with supervision by the American Red Cross. Because of lack of trained workers, it was decided to establish a short practical course in the care of infants and young children with lectures on social subjects. All nurses in charge of centers are required to take this course and the examinations which follow its completion. At the present rate of Austrian exchange the cost of operation for each station is considerably less than $1000 per year.

Plans for Scientific Research Among the Eskimos.—The School of Hygiene of Johns Hopkins University is preparing plans for an expedition into a region hitherto unvisited by white people for the purpose of studying problems of dietetics, nutrition, and sex among the Eskimos. Dr. Victor E. Levine of the Creighton School of Medicine, Omaha, Neb., was sent during the early part of September with a small party from Battle Harbor into the Eskimo country for the purpose of making a preliminary survey, particularly with regard to climate. It is because the Eskimos are said to be the healthiest people in the world that the expedition is going to study their habits and customs in the hope of getting some light on health problems.

Better Supervision of United States Hospitals Needed.—Director Forbes of the War Veterans' Bureau has completed an inspection of all the principal Government hospitals in the United States. He is convinced that more rigid supervision of the hospitals is essential in the interest of disabled former service men, who are not getting a maximum of attention and treatment. Director Forbes claims that his survey disclosed that probably 60 per cent. of the number of former service men being treated in the hospitals established and maintained by the Government since the close of the

war are ambulatory patients, and are not in need of hospital beds. He finds that a heavy percentage of them have minor ailments.

Reception at the Lutheran Hospital.—The new extension of the Lutheran Hospital of Manhattan, situated at Convent Avenue and 144th Street, will be open for inspection to the members of the medical profession on Thursday afternoon, October 13, 1921, from 2 to 6 P. M.

Hospital Notes.—A campaign to raise $1,000,000 for the Greater Bikur Cholim Hospital, Brooklyn, has been started. Dr. George I. Miller is acting as chairman of the building fund committee.

The Harrisburg Hospital, Harrisburg, Pa., is endeavoring to raise a $900,000 building fund with which to provide hospital facilities to meet the growing demands of that city.

Plans have been formulated for the new Memorial Hospital to be erected at a cost of from $50,000 to $100,000 at Ventnor, near Atlantic City, N. J.

The contract has been awarded for the remodeling of Ward I of the Boston City Hospital, at an estimated cost of $15,000.

Plans have been completed for the erection of a $175,000 hospital for Leominster, Mass. Construction work will be begun immediately.

Health Week in Montclair.—The present week beginning October 3 has been set aside as Health Promotion Week in Montclair, N. J. Circus tents are being used for exhibits, lectures and entertainments. Twenty-three organizations are cooperating to make the project a success.

New York Death Rate Cut Again.—The record for the lowest death rate made by New York City during the week ending September 17 last was passed in the week ending September 24. The mortality rate for the latter week was 8.70, as compared with 8.77 for the preceding week. According to the records of the Health Department the death rate from January 1 to September 24 was but 11.40 for each 1000 inhabitants. If this rate should continue for the remainder of the year it will be the lowest annual death rate recorded since complete vital statistics for the city were instituted.

Serbian Physicians Visit United States.—A commission of three Serbian physicians, Dr. Georges J. Nikolitch, representing the Serbian Ministry of Health, and Dr. Georges Joannovitch and Dr. Radenko Stankovic, representing the Medical School of the University of Belgrade, have arrived in New York to study public health administration, medical education and hospital organization as guests of the Rockefeller Foundation. They expect to visit many cities in the United States and Canada for the purpose of gaining information which will aid in the promotion of public health programs and the development of medical education in Serbia.

The Eye Sight Conservation Council of America has been incorporated with headquarters in the Times Building, New York. The objects of the organization are to promote the general conservation and betterment of vision by arousing public interest to a proper appreciation of eye hygiene, especially in so far as it pertains to defective vision and protection in hazardous occupations; by circulating information on the proper lighting of homes, schools, factories, and all private and public buildings; by striving to bring about universal eye examination of industrial workers and school children, and also by urging the importance of periodical eye examinations for every one; developing and improving optical aids for the alleviation of visual troubles; compiling reliable data, publishing and circulating literature pertaining to eye care, and cooperating with all existing agencies concerned in any degree with the movement for better vision. Any person interested in the purpose of the organization is eligible to membership. L. W. Wallace of Washington, D. C., president of the American Society of Industrial Engineers, is president, and Dr. Cassius D. Wescott of Chicago, Ill., is vice-president.

College of Physicians and Surgeons of Columbia University Opens.—At the opening exercises of the College of Physicians and Surgeons on September 28, President Nicholas Murray Butler outlined plans for the upbuilding of the $15,000,000 medical center made possible by a permanent alliance between Columbia University and the Presbyterian Hospital and which begins a new era in medical education. Dr. Walter W. Palmer, who has succeeded Dr. Warfield T. Longcope as Bard professor of the practice of medicine, delivered the main address on "The Trend and Scope of Modern Medical Education." He referred to the controversies arising from the establishment of clinical branches on a university basis, and expressed the belief that this trend of medical education is in the right direction. Dr. Palmer closed with a prediction that new methods of obtaining degrees would result. "The time is coming when the better medical schools will so adjust their curricula as to make it possible for students to pursue their studies in such a manner that they may be enabled to present themselves for a degree when they themselves feel prepared. More latitude in moving from school to school will be possible. In this way the fundamental training so essential to good medicine will be better and more general. The wide variation in the several abilities of students will be met by this adjustment. The submerged will be given more time to emerge or left to their fate, and greater honors will come to honor men."

Gifts and Bequests.—The will of Mrs. Bertha Achelis makes bequests of $25,000 to the Lenox Hill Hospital, New York, and $5000 to the Monmouth Memorial Hospital, Spring Lake, N. J.

Bequests of $10,000 each are made under the will of Mrs. Mary Galvin Reynolds to the Seton Hospital, Spuyten Duyvil; Columbus Hospital, New York City; the Society for the Relief of Incurable Cancer, Hawthorne, N. Y., and St. Joseph's Hospital, Bronx.

Dr. Howard Fox has removed his office to 114 East Fifty-fourth Street, New York City.

Dr. Russell F. Maddren of Brooklyn, N. Y., recently sailed for China to occupy the chair of ophthalmology in the Yale Medical School at Changsha in the Province of Hunan.

Dr. W. Estell Lee of Philadelphia has been appointed a member of the Pennsylvania State Board of Medical Education and Licensure to succeed Dr. John M. Baldy, recently appointed Commissioner of Welfare. Dr. W. M. Hillegas of Philadelphia has also been appointed a member of the board.

Dr. E. B. Jermyn of Scranton has been reap-

pointed trustee of the Fairview (Pa.) State Hospital.

Dr. William F. Kuhn of Kansas City, Mo., was elected grand high priest of the general grand chapter of the Royal Arch Masons of the United States at its thirty-eighth triennial convocation held recently in Asheville, N. C.

Dr. F. S. White of Terrell has been appointed superintendent of the State Hospital for the Insane at Wichita Falls, Texas.

Dr. Harry M. Archer, Honorary Department Chief of the New York Fire Department, was recently presented with a gold watch and chain, a replica of his fire badge, and an embossed testimonial script in recognition of his surgical and medical work in the interest of the men in the department.

Vaccination Ordered for All Residents of Santiago de Chile.—The Chilean Government has ordered the immediate vaccination by the Army Medical Corps, the Red Cross assisting, of all residents of Santiago, because of the alarming increase of smallpox. It is estimated that there are more than 1500 cases in the city, with 700 in the pest house. The death rate is said to be low. The disease is reported to be on the increase in the interior towns, while at Valparaiso an average of seven new cases is reported daily. The railway companies have been instructed to refuse transportation to persons who cannot present vaccination certificates.

Shriners Plan Hospitals.—At a meeting of the Hospital Committee of the Imperial Council of the Shrine in St. Louis, Mo., September 25, authority was given to launch a campaign to raise $8,000,000 for hospitals. It is planned to erect a central hospital in St. Louis, to cost approximately $1,000,000, with subsidiary hospitals in San Francisco, Shreveport, La.; Portland, Ore.; Minneapolis or St. Paul, and Montreal, Canada.

Sanatorium Burns.—The Hilbourne Club, a sanatorium conducted by Dr. S. T. Armstrong near Katonah, N. Y., was totally destroyed by fire on September 26. The damage is estimated at $60,000.

Medical Society Elections.—The New England Surgical Society, at its fourth annual meeting held in Worcester, Mass., September 22, 1921, elected the following officers for the ensuing year: *President*, Dr. Charles A. Porter, Boston; *Vice-President*, Dr. Herbert L. Smith, Nashua, N. H.; *Secretary*, Dr. Philemon E. Truesdale, Fall River, Mass.; *Treasurer*, Dr. Peter P. Johnson, Beverly, Mass.

The Second Councillor Medical District Society of Ohio, at its annual meeting held in Dayton, September 19-23, 1921, elected the following officers for the ensuing year: *President*, Dr. C. I. Stephen, Ansonia; *Secretary*, Dr. D. B. Conklin, Dayton; *Treasurer*, Dr. H. C. Haning, Dayton.

Obituary Notes.—Dr. Sidney Wallace Dodge of Massena, N. Y., a graduate of the University of Vermont Medical College in 1875, died after a lingering illness on September 22, at the age of seventy-six years.

Dr. Matthew H. Cryer, formerly of Philadelphia, Pa., died at Lansdowne, Pa., on August 12, at the age of eighty-two years. He was graduated from the University of Pennsylvania School of Medicine in 1877. He was for many years professor of oral surgery in his alma mater, subsequently becoming emeritus professor. He was a member of the American Medical Association, the Medical Society Pennsylvania, and the Philadelphhia County Medical Society.

Dr. Timothy O'Rouke, a graduate of the Medico-Chirurgical College, Philadelphia, in 1911, where, for five years he was chief resident physician, died at his home in Philadelphia on September 6, at the age of thirty-six years.

Dr. Eliza O'Brien, a graduate of the Independent Medical College, New York, died in Utica, N. Y., on September 11, at the age of seventy-nine years. She formerly directed sanatoriums in Leadville, Salida and Denver, Col.

Dr. Flavius J. Groner of Grand Rapids, Mich., a graduate of the University of Michigan Medical School in 1880, died on September 14, at the age of seventy-two years.

Dr. Marian A. Dale of Mount Vernon, N. Y., a graduate of the New York Medical College and Hospital for Women in 1884, died on September 17, at the age of seventy-two years.

Dr. Charles B. Hopkins of Kansas City, Mo., died in Los Angeles, Cal., on September 13, from the effects of having been gassed in the World War. He was a graduate of Rush Medical College in 1900, and was a captain in the Army Medical Corps, taking part in the Argonne and St. Mihiel actions. Dr. Hopkins was forty-five years of age.

Dr. Ivan F. Siekmann of New Orleans, a graduate of Tulane University School of Medicine in 1892, died on September 10, at the age of fifty-nine years.

Dr. John W. Warren of Snyder, Texas, a graduate of the Kentucky School of Medicine in 1891, died on September 8, at the age of sixty-four years.

Dr. James A. Stafford of Newcastle, Ind., died as the result of a stroke of apoplexy on September 12, at the age of eighty-one years. He was a graduate of the Physio-Medical Institute, Cincinnati, in 1867.

Dr. Thomas Chalmers Johnson of Florence, S. C., died from heart disease on September 17, at the age of forty-three years. He was graduated from the Medical College of the State of South Carolina in 1904.

Dr. Robert H. Mason of Rochester, N. Y., a graduate of McGill University School of Medicine and Surgery in 1896, died September 23, at the age of fifty-two years. He was a member of the staff of the Park Avenue Hospital.

Dr. Sarah Perry of Rochester, N. Y., a graduate of the University of Buffalo Department of Medicine in 1882, died on September 9, at the age of seventy-four years.

Dr. William J. Conklin of Beacon, N. Y., a graduate of New York University Medical College in 1870, died of heart disease on September 27, at the age of seventy-five years.

Dr. Charles H. Smith, a graduate of Hahnemann Hospital and Medical College, Philadelphia, in 1876, died at his home in that city on September 20, at the age of sixty-seven years.

Dr. Thomas J. Battle, a graduate of Bellevue Hospital Medical College in 1897, died at his home in New York on September 28, at the age of fifty years.

Correspondence.

BACTERICIDAL ACTION OF HEAT IN GONORRHEA.

To the Editor of the Medical Record:

Sir:—Apropos to the extract in the Medical Record from the *Wiener klinische Wochenschrift* and the letter of Dr. P. H. Anderson in the Medical Record of July 30, the following two cases corroborate the assertion that fevers destroy the gonococcus.

Case I.—A medical friend called to see me on July 13, 1920; he was in a very excited state, for he had seen some viscid pus about the meatus urinarius; he remembered that for a few days previously, he had felt some burning on urination, and he had also observed that his underclothes were soiled for the few preceding days. On examination, the meatus was seen to be red and angry-looking with a purulent discharge; a specimen was sent to a bacteriologist who found gonococci in abundance. He treated himself with all sorts of injections and internal medication with no perceptible amelioration. On the 25th of the same month, he came down with a fever; his temperature was 38° C.; the case was diagnosed as dengue; on the following day the temperature rose to 39° C. I gave him antipyrin and aconite in combination; on July 27 the temperature fell to normal. With the subsidence of the fever, the gonorrhea was found to be cured.

Case II.—On April 26, 1921, I. K. presented himself for treatment; he suffered severe burning on urination; there was an abundant purulent discharge from the urethra; the meatus was red and inflamed; on milking the urethra, pus flowed out in plenty; the pus was sticky and of a greyish yellow tint; his temperature was 37° C.; the bacteriological examination confirmed the diagnosis of gonorrhea. The discharge did not abate in spite of the permanganate and other injections. On the 30th of the same month, the man came down with fever, the temperature being 39° C. From the symptomatology, the course of the disease, and the bacteriological examination of the blood, relapsing fever was diagnosed. In addition to the treatment of the second disease which lasted till the 23d of last May, injections of potassium permanganate were continued till May 2, 1921, when the gonorrhea was cured; since then the relapsing fever has never reappeared.

From the cases mentioned in the Medical Record and from my two cases (surely the cure of the last case was not due to the permanganate injections), one is bound to conclude that fevers destroy the gonococcus. Whether this killing of the gonococcus is solely due to the heat accompanying the fever or to the toxin generated by another microbe, is difficult to determine at this juncture; more research and time are required; probably both agents cooperate, with the toxin playing the preponderant part. However, it is well worth the trouble to try artificial heat locally in the treatment of gonorrhea; the applied heat should not be lower than 39° C. (102.2° F.).

H. T. M. K. Rahmet Bey, M.D.

141, Rue Abbas, Cairo, Egypt.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, September 15, 1921.

Meeting of the British Association in Edinburgh.—The meeting of the British Association for the Advancement of Science opened in Edinburgh on Sept. 7, last, under the presidency of Sir Edward Thorpe. This was the eighty-ninth annual meeting of the association, which had not met in Edinburgh for a period of twenty-nine years. There were many questions of a medical scientific interest dealt with.

Vocational Training and Tests.—On Sept. 8, when the real work of the Congress commenced, vocational training and tests was one of the most important subjects to which attention was directed at a joint meeting of the Economic, Psychological, and Educational Sections. Dr. C. W. Kimmins, who introduced the subject before a large audience, spoke of the number of children who, on leaving school, found themselves in occupations for which they were unsuitable. The state of affairs in this respect in London was really tragic. Children drifted from one kind of work to another, and in many cases boys of great promise became van boys. Since psychologists had taken an important part in the investigation of children it was noticed that a great change had been brought about. The intelligence test to a certain extent was being used in connection with the transference of children from one class to another in the elementary and, in some cases, the secondary schools. That was a very important matter because it gave them a much better knowledge of the child. In an East-end of London school, where the old conditions were absolutely unfavorable, there was a singularly able headmistress, who had made a close study of intelligence tests and, on receiving children from the infants' department up to the senior departments, tested each child to find out what its natural ability was. She had previously had the record of its educational achievements from the infants' school, and, using this as a basis of classification, the whole aspect of the school had changed, and had now entered the scholarship-winning list without placing any burden upon the child in the form of extra work. This change had been brought about by arranging a system by which it could be shown what a child was best fitted for on leaving school. They were looking forward to the time in London when they would have a record in regard to every school child, so that they should be able to avoid so many of the misfits that were now to be seen. Mr. D. Kennedy Fraser, Scottish Education Department, expressed his belief that vocational training would play an important part in any properly organized system of education. He mentioned that in the United States Army during the war about 45,000 recruits, or one man in forty, did not surpass the normal level of a normal child of ten years. He suggested that all children should be given some form of general intelligence test and be classified into normal, bright, and backward, and that the backward should receive a vocational education in which they might be successful later on.

Autosuggestion in Shell-shock.—On Sept. 9, in the Section of Psychology, psychoanalysis and suggestion were discussed by Dr. W. Brown of London. He remarked that a very large number of symptoms of shell-shock could be explained in terms of bad autosuggestion. For instance, a patient lost his voice under the influence of emotional strain and became mute, or, again, a patient lost the power of walking. In one case a soldier was guarding a munition dump when it was blown up by a bomb from an aeroplane. He ran away in a state of intense fear, felt that the muscles of his leg refused to act, and fell down. The idea crossed his mind that he was paralyzed; consequently he became really paralyzed. The symptom had been produced by bad autosuggestion. The cure was to suggest to him and persuade him that he could walk. Such cases, when so treated in their early stages, were permanently cured. There were patients going about paralyzed who should have been cured years ago.

The Instinct of Acquisition.—On Sept. 12, in the Section of Psychology, Dr. W. H. R. Rivers of Cambridge read a paper on this subject. He said, in part, that it had become widely recognized that the behavior of mankind was determined, to some extent, by inborn factors or tendencies, and it was accepted equally widely that it was only very rarely that human behavior was purely instinctive. He pointed to the evidence of instinct in birds and animals, and, coming to man, he said that the leading feature of many forms of insanity was an impulse to collect, apparently with little or no regard to the nature or value of the objects collected. As for the question how far acquisition by the individual could be held to have an instinctive basis, it was possible that different branches of mankind might have been separated for a sufficiently long period to have undergone development on different lines and become endowed with different instincts, but it was far more probable that the instinctive equipment of all the human species was alike and that any differences were due to the different degrees in which the common instinct had suffered modification in the individual as the result of tradition and social environment.

The Sense of Humor in School Children.—On Sept. 13, in the same section, Dr. C. W. Kimmins of London, who has carried out recently an investigation of the sense of humor in school children, gave some of the results of his inquiries. Doctor Kimmins said that among the many interesting facts deduced from his investigations he noticed the extraordinary appeal of Charlie Chaplin to young children. The reason for that was because there was not only continual movement and change of action, but also that Chaplin was breaking all social conventions and doing the very things that children were forbidden to do. Doctor Kimmins went on to explain that his object in carrying out an investigation was to discover the measure of the material which, at different ages, caused amusement and provoked laughter. As to the chief causes of laughter, experts were not in agreement. Bergson maintained that the comic was that side of a person which revealed his likeness to a thing and conveyed the impression of pure mechanism. The corrective was laughter. Absent-mindedness he described as one of the great watersheds of laughter, and said it was the part of laughter to reprove absent-mindedness. Freud in his "Wit and the Unconscious" had elaborated the idea of pleasure being derived from the economy of psychic expenditure. Word pleasure and pleasure in nonsense, Freud said, were a relief from critical reasoning. Man was an untiring pleasure-seeker. Under the influence of alcohol a man became a child again and was freed from logical inhibition. Sidis held that laughter never came from economy, but from superabundance of energy. Another authority declared that laughter bound us to the childhood of the race. There was no difference of opinion as to the physiological value of laughter. Doctor Kimmins said that cases of puns perpetrated by children under seven years of age were rare, while many of the reported stories were due to misunderstanding of the words used. As an illustration he quoted the classic instance reported by Sir Joshua Fitch, who asked some small children to write the Lord's Prayer and afterward came across such mistakes as "Harold be Thy name," "Lead us not into Thames Station." The records of children of nine years of age showed a very great change. Boys and girls at this period were particularly interested in funny stories and jokes; riddles and play upon words maintained their position at that age, but the popularity of the misfortunes of others as a source of merriment was ceasing to exist and soon disappeared entirely. At ten years of age children were very keen on books of jokes and comic papers. The affairs of the classroom were found to afford suitable material for the gratification of the sense of humor. The period between eleven and thirteen years of age appeared to mark quite clearly the parting of the ways, and a sense of humor seemed to disappear entirely. The funny story was of a far more personal nature, the element of superiority ran riot, and children delighted in extravagant stories of stupidity concerned with adults. Stories involving a smart but often rude retort appealed at this age, and to illustrate this point the speaker mentioned the teacher who told a small boy that when Lloyd George was at his age he was head of the school, to which the boy replied that when Lloyd George was the teacher's age he was Prime Minister. In the period from fourteen to fifteen years of age it was more difficult to generalize. There appeared to be, however, very clear evidence that the revival of humor at thirteen, in the case of girls, and fourteen, in the case of boys, was well maintained. Doctor Kimmins concluded by saying that the opinion was held by many educators that it was possible to increase the sense of humor in the ordinary intelligent child, and experiments had been carried out which, it was claimed, had been crowned with success. The subject was worthy of further investigation. A keen sense of humor was a valuable possession and added much to the joy of life. Laughter was a great relaxation from the conventions of every-day life, and if the springs of laughter were pure they should be encouraged.

The Psychological Treatment of the Delinquent

Child.—In the same section, on the same day, Dr. A. R. Abelson, London, advanced reasons for the psychological treatment of the delinquent child. He said there was an accumulating amount of reliable evidence that wrongdoing was largely bound up with morbid conditions of health. The method of dealing with the delinquent child in Great Britain, though much improved, was far from satisfactory. Was it really necessary, he asked to degrade a child first in order to reform him? Many a child looked upon his incarceration in an institution as a malignant stain on his soul which could never be effaced and would go down with him to the grave. Some of these children had high ideals, but there was always to be found in such cases a severe mental conflict, which could only be satisfactorily removed by psychological analysis. There was frequently associated endocrine disturbance, and much could be done in some cases by associating remedial measures with psychological treatment. It was time we seriously realized that we were dealing, in the large majority of cases, with a pathological condition which, like all pathological conditions, required adequate treatment. He ventured to assert that delinquency in cases where there were no gross mental abnormalities was curable, and this was more than could be said for a large number of generally accepted medical diseases; yet the erring childhood up to the present time received most inadequate attention from the treatment point of view. Prof. C. S. Sherrington, president of the Royal Society, has been appointed president of next year's meeting of the British Association, to be held at Hull. More than 2,500 members attended the meeting this year. This eclipses last year's total of 1,400 at Cardiff, but is by no means a record, for at Birmingham, in the eighties, nearly 4,000 registered.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 22, 1921, clxxxv, 12.

1. Nomographic Charts for the Calculation of the Metabolic Rate by the Gasometer Method. Walter M. Boothby and Raymond B. Sandiford.
2. The Hospital as a Diagnostic Center. Ernest L. Hunt.
3. The Resident Surgeon and the Hospital. Donald S. Adams.
4. Extrapleural Resection and Plastic of the Thoracic Esophagus. An Original Method. Report of a Successful Case Without Gastrostomy. Howard Lilienthal.

1. Nomographic Charts for the Calculation of the Metabolic Rate by the Gasometer Method.—Walter M. Boothby and Raymond B. Sandiford state that for the estimation of the basal metabolic rate there are only two types of apparatus, the accuracy of which has been sufficiently controlled up to the present time by scientific experimentation to justify their consideration for clinical work. These are the Benedict closed-circuit system, and the open-circuit system, known as the Tissot or the gasometer method. Either type of apparatus, when properly constructed and properly run, will give accurate results. For the past four years the writers have been using the gasometer method for various reasons which they discuss in detail. While not wishing to minimize the difficulty of gas analysis, they believe that these have been magnified and do not outweigh the advantages of the gasometer method. The tables for the calculation of the metabolic rate which Boothby and Sandiford have published have been condensed without loss of accuracy, so that the metabolic rate can be calculated by a graphic method in less than five minutes. An abridged logarithmic factor table for reducing gas volumes to standard temperature and dry pressure is also included, so that, if preferred, the calculation may be carried out first by logarithms and the result checked by the graphic charts. For this purpose a "calculation form" adapted for rapid checking of each step of the mathematical calculation by the charts is arranged. The method of construction of these charts is given in order to aid those who may desire to construct similar charts to solve a frequently used equation in their own work. The writers again emphasize, as they have many times before, that the basal metabolic rate will fall into great discredit and the entire question of variation in the rates in various diseases be utterly confused by careless and improper technique in their determination.

New York Medical Journal.

September 21, 1921, cxiv, 6.

1. Pseudotabetics and Their Reeducational Treatment. Pierre Kouindjy.
2. Protein Sensitization with Special Reference to Bronchial Asthma, Hay Fever, and Eczema. Maximilian A. Ramirez.
3. Protein Desensitization from the Point of View of the General Practitioner. J. Francis Ward.
4. Pollen Protein Intoxication in Nonseasonal Bronchial Asthma. Alexander Sterling.
5. Endobronchial Treatment of Bronchial Asthma and Asthmatic Bronchitis. Mark J. Gottlieb.
6. Pollinosis or Hay Fever. Ben Clarke Gile.
7. A Few Meteorotelluric Observations. George N. Jack.
8. Causes of Internal Hemorrhoids. Charles J. Drueck.
9. Acute Appendicitis in Inguinal Hernia. Arthur Wildman.
10. Combined Right Inguinal Hernia Appendix Operation. Harry Cohen.
11. Strangulated Inguinal Hernia Reduced en Bloc. Marshall W. Dyer.
12. An Unusual Body in the Rectum. John F. W. Meagher.
13. Traumatic Abdomen. Frank W. McGuire.
14. Abdominal Contraction Method of Diagnosis. L. Winfield Kohn.
15. Certain Infectious Diseases Which Are Interesting the Medical Profession at the Present Time. John Randolph Graham.
16. Crime and the Drug Habit. James A. Hamilton.

1. Pseudotabetics and Their Reeducational Treatment.—Pierre Kouindjy states that psuedotabes is not as rare as has been assumed. It may be due to a number of different causes, such as intoxication, infection, and overwork; it may also have a syphilitic origin. The symptoms recall those of true tabes dorsalis. In spite of this, pseudotabes is a pathological entity easily distinguished from true tabes on account of its etiology and, especially, of its course. Pseudotabes is characterized by its tendency to complete cure, by tenderness on pressure of muscles, by the absence of the Argyll-Robertson pupil, by the different topographical distribution of anesthesias "which here diminish from the distal end toward the root of the limb, whereas in tabes they always show a radicular distribution." The pains in pseudotabes differ in character from the lightning pains of true tabes. They seldom occur in the form of true crises, and often they are only of short duration. Two causes are necessary for the production of pseudotabes: (1) The true etiological cause, such as intoxication or infection, and (2) the predisposing cause—the psychic condition of the patient. Pseudotabetics are above all neurotics. This fact serves to explain the rapid development of the illness as well as the complete cure and the disappearance of symptoms. The treatment of election of pseudotabes must comprise treatment of the etiological cause and also symptomatic treatment. Physiotherapeutic treatment occupies a prominent place in the second instance. Reeducation of movements forms the pivot of the kinetic treatment of pseudotabes, being calculated to combat at the same time both the motor disturbances of progression and the psychic state of pseudotabetics.

5. Endobronchial Treatment of Bronchial Asthma and Asthmatic Bronchitis.—Mark J. Gottlieb claims that endobronchial treatment is the most valuable procedure that we have at our disposal for treating cases of asthmatic bronchitis and bronchial asthma, where elimination of the allergic substances and vaccine therapy, combined with other measures suggested, have failed to produce the results desired. Astringents, such as silver nitrate and tannic acid, have not only the property of temporarily dilating the lumen of the bronchial tree, but also, when applied often enough, say weekly, have the effect of rendering the mucous membrane less susceptible to infection. Factors usually not considered

in the etiology of bronchial asthma, which are important, are susceptibility of the bronchial mucous membrane to reinfection, habit, and psychology of the patient. Vaccines of the predominating organisms found in the sputum or nasal discharge are of value, especially in those cases in which the individual is sensitive to autogenous suspensions of these, with the exception of *Bacillus influenzæ*. Vaccines of *B. influenzæ* in the writer's cases had not the slightest effect in ameliorating the symptoms.

7. **A Few Meteorotelluric Observations.**—From a study of 1184 cases of summer autumnal coryza and asthma extending over a period of twenty-five years, George N. Jack concludes that heat, or a temperature above 86° Fahr., in an arid atmosphere does not as a rule cause heat retention hemolytic crises, or heat prostration, owing to the rapid elimination of end metabolic products through perspiration and evaporation. Heat, or a temperature above 86°, in a humid atmosphere or humidity above 70°, often results in heat retention hemolytic crises, as heat prostration, sunstroke, and dropsy, and when a spell of weather of this character is followed chilly, humid, dewey, ground gas accumulating, blood disintegrating nights with a temperature below 60° or between 34° and 60°, then after the blood disintegrates it dumps its disintegrated material through an exudative process that results in summer autumnal coryza, asthma, eczema, cholera infantum, cholera morbus, dysentery, or vomiting, according to the line of least resistance.

14. **Abdominal Contraction Method of Diagnosis.**—L. Winfield Kohn does not claim that this method which he describes is altogether adequate. He says that the *x*-ray and other studies give more definite information, yet for a simple method, easily induced with no discomfort to the patient, it is productive of information that is often of value. The method is based upon the principle of increased intraabdominal tension, and the pressure is directed in a downward direction. The patient is instructed while in the recumbent position to take a deep breath and then bear down upon the abdomen while holding the breath. As a result the diaphragm is prevented from moving upward by the closure of the glottis and the abdominal muscles are contracted down while the muscles of the perineum are relaxed, in consequence of which the visceral organs of the pelvis are forced downward. During this act the stomach and bowels assume a more anterior as well as lower position in the abdomen and are, therefore, more accessible for study. Inspection, percussion, auscultation, deep pressure, and other palpatory methods, may be practised while the abdomen is thus contracted. This method will serve to demonstrate weakness in the abdominal wall, such as ventral and inguinal hernias, diastasis recti, general abdominal loss of tone, and similar conditions. Visceroptosis will appear more clearly defined in many patients, especially fat people, who do not ordinarily show this condition. A ptotic kidney or liver that was impossible of palpation through other means may be revealed by this method. Abdominovaginal or abdominorectal palpation during the application of this method will also facilitate the examination of the Fallopian tubes, ovaries, and uterus. In acute diseases of the abdomen, where muscle rigidity over the diseased organ has already established itself, this superadded contraction effort seems to aggravate the existent tenderness or pain.

Journal of the American Medical Association.

September 24, 1921, lxxvii, 13.

1. The Teaching of Gastro-enterology and Proctology. Louis I. Hirschman.
2. Pneumoperitoneum as Aid in the Roentgenologic Diagnosis of Lesions of Urinary Tract. L. R. Sante.
3. Sclerosing Nonsuppurative Osteomyelitis as Described by Garré: Report of a Case, with Roentgenographic and Pathologic Findings and Review of the Literature. S. Fosdick Jones.
4. A New Roentgen-Ray Sign of Ulcerating Gastric Cancer Russell D. Carman.
5. Diaphragmatic Hernia: Its Clinical Aspects from Trauma in Children. F. E. Truesdale.
6. Cancer of the Rectum. Jerome M. Lynch.
7. Night Blindness and the Malingering of Night Blindness. Henry Smith.
8. Squint: When Shall We Operate? A. S. Green and L. D. Green.
9. Myasthenia Gravis: Report of Three Cases. William Campbell Posey.
10. Cultures, Smears and Guinea-Pig Inoculations in Diagnosis of Renal Tuberculosis: Their Value and Reliability. Abraham Hyman and Lewis T. Mann.
11. Therapeutic Value of Chaulmoogra Oil and Its Derivatives in Experimental Tuberculosis. Carl Voegtlin, M. I. Smith and J. M. Johnson.
12. The Gram Stain in the Diagnosis of Chronic Gonorrhea. Victor Burke.

4. **A New Roentgen-Ray Sign of Ulcerating Gastric Cancer.**—Russell D. Carman, while admitting that an attempt at roentgenological differential diagnosis of those benign and malignant ulcers which cannot be distinguished macroscopically seems futile, says there are well-defined ulcerating gastric cancers which are probably malignant from the beginning. The pathologist is able to recognize them as carcinomas grossly by their elevated irregular overhanging margins; their ragged floors covered with mucilaginous exudate, and their tendency not to perforate although they may involve the serosa. The roentgenologic appearance of this type of malignant ulcer is so definite that it may be considered pathognomonic. Fluoroscopic examination is essential for the routine demonstration of this lesion. The details of examination and the appearance of the ulcer vary slightly, depending on the site of the lesion. When the ulcer is on the vertical portion of the lesser curvature, approximation of the walls of the stomach by palpation causes a dark, slightly crescentic shadow of the barium-filled crater to appear on the screen. In these situations the convexity of the crescent is toward the gastric wall and the concavity toward the gastric lumen. If the ulcer saddles the lesser curvature distal to the incisura angularis of a fishhook stomach a meniscus is similarly revealed by palpation, but in this instance the base of the ulcer follows the bending line of the curvature and the concavity of the meniscus is toward the gastric wall. When the ulcer is on the posterior wall, well away from the curvature, thinning the barium by stroking pressure with the hand reveals the crater as a somewhat circular, dark shadow surrounded by a lighter zone. If the ulcer is on the posterior wall and its crater can be demonstrated in the anteroposterior view, but no niche can be seen in the oblique view, one may believe he is dealing with this particular type of malignant ulcer. In fact, the absence of a classic projecting niche is one of its principal differentiating characteristics. Another differential point between this type of malignant ulcer and a simple ulcer is that in the former the barium is dislodged from the crater with difficulty, while in the latter the barium is easily emptied because it has no overhanging margins. The findings described are limited to malignant ulcers ranging from 3 to 8 cm. or more in diameter, with relatively deep craters.

8. **Squint: When Shall We Operate?**—A. S. Green and L. D. Green call attention to the lack of specific indications for operation in squint such as are given for glaucoma or cataract in text-books and other medical literature. According to their observations, based on a careful study of 260 private cases, less than 25 per cent. of squinting eyes that come to the ophthalmologist are improved by nonsurgical methods. Thus over 75 per cent. of these patients are left to be corrected by operation or the alternative of going for the rest of their lives with the deformity. The small proportion of patients amenable to nonoperative means is no doubt due to the fact that less than 50 per cent. of the patients were under eight years of age. Great harm has undoubtedly resulted from the advice so frequently given by physicians to parents to wait until puberty to see whether the child will outgrow the squint. When the nonoperative treatment is to be instituted it must be begun before the age of eight or before commencing school if any degree of success is expected. Two hundred and thirty-five answers to a questionnaire sent to ophthalmologists leads to the conclusion that few ophthalmologists have a well-defined procedure for handling a case of squint, and that there is a general tendency to delay operation later than is advisable. It is of vital importance that the family physician and the public be impressed with the necessity that the child have early attention. Operation should be performed in all cases in which there is no reduction in the squint under complete cycloplegia, irrespective of the age of the patient.

10. Cultures Smears and Guinea-Pig Inoculations in Diagnosis of Renal Tuberculosis.—Abraham Hyman and Lewis T. Mann, on the basis of their observations and experimental work, assert that the presence of tubercle bacilli in the catheterized bladder or ureteral specimen of urine does not necessarily imply a renal tuberculosis. Tubercle bacilli may be present in catheterized ureteral specimens under three conditions: (1) When there is a tuberculous focus in some part of the body and the bacilli are excreted from a non-tuberculous kidney; (2) when there is a tuberculous focus in the genital or urinary tract by contamination or by ureteral reflux, and (3) when the tuberculosis is in the upper urinary tract or kidney. Kidneys the seat of disease other than tuberculosis (stone, tumor, nephritis) more readily allow the passage of tubercle bacilli than normal organs. In summing up the relative advantages and disadvantages of the smear versus guinea-pig inoculation, the writers have found the smear a simple and rapid procedure, which gave them positive results in 65 per cent. of the cases, and for these reasons was of greater value than inoculations. The guinea-pig test is so time consuming as to render it impracticable as a routine procedure. The diagnosis in this series was in most instances made on a careful study of the clinical symptoms, cystoscopy, and smear examinations. Animal inoculation should be resorted to when the smear proves negative, and when there is a question as to the involvement of the opposite kidney. Occasionally the pig will pick up an unsuspected case of renal tuberculosis which could not have been detected by other means.

11. Therapeutic Value of Chaulmoogra Oil and Its Derivatives in Experimental Tuberculosis.—Carl Voegtlin, M. I. Smith, and J. M. Johnson report an exhaustive experimental test of the value of chaulmoogra oil and its derivatives in various stages of experimental tuberculosis in the guinea-pig. They are not able to show that the treatment had any favorable action whatsoever. The mortality curves of the animals treated are somewhat more steep than of those untreated, which may possibly indicate that the treatment had a deleterious effect. An iodine preparation was used because Jobling and Peterson have shown that iodine has an inhibiting effect on the antiproteolytic ferments in the blood, and it was thought that through its indirect action it might render the tubercle bacilli in the lesions more accessible to the drug, and in one group the animals were treated with ethyl esters before and after infection. Even this intensive treatment had no effect on the course of the disease.

12. The Gram Stain in the Diagnosis of Chronic Gonorrhea.—Victor Burke finds that the addition of sodium bicarbonate increases the value of the Gram stain as an aid in the diagnosis of chronic gonoccal infection. It does this in two ways: (*a*) It results in a heavier concentration of the violet dye remaining in the Gram-positive organisms. (*b*) It causes some of the Gram-positive organisms which would otherwise appear negative to retain the violet dye. The addition of lactic acid interferes with the Gram reaction. The sodium bicarbonate probably affects the Gram reaction by increasing the penetration and concentration of the dye within the cell rather than by any action on the cell wall or the molecules of the dye-iodin precipitate. The effect of sodium bicarbonate and lactic acid on the Gram stain suggests that some of the difficulty experienced in making a satisfactory Gram stain on smears from the genitourinary tract is due to the presence of acid in the secretion.

The Lancet.

September 3, 1921, cci, 5114.

1. Two Addresses on the Importance of Industrial Medicine to the Community. I. Edgar Leigh Collis. II. Kenneth Goadby.
2. The After-effects of Epidemic Encephalitis in Children. Donald Paterson and J. C. Spence.
3. Effect of Culture Media upon Agglutination of Meningococci. I. Walker Hall and G. E. Tilsley.
4. Protista and Disease: A Preliminary Note. J. Jackson Clarke.
5. The Value of the Complement Fixation Test in Tuberculosis. A Report to the Medical Research Council from the Institute of Pathology and Research, St. Mary's Hospital. A. Lisle Punch.
6. Development of Medical Science in Vienna. Max Neuburger.

2. The After-Effects of Epidemic Encephalitis in Children.—Donald Paterson and J. C. Spence have observed the after effects of epidemic encephalitis in twenty-five children between the ages of three months and eleven years. They believe that we may expect to find various degrees of permanent disability in many of the patients who have had this disease, which may affect either the mental or the physical condition. In this series of cases only one-fourth made a complete recovery. The mortality rate in this disease in children is low; 1 in 25 in the present series. The results of the mental changes following encephalitis in childhood may vary from complete idiocy to slight mental deficiency. They may also show themselves as affections of the character and habits of the child. The physical changes following encephalitis in childhood include spastic diplegia, hemiplegia, symptomatic paralysis agitans, muscular rigidity, and tremors. The younger the child at the onset of the disease, and the longer the acute stage of the illness, the greater will be the degree of mental deficiency which follows it. The severity of the initial attack of encephalitis appears to be in direct proportion to the after-results which follow it. This suggests that could some means of treatment be found which would limit the progress of the disease or shorten its course, the results would not be as drastic as they now are.

3. Effect of Culture Media upon Agglutination of Meningococci.—I. Walker Hall and G. E. Tilsley summarize their experimental work concerning the growth of meningococci in various media, in which the technique was modeled as far as possible upon the criteria demanded by Tulloch, as follows: (1) Variations in culture media are associated with changes in the agglutinability of organisms. Individual strains of meningococci when grown on nut nasgar media become more agglutinable than when they are grown on legumen agar, with or without the addition of blood. This observation may be a possible explanation of some of the "inagglutinable" strains of various bacteria. (2) The agglutinogenic substance in meningococci shows also a relation to the content of nutrient media. It is more active in coccal emulsions prepared from nut nasgar media than those obtained from legumen media. This may have a bearing upon the production of antiserums. (3) Emulsions of meningococci in normal saline made with freshly distilled water heated to 65° C. for 20 minutes, standardized numerically, and then preserved with 0.5 per cent. phenol, have remained unchanged as to numbers, and sterile for five years. At the end of this period the agglutinability and agglutinogenetic capacity persist practically unaltered.

5. The Value of the Complement Fixation Test in Tuberculosis.—A. Lisle Punch has tested 185 bloods in the laboratories of the Institute of Pathology and Research at St. Mary's Hospital, according to the method published in *The Lancet* of September, 1920. The results in this series are strictly comparable to those obtained in the series previously published, and the conclusions drawn from the previous results are confirmed by the present series, namely: (1) That in the complement-fixation test we have a reliable means for the diagnosis of an active tuberculous lesion (pulmonary). The pulmonary form only is dealt with in this paper. (2) That a negative result is as reliable indication of the absence of such a lesion as a positive is of its presence. The writer has had similar results in another series of 450 cases at the Brompton Hospital, which are still unpublished.

Bulletin of the Johns Hopkins Hospital.

August, 1921, xxxii, 3661.

1. Chronic Meningococcus Septicemia. A Report of Two Cases. Hugh H. Morgan.
2. Pernicious Anemia. A Clinical Study of One Hundred and Fifty Consecutive Cases with Special Reference to Gastric Anacidity. Samuel A. Levine and William S. Ladd.
3. Gland Puncture as a Diagnostic Measure. C. G. Guthrie.
4. Present Views on Anaphylaxis. Jules Bordet.

2. Pernicious Anemia. A Clinical Study of One Hundred and Fifty Cases with Special Reference to Gastric

Anacidity.—Samuel A. Levine and William S. Ladd found among their 150 cases of pernicious anemia seven in which the subsequent course of the disease indicated that the diagnosis was wrong or, at least, threw considerable doubt on its correctness. The gastric secretion in the fasting contents and after an Ewald test breakfast was analyzed in 107 of the 143 cases of pernicious anemia. Analyses were made repeatedly on the same patient when the blood condition was low and when it was normal, and some analyses extended over many years. In only three cases was hydrochloric acid found at any time in the gastric secretion, and in two of these cases the diagnosis of pernicious anemia was questioned. These figures then show a persistent anacidity in 99 per cent. of cases of pernicious anemia. Pepsin was tested for a small number of cases and was always found lacking. The evidence goes to show that the changes in the gastric secretion occur very early in the disease, often years before the blood picture develops, and that once established they are never altered by the remissions so characteristic of the disease. The presence of free hydrochloric acid in a suspected case of pernicious anemia is important evidence against this diagnosis. In five patients who showed varying amounts of free hydrochloric acid in the gastric secretion, operation, post-mortem examination, or subsequent findings practically ruled out pernicious anemia. Its absence should suggest pernicious anemia as a probable diagnosis worthy of consideration. A distinct familial incidence was discovered in studying these 143 cases. In nine patients there was a definite family history of pernicious anemia in some other member of the family. In two others there was a history of death from an unknown type of anemia. Forty-one had a family history of tuberculosis or cancer or of both, and as these diseases are easily confused with pernicious anemia, these figures may well include cases of anemia. There are racial discrepancies in the incidence of this disease. The figures studied would indicate that pernicious anemia is less frequent in the Italians, Russian Jews, and immigrants from Eastern Europe, than in Americans, Canadians, or immigrants from Ireland, England, Sweden, or Denmark. Syphilis apparently bore no relation to the development or course of pernicious anemia in this series. The presence of eosinophilia is a common finding in pernicious anemia. Of the 143 patients, 54 showed 5 per cent. or more at one time or another. Even a very high eosinophilia—25 per cent. or more—is not incompatible with the disease. In 76.9 per cent. of the cases the blood smear might be called typical of pernicious anemia, in 18.2 per cent. it was suggestive, and in 4.9 per cent. it was atypical or within normal limits. This is in striking contrast with the more constant finding of anacidity. Of 127 patients in whom the appearance of the tongue was described, in 63.8 per cent. it was typically smooth and atrophic, in 19.7 per cent. it was suggestive, and in 16.5 per cent. its appearance was about normal. The proportion of males to females in this series was as two to three. The average age of all patients of both sexes was about 51 years.

3. **Gland Puncture as a Diagnostic Measure.**—C. G. Guthrie states that although a valuable aid in diagnosis gland puncture has thus far been used only for the recognition of various etiological agents of disease, bacteria, protozoa, and filariæ. It seemed possible to the writer that the method might be applied to the study of other conditions by the recovery of cellular material for microscopical examination. For the puncture a 2 c.c. Record syringe is used, equipped with a 21-gauge needle, 5 cm. in length. The point of the needle has a sharp bevel and is sharpened each time just before sterilization. Under aseptic precautions the needle is inserted well into the gland. The syringe and needle are then rotated about their longitudinal axis and the plunger is drawn out to 1 c.c. to create suction. The needle is then slowly withdrawn, negative pressure being maintained throughout. Thus far this method of diagnosis has been applied in cases of syphilis, tuberculosis, Hodgkin's disease, acute and chronic lymphoid leucemia, acute and chronic myeloid leucemia, simple adenitis, and in one instance each of trypanosomiasis and of metastasis of malignant disease. A positive diagnosis dependent upon the recovery of the etiological agent was possible in a number of cases. The results obtained from the study of cellular material aspirated from glands is of particular interest. In Hodgkin's disease it has been possible to make a definite diagnosis in all of the cases examined thus far. The presence of eosinophiles, large endothelial cells, and the peculiar multinucleated giant cells gives a characteristic and usually unmistakable picture. In the cases of leucemia the gland picture has, to a remarkable degree, reflected the blood picture. It is possible that if the blood were in an aleucemic stage and recognition of the disease consequently more difficult puncture of a gland might yield information of considerable value in arriving at a diagnosis. In simple adenitis the picture is one of lymphoid hyperplasia, as is evidenced by the presence of large numbers of lymphoid cells in various stages of maturity, plus the presence of polymorphonuclear neutrophile leucocytes. The advantages of the method are the following: (1) Rapidity; not infrequently a definite diagnosis may be made in ten or fifteen minutes. (2) Thin preparations like blood films are secured, suitable for the application of a blood stain or special stains for cells, bacteria, or protozoa, and permitting the use of an oil immersion lens in their study. (3) The procedure is practically painless to the patient and leaves no scar. (4) It does not interfere with subsequent excision and histological study of the gland. The limitations of the method are that from a fibrotic gland very little cellular material may be recovered, sometimes not enough to enable one to make a diagnosis; the cellular picture obtained is necessarily that from a very limited area of the gland; the architecture of the gland is not shown as a rule, although occasionally a small bit of the gland is removed intact in the course of the puncture.

La Presse Médicale.

August 27, 1921, xxix, 69.

Mode of Origin of Pneumonia.—Marie first discusses the prevalent view of aerial transmission by germs from subjects or carriers, which organisms use the mouth as a sort of reservoir in which virulence is enhanced. The germ then travels along the air passages to the lobes of the lungs, and sets up a local general infection. Contending beliefs have it that the pneumococcus affects the lungs after intestinal absorption and by other extra-aerial routes. Generally speaking, there are the aerial and hematogenic theories with the intermediate view that the germ may gain the blood through the air passages without reference to the production of local lesions. According to this latter view, the initial lesions in the lungs may escape clinical observation at times. Some of these centrally located lobar pneumonias are brought to light by radioscopy. Positive hemoculture may also coexist with absence of positive clinical finds. According to the hematogenous theory the local alterations would be secondary, at least in a fraction of cases. Secondary pneumonia as a complication of a bacteriemia is a very common occurrence. The mere find of bacteriemia does not necessarily mean that the germs are virulent or that they produce the phenomenon of lobar pneumonia. The opposed views overlap to such an extent that experiment ought to be of crucial importance. It must be confessed that experiment favors the aerial theory to the extent that the insufflation of the germs into the bronchi seems to be able to set up the disease. If they are introduced into the nasopharynx and upper passages in general pneumonia does not develop. Once the germs are within the trachea and bronchi bacteriemia soon follows. As far as experimental pneumonia is concerned the local manifestations are primary, the blood state secondary. Conversely when virulent pneumococci are injected parenterally the animals die of sepsis without the formation of pulmonary lesions.

Failure of Anticocaine Legislation in Paris.—Courtois-Suffit and Giroux announce that the present laws against the sale of cocaine are ineffective. These went into effect in 1916, but immediately after the armistice the drug began to cross the German frontier and from 1916-20 the convictions became threefold more numerous.—*Le Bulletin Médical.*

Book Reviews.

INJURIES AND DISEASES OF THE BONES AND JOINTS—THEIR DIFFERENTIAL DIAGNOSIS BY MEANS OF THE ROENTGEN RAYS. By FREDERICK H. BAETJER, M.D., Associate Professor of Roentgenology, Johns Hopkins University; Roentgenologist, Johns Hopkins Hospital, and CHARLES A. WATERS, M.D., Instructor in Roentgenology, Johns Hopkins University; Assistant Roentgenologist, Johns Hopkins Hospital. Illustrated with 332 roentgenograms and one line drawing. New York: Paul B. Hoeber, 1921.

BAETJER and Waters present in their introductory chapter a basic concept of *x*-ray pathology in which they state that the correctness of a diagnosis depends entirely upon the skill with which the various shadows projected upon the photographic plate are separated and interpreted; and that the correct interpretation is dependent upon not only the appearance of the normal structures but also upon the alterations that follow when pathology is present. Immediately follows a consideration of normal bones in which the several structures are analyzed and divided into periosteum, cortex, medullary canal, nutrient foramen, cartilage, joints, and the effect of sex and growth on the appearance of these structures. In the next chapter the epiphyses are especially studied, this portion of the bone playing an important part in growth and being easily affected by injury and disease.

Chapters IV to VI deal with fractures of the upper and lower extremities, under which topics the elements affecting fracture, such as muscular tension, age, sex, occupation, etc., are critically discussed.

Chapters VI and VII are devoted respectively to the consideration of congenital and acquired dislocations. Bone infections, particularly osteomyelitis, are next considered. This is followed by a review of joint lesions in children and in adults.

Chapter XI presents an excellent discussion of bone tumors in which a basis of classification is presented according to the origin, whether medullary or cortical; the presence or absence of bone production; the condition of the cortex, whether destroyed or expanded but intact; and, finally, the question of invasion. An excellent dictum is expounded: "Never make a diagnosis of tumor because it looks like something that has been seen before." It may be added that this postulate applies not only to the diagnosis of bone tumors but also to *x*-ray diagnosis in general.

A chapter is devoted to lesions of the spine; one to various abnormalities such as extra ribs, rudimentary vertebræ, etc.; and, finally, a chapter on dystrophies including Paget's disease, acromegaly, osteomalacia, and several bone and cartilaginous imperfections.

It is assumed that the roentgenologist is already familiar with *x*-ray technique; this granted, Baetjer and Waters' volume presents a remarkably lucid explanation of pathologic changes involving injuries and diseases of bones and joints. The illustrations are many and excellent.

THE PRINCIPLES OF IMMUNOLOGY. By HOWARD T. KARSNER, M.D., Professor of Pathology, Western Reserve University, Cleveland, and ENRIQUE E. ECKER, PH.D., Instructor in Immunology, Western Reserve University, Cleveland. Containing 309 pages and 20 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

THE study of immunity has offered many opportunities for research and for observation. In recent years a vast amount of writings have accumulated, some confirming previously reported observations, others purporting denial of explanations of observed phenomena, and still others advancing presumably new facts. So that a book on immunology is, after all, primarily a compilation; and its value depends as much upon the careful selection of the subjects presented as it does on the manner in which they are presented. The authors expound the principles of immunology through a sequence that is at once logical and direct. They consider first the virulence of organisms. This is followed by a brief discussion of the general conditions of infection and resistance. Then the general phenomena of immunity are reviewed, discussing the various types and the nature of immunity. Chapter IV is devoted to toxins and antitoxins. Chapter V to agglutinins and precipitins. In this chapter the Moss and other classifications of isohemagglutinins are outlined.

Chapter VI deals with cytolysins, which lead naturally to a discussion of cellular resistance and this, in turn, to the fundamental theory of complement fixation and the application of complement fixation in the serum diagnosis of syphilis, tuberculosis, gonococcal infection and less common tests such as the complement fixation for glanders, smallpox and echinococcus cyst. Under the general heading of hypersusceptibility the topic of anaphylaxis is discussed, considering especially sensitization, various clinical phenomena of the reaction, passive anaphylaxis and the relation of anaphylaxis to immunity. This is followed by the study of serum disease and natural hypersusceptibility, the latter more especially in connection with the technique of cutaneous tests for the identification of the presence of toxins in hay fever.

There are three valuable appendices; first, one on therapeutic employment of blood serum; secondly, prophylactic vaccination; and the third, on vaccine therapy. This book is in every way practical, and, considering the extensiveness of the subject of immunology, encompasses in the smallest space what clear exposition of fundamental principles will permit.

THE CROONIAN LECTURES ON THE PSYCHOLOGY OF THE SPECIAL SENSES AND THEIR FUNCTIONAL DISORDERS. Delivered before the Royal College of Physicians in June, 1920. By ARTHUR F. HURST, M.A., M.D., Oxon, F.R.C.P., Physician and Neurologist to Guy's Hospital. New York: Oxford University Press, American Branch, 1920.

THESE lectures published complete now in book form appeared soon after their delivery in shortened form in the *Lancet*. Beginning with a talk on the nature of hysteria, the reader is carried through cutaneous sensibility and cutaneous anesthesia, pathogenesis of hysterical cutaneous anesthesia, sensibility and reflexes of mucous membranes, cutaneous hyperesthesia, hearing, listening, and hysterical deafness, hysterical hyperacusis, then seeing, looking, and hysterical blindness. While the book covers little more than 120 pages, it adds a very decided quota to the sum total of the knowledge of the abnormal side, as well as of the normal, of the behavior of the special senses under certain given conditions. To students of the new psychology this particular aspect of this field is presented in a concise, clear, and thoroughly enjoyable manner. Of course the style is delightful and the illustrations all that could be desired.

LES EXTRAITS HYPOPHYSAIRES EN OBSTÉTRIQUE ET EN GYNÉCOLOGIE. Par le Dr. LÉON POULIOT. Prix 5 francs. Paris: L'Expansion Scientifique Française, 1921.

THIS little volume is one of a series termed "L'Actualité Obstétricale et Gynécologique." Of the 96 pages, about 20 are used for a bibliography. An introduction is followed by a long chapter on the obstetrical use of the extracts and short ones devoted respectively to the gynecological and surgical uses. In the obstetrical chapter, there are nine subsections, on the normal physiological action, action in inducing labor, oxytoxic properties, action of the extract in puerperal hemorrhage, action in surgical accouchement, accidents and contraindications, indications, technique of exhibition and use of synergists.

UEBER DAS SCHICKSAL DER KRIEGSBLINDEN UND IHRE VERSORGUNG, ETC. Von Dr. Med. KURT UHTOFF. Preis 9.50 Mark. Halle a. S.: Carl Marhold, 1921.

THIS brochure of over 100 pages belongs to the "Sammlung swangloser Abhandlungen aus dem Gebiete der Augenheilkunde" and is devoted principally to the blind of Silesia. Among the 15 chapters some are devoted to such subjects as blind men's dogs, marriage of the blind, choice of residence, sources of income, etc. The greater portion of the book is devoted to the preferred occupations of the blind, some of which are old, while others are comparatively recent. Among the latter may be mentioned telephone operation and the manufacture of cloth shoes, the same being an industry developed as a result of the war. In addition to the stock occupations of the blind are also discussed music and teaching, the latter being adapted to those already educated along these lines.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 17, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE program of the evening was arranged in cooperation with the Section on Otology.

Progressive Systemic Deafness as an Endocrine Syndrome.—Dr. JAMES G. CALLISON made this presentation, in which he first stated that, according to present teaching, patients with progressive deafness and tinnitus were placed in one of three categories namely, chronic catarrhal otitis media, otosclerosis, and nerve deafness. In each case there seemed little justification for creating separate entities for the conditions. Attributing them to a systemic disturbance based on a pluriglandular dyscrasia correlated the symptoms in a rational way, making their etiology definite and concrete, and placed their treatment on a physiological basis. The systemic evidence of this pluriglandular dysfunction accompanying progressive deafness, whether in a casual relation or not, was present in all the tissues and organs of the body. This included the blood and vascular system, the skin and its appendages, the digestive tract, the nervous system, and the genitourinary system. In many instances the changes in other parts of the body were more marked than in the ears themselves. The general aspect of these patients was that of age. This might be in actual years or they might be aged beyond their years. The hair was gray beyond their years, was dry, lusterless, and might be falling out. The skin was wrinkled, dry, and chapped easily. The eyes were dull and expressionless. The glandular secretions generally, so far as could be observed, were disturbed and less abundant. These patients were overdressed for warmth, even in summer time, and stood winter weather badly. Mentally they were apathetic and lacked interest. They were rarely in a hurry, fatigued easily, and slept badly, and yet might be drowsy during the day, especially after a heavy meal. Constipation was nearly always complained of, and in women there were mental disturbances. Generally their energy was at a low ebb. The cardiovascular system lacked tone. The blood pressure varied, but was inclined to be low in uncomplicated cases. The pulse pressure varied and was not constant. Occasionally the blood pressure was high at the menopause period. Arteriosclerosis did not seem to be present in many of the patients treated for progressive systemic deafness. In these deaf patients the teeth were nearly always decayed. There was often an increase of both calcium and phosphorus in the urine, which undoubtedly indicated changes in the temporal bone and possibly in other bones of the body. There was likewise no doubt that the ligaments underwent certain changes resulting in a lack of tone in the ear as well as throughout the body. These patients came to the otologists complaining of progressive deafness and head noises, one or both. There was no constant quantitative relation between these two symptoms. Summing up the findings in these cases, it might be said that the local speculum examination helped but little in making a diagnosis. The functional examination of the ear gave more light on the condition, and yet the picture was inconstant. The symptoms, the changes in bone and air conduction and nerve reception were too well known to require discussion. There was one point, however, not sufficiently stressed, and that was the qualitative failure of sounds to register in the higher cerebral centers. The sound registering apparatus was interfered with rather than the noise perception apparatus. The three periods of life at which progressive deafness most commonly had its onset were puberty, adolescence, and the menopause, and to this might be added the oncoming of actual old age, and in some instances pregnancy. In discussing the glandular involvement in connection with progressive systemic deafness, Dr. Callison stated that it was not possible in the present state of our knowledge to say with any certainty which of the glands of internal secretion were the ones involved in progessive systemic deafness; it was possible, however, to mention some of the glands that were responsible for this syndrome. These included (1) that group of glands involved in the control of calcium and phosphorus metabolism; (2) those glands concerned with the control of oxidations in the body. The most important of these was the thyroid gland and next in importance were the sex glands and the suprarenals. After discussing the rôle of these glands the question of heredity was considered. It had been quite well established that what was commonly called heredity played a part in the etiology of progressive deafness, and it seemed entirely possible for a tendency to a weak or subnormal glandular system to be transmitted by true inheritance and this undoubtedly did occur. However, the great mass of socalled inheritance must be credited to intrauterine acquirement, due to the fact that the mother did not have sufficient of the gland substance to supply her own needs and those of the fetus. On the basis of thyroid deficiency and sex gland loss the pathology and symptoms of local ear conditions could be explained. The pathology of minor thyroid dyscrasia was essentially that of the socalled cellular infiltration. Suboxidation more accurately described the condition present. The pathology of gonadal deficiency was that of a mild fatty degeneration, with bone changes that were undoubted but not well understood. Combining these results into a coherent picture one found infiltration and cell crowding and mild myxedematous and fatty degeneration. As a result there was poor circulation with further depression of metabolism. With this there were changes in the phosphorus and calcium metabolism, due to the faulty action of the glands. In addition there was increased cellularity in the vascular and Haversian spaces of the bone. Later in the stage of atrophy there might be absorption and contraction of the cellular elements and a condition of osteoporosis supervened. These changes were applicable to the structures of the ear, including the nerve tissues. In the treatment of patients with progressive systemic deafness, inflation was to be wholly condemned. The drum membrane, the ligaments of the ossicles, and the middle ear muscles were already below normal as to their tone, and inflation reduced the tone they had left. In the treatment of progressive systemic deafness, foci of infection in the teeth, tonsils, or elsewhere, must be removed, inasmuch as these infections threw an increased load of detoxication on the glands of internal secretion and rendered their action less efficient. To obtain the best results endocrine treatment must be instituted at the earliest possible moment, since a time would come when degenerative changes had reached such a stage that regeneration and restoration of function were not possible. In the application of endocrine therapy to the relief of deafness there was no routine treatment. Such treatment should only be undertaken after a study of the principles of treatment and physiology from the standpoint of the glands of internal secretion, and there must be individualization in each patient treated. With these reservations, the writer stated that he had treated many patients with Harrower's adrenospermin compound, this being applied to the socalled thyroid type of patients. If the patient was suffering from both pituitary and thyroid symptoms, then he began with Burrows and Wellcome's mixed gland No. I or II, as the case might be. With functional high blood pressure, as in postmenopausal conditions, the situation became more complicated. Here there was an overactivity of the adrenals with a depression of the sex gland function. The result was that the adrenals lacked control. For the relief of high blood pressure a number of endocrines had proved useful, and among these sex gland substance was most important in the cases under discussion. If the blood pressure was normal or high, the treatment would consist of a combination of thyroid and sex gland, the proportion of sex gland being increased as the blood pressure increased. The dosage must be kept small, as the administration would of necessity extend over a long time. The initial dose of thyroid should not be more than ⅛ of a grain, usually less. Occasionally in those patients in whom the preservation of hearing necessitated the continued administration of endocrine substance, there should be intermissions extending over one or two months, or even longer periods if the gland deficiency would permit it. In the writer's series of

20 cases of progressive systemic deafness in private practice treated by endocrine therapy, 16 showed an increase in the distance at which they heard the whispered voice, and four had not increased the whisper distance. For the 16 patients who showed increased hearing distance, the average for the affected ears was 6 feet. If the ear showing the greater improvement, namely, a useful increase in hearing, was considered, then the average improvement for the 16 patients was more than 8 feet. The failure of registration of sounds had shown a marked improvement in all the patients treated, and had amounted to a very substantial increase in the ability to hear the whispered voice. A large number of patients had been treated in the clinic at the Post-Graduate Hospital. In these the deafness was usually more advanced and of longer duration than in the private patients, and his impression was that the improvement was about half as great as in the series of private patients. The more advanced the condition and the longer it had been present, the less favorable and the less complete the response to endocrine treatment.

Endocrinology in Otology.—Dr. CHARLES E. DEM. SAJOUS of Philadelphia presented this paper, in which he gave a comprehensive review of the subject of endocrinology. He said, in part, that in order to interpret with any degree of lucidity the clinical relationship between the few common aural diseases and the endocrines it was found necessary to ascribe to these glands the functions which he had attributed to them in 1903 and 1907. The subject had been very much confused. For example, we had been taught for many years that the function of the secretion of the adrenals was to sustain the function of the cardiovascular system, and that as a therapeutic measure it would raise the blood pressure. But other physiologists found that far from raising the blood pressure adrenalin, particularly in small doses, lowered it. We were told that adrenalin possessed antitoxin properties, but physiological experiments were advanced to show that it did not. If we treated the question with harmony as our watchword, quite another state of affairs asserted itself. We then found that far from being erroneous, all the functions described, mutually antagonistic though they seemed, were entitled to a legitimate place. This, however, was subject to one condition, namely, that they be considered as but expressions or manifestations of a *fundamental* function submitted by the writer a long time ago. In 1903 he had attributed to the adrenals the all-important function of endowing hemoglobin with the power to take up oxygen in the pulmonary air cells and of converting it into oxyhemoglobin. The adrenals thus became the governing organs, so far as oxygenation was concerned of metabolism throughout the entire body. Dr. Sajous reviewed the data which showed that this function was the fundamental one of these organs. If this function was applied to the different rôles attributed to the adrenals by the various physiologists, its harmonizing influence would reveal itself. Thus large doses of adrenalin, by increasing oxygenation and metabolism of the cardiovascular muscular elements, caused a general rise in blood pressure, and might thus maintain vascular tone; smaller doses, however, through the same process, only caused constriction of the ends of the vessels which were supplied with nonstriated fibers, the terminal arterioles and the heart. This also caused a rise, though passive, of the blood pressure since the constricted arterioles dammed up, as it were, the blood behind them and increased the tension in the larger vessels. The observation of Moore and Purington that minute doses caused dilatation of the arteries was also sustained, for such doses affected primarily the vasa vasorum, thus reducing the arterial blood supplied to the coat of the vessels and causing their relaxation. The antitoxic theory of Abelous and Langlois and Cannon's emergency theory could likewise be harmonized by taking the writer's viewpoint of adrenal function. As to the practical bearing of this function in otology, patients were frequently encountered who responded poorly to every remedial measure attempted, pharmacological or surgical. Such cases in many instances suffered from hypoadrenia. Such patients presented the symptoms of deficient oxygenation incident upon adrenal deficiency which not only rendered them vulnerable to infections, but also made of them poor operative risks. Moreover, such patients constituted a large proportion of the chronic cases in which purulent exudates prevailed. Turning to the thyroid, the discord was not so great, physiologists and clinicians being in agreement concerning the influence of this gland upon metabolism. This effect upon metabolism Dr. Sajous explained by his theory that the phosphorus of all nucleins, beginning with the phosphorized fats, was the element mobilized by the active principle of the thyroid hormone, iodine. The normal vital activity of the cell was dependent upon the perfect equipoise of the thyroid and adrenalin hormone present. Cases deficient in thyroid in whom the nuclear phosphorus was sensitized inadequately and oxygenation correspondingly reduced were particularly liable to nasopharyngeal infections with aural complications through the eustachian tubes. This was due to the lowered germicidal activity of the vault where the defensive barriers were of the utmost importance owing to the constant inhalation of bacteria-laden air. The essayist regretted the neglect in this country of the rôle of the thyroparathyroid apparatus in the immune chemistry of the body, now fully recognized on the continent of Europe. It was not only a function that might be utilized to treat successfully many obscure disorders, but one which, when abnormally active, as in hyperthyroidism and dementia præcox, might cause great suffering, insanity and death. Many bacterial studies had shown that the thyroid hormone seemed to sensitize every pathogenic organism, precisely as it did tissue cells to the bacterial action of antibodies, and an equally large number of investigators found that hyperplasia of the gland was present in febrile diseases though absent in nonfebrile. Farrant, after studying the subject in a large number of diseases, including tuberculosis and syphilis, stated, for instance, that "repeated injections of diphtheria toxin lead not only to thyroid hyperplasia, but also to the formation of antitoxin," thus confirming the writer's earlier contention. Given, then, a case in which hypothyroidism existed along with some deep-seated suppurative aural disorder which could not be eradicated by local treatment, the desired result would fail to be attained unless thyroid or iodine in some form was administered internally. Irrespective of an increase of antibodies evoked by other means, the pathogenic organisms would remain masters of the situation unless they were prepared for their proteolytic action by the sensitization which an adequate amount of thyroid hormone insured. Thyroid gland possessed another property, particularly if given with suprarenal gland or hypophysis sicca, that of increasing the coagulability of the blood. Even with hemophilia present he had seen the coagulation time of the blood reduced to three minutes. Another function which the thyroid body carried on was that of promoting calcium metabolism. In this connection reference was made to the pancreatic internal secretion as a factor in the defensive process; it supplied the enzymes which took part in protein metabolism, and in our defensive functions. The activity of these enzymes was increased by heat. The rise in temperature, produced by excess of thyroid and adrenal, increased the digestive activity of trypsin which, in both the phagocytes and the blood, digested the harmful agent. This process possessed a kinship to fever which, he believed, would be shown to be a defensive reaction carried on by the ductless glands. In discussing the pituitary gland, Dr. Sajous reiterated the belief that it possessed no active secretory principle. This, however, did not militate against the pharmacological value of posterior pituitary preparations. In fact, it explained their usefulness; they contained the constituents of both the medulla and the cortex of the adrenals and were therefore far more efficient than adrenalin to counteract circulatory failure, and also more lasting in their effect. Recalling the defensive rôle of trypsin, deafness resulting from the acute suppurative otitis media following acute infections of childhood was due not to the direct action of the pathogenic bacteria themselves, but to the local autolysis or digestion of the drum and other structures by the trypsic ferment which should serve to destroy the local bacteria and their toxins. Indeed, bacteria were not necessary to cause such lesions. In aural disorders developing at the height of a nasopharyngeal disorder, when the fever

was high, severity of the lesions might be mitigated and subsequent deafness might be prevented by hypodermoclysis, which served to prevent local lesions in endocarditis, pleuritis, etc. Organic preparations should not be employed during the acute febrile period of these diseases since they simply increased endocrine agents causing the proteolytic process and thus activated the autolysis to which the lesions were due. The case was different when the febrile period had passed. Thyroid should be avoided as long as the heart was weak. When the blood pressure was low the hypophysis sicca in 1/10 grain doses was better than even adrenalin. It was often an advantage to combine these agents. A comprehensive research upon the action of mercurials had shown that mercury was perhaps the most powerful stimulant of the ductless glands at our disposal. Calomel was also a potent adjuvant when antioxin failed to act. When one remembered the bactericidal activity of the defensive enzymes, the relief afforded by the application of heat to an affected ear became clear; it enhanced the local fever and hastened the destruction of the local pathogenic bacteria and their toxins. So far as the ductless glands were concerned, nerve deafness probably occurred when the acoustic apparatus was either rendered ischemic or deprived of the endocrine substances which sustained their oxygenation and metabolism. Here the aim was to increase the blood supply, which might be done by giving nitrites, sweet spirit of niter to begin with, or arsenic. In the forms directly traceable to adrenal insufficiency, the adrenal principle was the logical agent to use. Hypophysis sicca, embodying the action of both suprarenal cortex and medulla, 1/10 grain, with strychnine 1/50 grain, given in capsule three times a day after meals, might prove useful if destructive lesions, or atrophy of the cochlear nerve was not complete. It was suggested that possibly the cause of sclerosis might be sought in the endocrine glands, since this condition usually appeared at an age when senile hypoadrenia occurred; endocrine therapy might find an application in this condition.

Dr. Charles Edward Panoff said that Dr. Callison and Dr. Sajous had so ably cited their cases that anyone hearing them would come to the conclusion that endocrinology was a very important subject, and that it had a bearing on all branches of medicine, including so precise and limited a specialty as otology. They had proven that a knowledge of endocrinology meant a better diagnosis, and what was more important to the patient, a better therapy in otological cases. In studying a case along endocrinological lines we must remember the following facts: (1) That inherited tendencies had a marked influence on the endocrines of the individual and therefore on his development; (2) that they took part in the process of metabolism; (3) that they controlled all vital functions, and (4) that they were intimately correlated and cooperated in their functions. There seemed to be a better cooperation among the endocrine glands than among the endocrinologists. They were so correlated that when one got out of order the others got out of order, that when one failed to perform its proper function the others would endeavor to take up the work of the slacker. This taking up of additional work might be the cause of their own derangement. It was this cooperation which made it impossible to say that this one, or that one, was of a definite gland type either thyroidal, pituitary, or adrenal. While it was true that certain signs and symptoms might point to one of the main glands as the chief offender, still the speaker felt sure that when one who had that fine detective ability saw the case, so necessary for the making of a proper endocrine diagnosis, he would discover clues pointing to the other glands as accessory agents in the causation of the primary trouble. Personally he did not believe in single glandular derangements. He was in favor of the pluriglandular derangement theory, and of pluriglandular (extract) treatment for these derangements. The three main glandular systems, the thyroidal, the pituitary, and the adrenal, had a marked similarity of function: (*a*) They were stimulated by and in turn stimulated the nervous system; (*b*) they all lowered carbohydrate tolerance; (*c*) they all acted and reacted with the reproductive organs and (*d*) they all took part in the process of immunity. We all knew that there were certain classical diseases that were caused or were supposed to be caused by a hypo- or hyper-activity of these main glands. Thus we had cretinism, myxedema, Graves' disease, infantilism, Froelich's syndrome, acromegaly, Addison's disease, and in all cases the main symptom was hypertension. In all these diseases we had ear symptoms. The readers of the papers of this evening had gone fully into that part of the subject, so there was no need of repeating it. But they did forget to mention this fact that while certain ear conditions were caused by glandular derangements, certain ear conditions were also able to cause glandular derangements. Dr. Callison had read a paper along these lines before the section, but the majority of the members did not coincide with his views. However, it did raise enough interest in the subject of endocrinology to make the program of this evening a possibility.

Dr. Raphael Lewy expressed the opinion that the discussion of a paper depended on one's individual conception of the subject. He considered it a privilege to have listened to the paper of Dr. Sajous, which was the result of extensive experimental work and a vast clinical observation. Such a clinical and scientific paper could not be discussed within a few minutes. His conception of the study of endocrinology, and what knowledge he had acquired in relationship to it, he attributed to the teachings which he had received from the late Dr. Joseph Fraenkel who, in his opinion, was not only a scientific physician and clinical observer, but also a master in endocrinology; and if he compared some of these teachings that he had retained from this master he must admit that some of these statements made by Dr. Sajous and his findings were not compatible with the views of his late teacher. Otosclerosis, if he considered the morphology of the tissues and their physiological function, indicated to him that there existed a disease which was destructive to the intervening tissues and to the adjacent bony articular surfaces, constituting a hyperostosis which resulted in an ankylosis of the stapediovestibular articulation. Whatever the conception of the disease might be as to the primary focus and tissue involvement, whether such disease primarily involved the membranous labyrinth or whether the affection involved the bony labyrinth and destroyed the cartilaginous element of the bone, replacing it by bone tissue and therefore causing an ankylosis, he might state that there seemed to be a diversity of the opinion among various otopathologists as to the primary lesion of the disease. If one attributed this disease to a defective endocrine balance, the question arose: First, was there a similar condition in other parts of the anatomy? In answer, he might state that to him the disease resembled, whether it began in the membranous portion or in the bony portion, an intraarticular lesion of any other joint which in consequence of the destruction of the intervening tissues between two articulating bones resulted in an ankylosis. Considering that this disease would come under the category, if we considered the teaching of the older masters, of imperfect metabolism and therefore nonsufficient elimination of waste material causing retention of such waste material in the economy and secondary changes in the joints; and knowing that such deficit was governed by the thyroid gland, he would consider that the disease was subthyroidal and would most likely in very many cases react to thyroid treatment if given early in the disease. Secondly, if we considered our more recent conceptions based on laboratory findings, that the disease might be secondary to an infection from a primary focus or an infection primarily at the site of disease, we could also advance the hypothesis that the defective thyroid lowered the local resistance toward infection and caused a nidus for the development of bacteria. This would also classify the disease as a subthyroid condition. As endocrine pathology meant the dissociated balance in the function of several glands, no condition could be treated monoglandularly, and therefore in the administration of endocrine therapeutics the individual must be carefully studied as well as the local disease.

Dr. Samuel Wyllis Bandler said he had accepted the invitation to discuss the paper dealing with endocrinology in relation to otology, first, because it gave him the opportunity to express his appreciation to Dr. Sajous for his masterly review of the subject, and, sec-

ondly, because it gave him the opportunity to call attention to the need of observing the by-effects when endocrines were administered. One should not only focus his attention upon the object he sought to obtain when he gave the prescription, but should observe all effects that might be attributable to the endocrines administered. For example, he had had a patient, seen about four months ago, who complained of a peculiar hissing sound in her right ear. She had been referred to him by an otologist. She had a decided and progressive amenorrhea. While treatment relieved the amenorrhea she received no relief from the condition of the ear. About three weeks ago she received 5 minims of adrenal hypodermically. She stated that the second day after taking this the peculiar noise ceased for a day. He again gave her 5 minims of adrenalin and again on the third day the hissing noise was absent. He had repeated this dose of adrenalin several times, and each time with the same result. The last time the adrenalin was given the noise was absent for two days. This was one of the by-effects of endocrine therapy that might bear important information for those interested in other specialties. In that way we might get confirmation of what he believed was one of the most important questions in medicine, namely, that all the disturbance of sensation, such as hyperesthesia, parasthesia and all perversions of the senses, had a basis in the end apparatus of the nerves or in the centers that received impressions, and that we would no longer use the term psychogenetic for all such abnormalities and for abnormalities of the mind. It was also our duty to impart to the laity the fact that there was a physical basis for hallucinations, phobias, fears, etc., and that they were not entirely psychogenetic. In many cases physical changes were responsible for perversions of sense. These physical changes were dependent upon endocrine disturbance and could be treated more successfully by proper endocrine therapy than by relying upon psychoanalysis or its Freudian application; for dementia præcox, for instance, had a well-defined and almost characteristic pathology and the microscope showed the brain cortex, basal ganglia, etc., involved by biochemical dystrophies dependent upon endocrine abnormalities.

Dr. JULIUS J. HERTZ stated that Dr. Callison had said that all of his cases belonged to the group of hpyothyroids. He said there was a series of cases which did not belong to that group, as Dr. Beck and Dr. Pollock of Chicago had shown. Their cases belonged to a hypoadrenal and hypopitiuary group. Therefore one could not conclude that the disease was due either to a hypothyroid or a hypoadrenal condition. He felt that deficiency in the endocrine system was frequently inherited and, as had been pointed out, these patients were subject to infections, and consequently focal infections and toxemia played a large part in the ear condition. Dr. Callison had spoken of infiltration in the drum membrane and ligament; he would like to know whether he had done any autopsy work to confirm that. He did not know that so much experimental and clinical work could be condensed into one paper as Dr. Sajous had done. He thought the conception of some men regarding the treatment of these conditions was absolutely wrong. The idea of some men seemed to be to give as much of a glandular substance as they thought the patient was lacking. His conception was entirely different. He believed that unless the organ was completely destroyed one should give small doses not often repeated, as the drug was not given to replace the substance that was lacking but to stimulate the portion of the organ that was left and in that way to bring it up to normal function. Kendall advised giving minute doses of thyroid and showed that it took several days for the increased activity of the thyroid to manifest itself. The activity continued to increase up to the tenth day and then declined until the twenty-fourth day.

Dr. CHARLES F. STOKES said that, acting on the belief that the hypophysis was the master gland of the endocrine system and that it and sometimes other glands were structurally or functionally disordered by the toxins of infectious disease, focal infections, psychic stresses, and the like often leading to developmental abnormalities and other pathological manifestations, an attempt was made to electronize the pituitary and other glands to reestablish electronic balance in them, and thus bring about a rejuvenation of structure which would react upon the projecting apparatus of special sense organs and possibly the various channels and tissues of association, correlation, and integration. In his research work in recent years, Dr. Stokes stated that he had assumed that electronic equilibrium in the human cell structure was a natural and normal condition and that any upsetting of this equilibrium from any cause meant an unnatural and abnormal condition, indicating disease or disorder. In the use of the term "electronic equilibrium" he assumed, in line with the electron theory, that all forms of matter were exhibitions of electrical phenomena. Dr. Stokes then referred to the experiments made at Harvard University with the Coolidge bulb in regard to the measurement of electronic energy, and stated that the results of these investigations suggested the possibility of the *x*-ray furnishing a means to restore electrical equilibrium or health in cell structure. The account of these investigations was given in the Twelfth Kelvin Lecture by Sir William Bragg, before the Society of Engineers in London, January 13, 1921, and an editorial on this lecture was published in *The Electrician*, January 28, 1921. In applying these principles to the electronization of the pituitary-auditory region, a heavy lead foil screen was used, an aperture of 2¼ inches; chamois for aluminum radiation; 3 mm. aluminum filter; distance from the target 2 feet; 8 milliampères; time 15 to 20 seconds on each side. This dosage might be used from once to twice a week, depending upon the character of the response. With these precautions this practice was free from danger particularly as it was rarely necessary to prolong treatment further than two months. The usual remedial measures should supplement electronization. Impaired hearing and deafness from chronic otitis media, deaf mutism, epilepsy, and various disorders from endocrine imbalance, had yielded astonishingly good results. In the field of preventive medicine, particularly during convalescence from infectious and other diseases this procedure should be of decided benefit. At another time when cases had been sufficiently studied and tabulated this work would be reported upon more in detail.

Dr. HAROLD HAYS said that the different opinions of endocrinologists had been interpreted in such a way that they had not been able to come to any definite conclusions as to the use of endocrines for otological purposes. That the general bodily condition played an important rôle in the otological condition was recognized, but a word of warning should be sounded. We were going through certain phases, or he might say crazes, in medicine; for example, many cases of tinnitus were being sent to the psychoanalyst, and the patient was given advice which, if not harmful, did little good. Then again radium was used for the cure of tinnitus, and radium was used for all sorts of neoplasms and for some conditions in which there was no neoplasm at all. Coming to the endocrines, it was possible that the employment of the *x*-ray externally would stimulate the endocrines to do their work. On the other hand, in giving so much attention to these agents we were getting very far from otology. There were localized conditions which might come from the nasal passages, or from the Eustachian tube, and acute catarrhal conditions that could be improved by the otological methods used at the present time. If we used adrenalin for deafness we were going very far astray. Giving five minims of adrenalin every few days might have decidedly harmful effects. Adrenalin in certain conditions had temporary effects which had no relation to otology whatever. While he believed that endocrinology was worth while studying, patients should be treated in a common sense way and our energies should not be misdirected.

Dr. F. E. MULLER told his experience with a number of patients suffering from such conditions as tinnitus, otosclerosis, deaf-mutism, etc., who had been greatly improved by Dr. Stoke's method of treatment. In the application of endocrine therapy he stated that he was strongly in favor of the use of pluriglandular extracts. One could secure harmonious action only by a proper combination of the various glandular extracts, and of all the gland extracts he believed that of the hypophysis was the great harmonizer and stabilizer.

Dr. CALLISON, in closing the discussion, said there were only one or two points he wished to answer. He had been accused of describing the thyroid type; what he had done was to describe his patients as he saw them clinically. If he had described the thyroid type it was because the thyroid type gave deafness. If one gland got out of order three or four others did also and one then got a combination of symptoms. Dr. Hertz asked whether any autopsies had been done. The man who did an autopsy could not judge of the infiltration as accurately as the otologist who looked into the ear. The otologist could tell the amount of infiltration in the drum but not actually behind it. He thought no otologist or endocrinologist would advocate the treatment of tinnitus with adrenalin; it might lessen the tinnitus for the time being but would not cure it. If one was going to improve the patient, better oxidation must be secured. He quite agreed with Dr. Sajous that if thyroid and adrenalin did anything, they increased oxidation and any medication that improved oxidation would improve the hearing condition; and in so far as the oxidation was better the patient would be better.

Dr. SAJOUS said he was sure they would not long disagree, because scientific facts were scientific facts, and one could not go behind them. When additional facts were available harmony would prevail. What Dr. Bandler had said of the by-effects was certainly true, and he would suggest that all those using endocrines watch for them, as it was very important to secure more information in regard to such by-effects. Dr. Hertz had referred to the influence of toxemia and had attributed toxemia to thyroid and other glandular dysfunction; certainly the endocrines were not doing their duty where toxemia existed. He could show a really remarkable case in which the thyroid was as large as an orange; after removal of the tonsils the thyroid receded within two weeks. In speaking of toxemia it was always important to remember the role of the thyroid. Dr. Hays referred to the use of drugs to excess. He also wished to emphasize the danger of employing glandular extracts without knowing their action. There were times when their effects were really pernicious.

Stated Meeting, Held April 14, 1921.

THE SECOND VICE-PRESIDENT, DR. RUFUS COLE, IN THE CHAIR.

Precancerous Dermatoses.—Dr. WALTER J. HIGHMAN read this paper, in which he said that within the past twenty-five years Dubreuilh originated the term "precancerous dermatoses" for a group of skin conditions having, as he thought, a predisposition to malignancy, to which they played the part of forerunners. Since that time the term precancerous had received rather uncritical endorsement and had acquired wide currency. Upon reflection it seemed an unhappy choice, for it possessed a catch-penny quality readily adapted for the fetish worship that was often accorded brilliant expression. Thus language instead of remaining a vehicle of thought became a slogan. These considerations were mentioned because in employing the term precancerous he did so rather to identify the group of conditions constituting the theme of the paper than to indorse the term itself. Whether a lesion was precancerous could be determined only in retrospect and at a time when it had become cancer. Before such a time the expression was only a prophecy. Let the term be accepted on its face value! The implication remained that there was a series of skin lesions, a substantial minority of which appeared to lead to malignancy. How often this occurred in previously apparently normal skin was not recorded. Likely enough the skin itself became precancerous at a certain age, and if the first stage of an epithelioma looked like a seborrheal wart, it by no means followed that all seborrheal warts would become malignant, and more than that all pigmented nevi would become cancerous. Precancerous dermatoses, or cutaneous changes appearing to possess a more or less direct causal relation to malignancy, fell into five relatively well defined groups: (1) Congenital anomalies. (2) Infections. (3) Irritations, mechanical, actinic, chemical, or preexisting dermatoses. (4) Regressive changes. (5) Unclassified, such as horns (related to lupus vulgaris), Darier's disease, Bowen's disease, Paget's disease, xeroderma pigmentosum related to congenital anomalies and regressive changes. Lupus vulgaris was the condition most commonly leading to the formation of horns, and the latter often led to epithelioma. At best this was rare. After discussing in detail the above mentioned groups, Dr. Highman stated that at best only a very few of them regularly led to malignancy, except syphilitic changes in the tongue, chronic *x*-ray dermatitis, and xeroderma pigmentosum. Rare as the last condition was, its malignant termination was inevitable; second in importance was chronic *x*-ray dermatitis; third, lingual syphilis. In all the other diseases or conditions mentioned that led to epithelioma this outcome was most unusual. The only way to determine the validity of the term would be by comparison between epitheliomata which rose upon preexisting lesions and those which developed in previously normal skin. This had not been done. Nearly every one with an epitheliomata stated that it developed as a "pimple" or "scale" which persisted for months or years. The conclusion was invariably jumped at that this must have been a precancerous lesion. And yet it would be at least as reasonable,—nay, more so, to consider that this had been the incipient epithelioma itself.

Clinical and Histological Features of Cancer of the Skin and Oral Mucosa. (With Lantern Slide Demonstration.)—Dr. JOHN A. FORDYCE made this presentation, in which he first quoted statistics relative to the frequency, sex, type, factors involved in the etiology, etc., of cancer of the skin. He stated that Broders of the Mayor Clinic studied 537 cases of squamous cell epithelioma of the lip, which represented 26.85 per cent. of 2,000 cases of general epithelioma. In this series of cases the lower lip was involved in 95.69 per cent.; the upper in 3.55 per cent.; the left angle of the mouth in 0.56 per cent., and the right angle of the mouth in 0.18 per cent. Fricke in a study of 1338 cases found 91.1 per cent. in men and 8.9 per cent. in women. In 2.2 per cent. of the men the upper lip was affected, whereas 14.3 per cent. of the women had involvement in this region. Warren found 4 women among 73 cases, 3 of whom were smokers. Ebel reported 199 cases of cancer of the lower lip of whom 14 were women. Broders in his study found the proportion of males to females to be 49 to 1. Lane in a series of 122 cases found five women. Piquantin estimated that 17 per cent. of all cases of cancer of the tongue and mouth occurred in women. Thus it was evident that cancer of the mouth and lip were by no means confined to the male sex. Hazen estimated that 95 per cent. of cancers of the lip were prickle-celled; one-half of those of the upper lip were basal-celled. The factors that seemed to be involved in the etiology were syphilis, tobacco, and defective teeth. The frequency of syphilis was variously estimated. Meller found lues in only 7 of 207 cases of buccal cancer; Fournier found it in 155 of 184 cases; he held that 30 per cent. of leucoplakias were followed by cancer. Bergman found leucoplakia in 34.6 per cent. of 159 cases of cancer of the tongue. Other syphilitic lesions which led to cancer were localized wart-like epithelial hypertrophies, fissures, gummas with or without ulceration, and chronic glossitis with atrophy of papillæ. The epithelial overgrowth, submucous edema, lymphocytic infiltration, and eventual scarring with loss of elastic tissue were microscopical features explaining the remarkable relation between lues and cancer of the tongue. In Broders cases four-fifths were users of tobacco and one-half of all the women. Broders found his cases most frequently in farmers; Lane mostly farmers and outdoor laborers, and he accounted for this by the action of the actinic rays upon the skin. Warty, superficially diffuse and leucoplakic lesions were of relatively slow course. Ewing stated that tumors of the tonsil, cheek, and antrum were often slow to involve lymph nodes. Metastases were favored by a typical structure, rather deep than superficial origin, long duration and presence of inflammatory complications. In 87.01 per cent. of Broders' series lymph nodes were removed. Of the cases in which the lymph nodes were removed 23.38 per cent. showed metastases. The users of tobacco operated on did not give quite as good total results as

non-users. Of the patients with metastases 17.3 per cent. were living and 82.6 per cent. were dead. No patient with cervical nodes or more than one group of any lymph nodes was reported living in this series. In Broders' cases the duration of the lesion was from 0.08 to 28 years, the average being 2.58 years. Dr. Fordyce then gave a lantern-slide demonstration of the clinical and histological features of the various forms of cancer of the lip, tongue, and buccal mucosa. He stated that superficial keratoses, basal-celled, non-metastasizing forms of epithelioma and rodent ulcer might be treated successfully by *x*-ray and radium. The squamous-celled type of epithelioma was exceedingly malignant and practically always metastasized early; it was a very serious condition. Biopsy, unless the growth was removed at once, was apt to be followed by a local extension of the disease. The initial lesion of syphilis sometimes resembled epithelioma, and gumma had been known to appear years after at the site of the initial lesion of syphilis, indicating that the *Spirochæta* must have remained latent in this locality. He thought that leucoplakia and the keratoses might be called precancerous conditions. It should be remembered that all leucoplakia was not of syphilitic origin and that it was possible to have a combination of syphilis and leucoplakia. Occasionally tuberculosis of the tongue and lichen planus might be mistaken for cancer.

The Treatment of Skin Cancer by X-Ray, Radium and Electrocoagulation. With Lantern-Slide Demonstration.)—Dr. GEORGE E. PFAHLER of Philadelphia made this presentation, confining his remarks to cancer of the lip and mucous membrane of the mouth. He declared that there were probably more mistakes and careless handling of this group of cases than of any other, and the mishandling of this group meant bad end results. He asked Dr. Fordyce in his closing remarks to tell him how soon he would expect results from antisyphilitic treatment in a case in which there was some question as to whether the condition was syphilis or cancer of the tongue. He said he asked this question because the most hopeless cases of cancer of the tongue that came to him were those that had been treated as syphilis. He believed that precancerous conditions could all be removed and treated successfully. The rule he followed was that when any lesion became irritated it should at once be thoroughly destroyed. He further believed that the best method for destroying precancerous lesion was by electrocoagulation. Warts, moles and angiomata could all be removed by electrocoagulation, but if one did not wish to have a scar, if the cosmetic result was important radium would produce less disfiguring results. Those lesions in which one was not so particular about leaving a scar could be easily, quickly and thoroughly removed by electrocoagulation, and by this means one immediately effected a destruction of the blood vessels. Certain lesions treated by *x*-ray and radium reached a stage at which regression ceased and if one wished to cause further destruction a dose of *x*-ray or radium was required which was destructive to the surrounding tissues. When a lesion reached this stage it was advisable to resort to electrocoagulation. In many instances, especially in severe cases, it might be advisable to combine two, three, or even four, methods of treatment, using radium, the *x*-ray, electrocoagulation, and surgery. In the treatment of epithelioma of the eyelids he preferred to use radium as there was less destruction of tissue than with electrocoagulation. In the use of radium one should give at least two or three erythema doses at the very beginning of the treatment and should keep the patient saturated with radium until the lesion disappeared. In the treatment of lesions of the ear electrocoagulation was in his opinion preferable because it produced results quickly and did not destroy the hair in the vicinity of the ear as the *x*-ray and radium might do. In epithelioma of the mouth and lip he preferred to use electrocoagulation and to follow it by the *x*-ray, and then the patient got well and remained well. He had never yet failed to cure an epithelioma of the lip in which the case came to him primarily and he had treated over one hundred cases. This, he said, did not mean that he would not fail, possibly with the next case. The cases that offered difficulty were those that had been treated by caustics, partial surgery, etc. He used the full erythema dose of *x*-ray filtered through a 6 mm. aluminum screen at a focal distance of 8 inches, using 5 milliampères for 12 minutes. In cases in which excision was decided upon *x*-ray treatment should precede and follow the operation. In cases in which a metastatic nodule was found in a gland, he had removed the primary growth by electrocoagulation, and had treated the nodule by the introduction of radium, with very satisfactory results. He stated that he believed that in the future many cases would be treated by this procedure. In advanced epitheliomas of the nose electrocoagulation had given very excellent results and in epitheliomas following burns. Where there was rather extensive destruction of tissue resulting from electrocoagulation plastic operation was then resorted to in order to repair the defects.

Surgical Treatment of Skin Cancer.—Dr. BURTON J. LEE made this contribution, in which he said that he had been very much impressed by two or three things in connection with skin cancer. The first of these was the need of absolute accuracy in the diagnosis of the numerous socalled precancerous lesions which might lead to carcinoma. Unless accurate diagnosis was arrived at, treatment was likely to fail. Dr. Lee said he spoke from the point of view of the surgeon who was endeavoring to find the truth in regard to treatment of these lesions by surgery and also by radioactive substances. Surgery was to be criticized when it would not honestly investigate the results of radioactive treatment. He spoke first of the melanomata, of which they had seen a considerable number at the Memorial Hospital. Most of these patients came following operation; he had yet to see a case of melanoma successfully treated by surgery. He could also say that he had never witnessed successful treatment by radium. At the present time there seemed to him no daylight as regards the treatment of this disease, other than by recognizing the precancerous stage and practising a wide removal, without handling of the pigmented mole. Squamous-celled epithelioma of the lip was always first a local disease. Even though there was some invasion of the deeper tissues it was still a local process and remained so for some time before the lymph nodes became involved. Inasmuch as it was an embolic involvement of the node rather than extension by permeation, its treatment might be considered in two categories: first, the treatment of the initial lesion, and, secondly, the treatment of the metastatic lymph nodes. The original tumor was very successfully and preferably treated by radium. Less deformity followed and the removal of the mass was completely accomplished. So far as the lymph nodes were concerned, he felt that they still offered a surgical problem, whatever the procedure for the original tumor. He had not seen success, such as Dr. Pfahler had described, in the treatment of involved lymph nodes at the Memorial Hospital. At present he preferred to treat these nodes by excision followed by the insertion of radium needles. On the other hand, basal-celled epithelioma or rodent ulcer was a condition which metastasized slowly, and remained local for a long time. Here one had the choice of wide excision by surgery or treatment by radium, which latter method he had seen used very successfully. In this type of growth excision by surgery resulted often in a disfiguring scar and the result was no better than by radium. He believed, therefore, that at the present time rodent ulcer was best treated by radium rather than by excision. Dr. Lee also emphasized the point brought out by Dr. Pfahler that cases that had been treated by the *x*-ray and had reached a stage where regression no longer proceeded were the most difficult to treat. The point he particularly emphasized was the necessity for early recognition and proper treatment at the outset, which meant initial large doses of the radioactive substance. Paget's disease in old women or in the very early stage might be treated by radium, but he felt that operable carcinoma of the breast was best dealt with by surgery.

DR. DOUGLAS A. QUICK laid further emphasis on the necessity for accurate diagnosis in these lesions, and brought out the point that the appearance of the growth when the patient first presented himself might mean very little, since some of the more benign forms might present a worse appearance than the more

malignant ones. In dealing with rodent ulcer and basal-celled epithelioma of the skin he thought one was permitted considerable latitude. He felt, however, that radium gave a better final result in that the scar was less unsightly than that following surgery or the electrocoagulation method. In lesions that were amenable to treatment by radium he felt that the only place that surgery was indicated was for the purpose of giving a better exposure for the use of radium. Many of the smaller basal-celled epitheliomas might well be treated by the electrocoagulation method because of its simplicity. When it came to the squamous-celled form of epithelioma it was a serious problem which must not be considered in the same class with the basal-celled type by any means. Some excellent results had been shown in the treatment of squamous-celled epithelioma by the electrocoagulation method but he would not like to trust to effecting a cure by this method. Some were in favor of using heat, but it must be remembered that heat was a devitalizing process and opened the lymph channels. In treating lip lesions the size of the defect had to be taken into consideration and of course the defect was not so great with the use of heat, but altogether he should not feel inclined to push its use too far. He thought radium should be used in the lip cancers. Those that extended along the surface of the lip and looked very bad were not always the worst cancers. In some of these it was not always necessary to bury the radium needles while a few could only be handled by burying the needles. Radium in these cases was very much less disfiguring than the other methods. After all, the chief problem in dealing with cancer of the lip was the cervical lymph nodes. Here he thought they were pretty much all agreed that external radiation was not effective, and that the radium should be buried in the affected node. Likewise in the eyelid where one wished to be conservative so that the eyelids could be closed radium was very essential in the treatment. In the use of radium two points must be emphasized: (1) Radium must be accurately applied, and (2) sufficient dosage must be used. One frequently saw lesions in patients who said they had been treated by radium, but evidently it had been used in such small doses that it had accomplished very little. He hoped that Dr. Fordyce in closing would say something about leucoplakia, and he hoped someone would say something more about the treatment of melanomas. Personally, he felt inclined to leave the pigmented mole that was quite stationary, but if there was any indication of activity radium offered the best hope of relief for the longest period of time.

DR. S. POLLITZER said that the impression that one would gain from the pictures that had been shown this evening was that epithelioma of the skin was a very serious disease. As a matter of fact epithelioma of the skin in the vast majority of cases was relatively insignificant. Furthermore epitheliomas of the lip and mouth constituted a relatively small proportion of all epitheliomas. Another point was that these pictures all showed advanced conditions, and that brought up the point he wished to emphasize. The public had the impression that so long as a growth was not painful and was not particularly disfiguring, it was not serious and consequently such growths were disregarded until they reached an advanced stage. The dermatologist, as a rule, did not see cancer of the internal organs, yet within a comparatively brief period he had seen a half dozen cases of cancer of the breast in women who had not sought medical advice for the condition. In one instance the woman had a large infiltrating ulcerated cancer of the breast and she had not seen a medical man. Upon being asked why she had not consulted a physician, she said she was afraid it might be cancer. In the second place the physician must be educated, for he was often to blame because he either neglected the case that might be cancer, or failed to recognize the condition, or else treated it improperly. With reference to leucoplakia as a precursor of cancer, he was inclined to think that it did not act as a precursor of cancer as frequently as was supposed. Dermatologists saw hundreds of cases of leucoplakia where they saw one of cancer; he felt that if leucoplakia were a frequent precursor of cancer they would see more cases of cancer than they were seeing. Leucoplakia occurred oftener on the tongue than elsewhere, and on the tongue it was more likely to become malignant than elsewhere. Personally, he liked the term precancerous, though he admitted that from the etiological standpoint it was absurd and from the prognostic point of view it might be wrong; but it had the advantage that these conditions frequently became cancerous and therefore it put the physician and the patient on their guard. The worst of all precancerous lesions was the pigmented mole. The management of the pigmented mole differed very much in practice by different physicians. Many left it alone and others were puzzled as to what to do. A melanoma that showed activity usually meant a death certificate. It was his rule to advise the removal of a pigmented mole before it showed any signs of disturbance if it was located in any region where it was exposed to irritation, and especially if it was on the foot, since it was well known that pigmented moles on the foot frequently resulted in general melanosis. He thought melanomata should be removed by the cautery rather than by the knife, and where the knife was used it was important that the lesion should not be massaged, for frequently massage of the lesion resulted in dissemination of the disease. In the management of these lesions, in operating one should not only follow the rule of wide excision but one should be careful not to massage the growth during the course of the operation. He thought the one important lesson that should be carried away from the meeting was the importance of the early recognition of these conditions and the fact that waiting might be fatal.

DR. WILLIAM B. TRIMBLE spoke of the treatment of these lesions in a general way. He thought the flat types of epithelioma about the face should be looked upon individually and that the selection of the method of treatment was a matter of judgment. Of course there were some cases that absolutely demanded radium, or *x*-ray, or electrocoagulation, while in others surgery might be preferable. At Bellevue they had treated some of these cases with the *x*-ray and he could show in a small way some rather spectacular results as a result of treatment by radium, nevertheless his leaning was toward surgery. He thought that if the lesion was accessible to the knife that the knife was preferable. Surgery could be applied by excision, curettage, or the cautery. There was no objection to excision, but if the growth were not large he rather preferred curettage or the cautery. The surgeon usually claimed that excision was better, but he thought that perhaps a growth could be removed with less manipulation with the cautery and this might also kill a few malignant cells that had wandered into the surrounding tissue. The main object was the destruction of the cancer tissue and any method that would do this was a proper method to use, taking into consideration distortion of the parts and the cosmetic effect.

DR. ISAAC LEVIN pointed out that cancer of the oral cavity demanded similar treatment to cancer in the other cavities as the rectum, vagina, esophagus, and that meant that the dermatologist had to send his patient to the druggist, the surgeon, or the radium worker. He did not wish to belittle the work of the surgeon, but he wished that more physicians would get into closer contact with the radium workers and see what was being accomplished. Speaking of the lymph nodes, Dr. Levin said the idea was general that they must be removed surgically, but in doing a block dissection there was always ample opportunity for scattering the cancer cells and the result was a local recurrence, hence he believed that the introduction of radium emanations or capillary spicules into the lymph glands was superior to straight removal because one could thus destroy the cells *in situ*. As there might be a few adult cells, as Dr. Pfahler had termed them—cells which were not destroyed by radiation—he thought the proper method of procedure was first to introduce radium, then to remove the gland and to follow the removal by radiation. He believed this was the correct method of cancer therapy in any location. He had used the same method in the treatment of cancer of the breast, cancer of the cervix, and other cancers. This procedure might obviate the need for electrocoagulation. He believed in radium first and then if necessary everything else afterward.

Dr. CHARLES M. WILLIAMS said the word precancerous might or might not be etymologically correct, but that was not the point. One must consider the facts. How many, he asked, had seen epithelioma arise from normal skin? Cancer usually developed on diseased skin. Some word was needed to describe that group of conditions of the skin in which epithelioma developed so we had better use the term precancerous. Impaired nutrition leading to atrophic conditions of the skin and scar tissue, characterized precancerous conditions. In lupus vulgaris, senile keratosis, *x*-ray dermatoses, etc., atrophy and scar tissue were the outstanding features, so the thing to do was to treat the patient so as to prevent these precancerous conditions. One should treat syphilis early so that scar tissue did not form on the tongue and cheeks. One should treat lupus vulgaris and senile keratoses properly because these were among the commonest forerunners of cancer of the skin. One should warn those who were continuously exposed to the actinic rays of the sun and instruct them to protect themselves against undue exposure. The first sign of warty degeneration should receive attention in the way of protection against irritation and the use of a bland ointment. An ointment of salicylates and sulphur was very efficacious in keratoma. He would not have it understood that he was treating epithelioma with the salicylates and sulphur, but before cancer had developed such treatment was effective. Dr. Williams also spoke of the danger of biopsy, and emphasized that the main point in the treatment of cancer was to treat it early and treat it vigorously, but not to fuss with it. Accurate clinical observation was of importance rather than placing entire reliance on the laboratory. It was well to remember that cancer might develop on a gumma and one might find a four plus Wassermann, but that lesion could not be controlled by antisyphilitic treatment. Dr. Pfahler had recommended two or three skin units at the start. He agreed with him in that particular; if one was going to treat epithelioma he should hit it hard at the start and not take half-way measures.

Dr. HIGHMAN said he had not intended to enter into an etymological debate but he felt that there was no reason for the use of such an absurd term as precancerous. He believed that all the cancers that developed on a socalled precancerous base would not amount to 1 per cent. of skin cancers. One of the speakers advocated treating cancer before it developed. How was one going to do that? There was a variety of socalled precancerous conditions how was one to treat them all? He felt that if a lesion was causing no trouble it should be let alone. As for the treatment of precancerous conditions with ointment, he did not believe that ointment ever prevented a cancer from developing, neither did he believe that cancer developed only on diseased skin. He said he wondered whether any investigator had collected statistics to show the number of cancers that had developed on skin that was previously normal. Of course the patient always said it started with a pimple, but the pimple in those cases was the first stage of malignancy, and to say that the cancer started as a pimple did not mean anything.

Dr. FORDYCE, in reply to Dr. Williams' question, said that leucoplakia in the majority of cases did not result in cancer. The difficulty was that these patients with epithelioma did not consult the dermatologist until they were too far advanced and until nothing could be done. He thought the general practitioner needed instruction in the recognition of lesions of the mouth. With regard to the treatment of syphilis, he would treat it until the Wassermann became negative. Under treatment the leucoplakia of syphilis improved or there might result a permanent condition resembling a keratosis. The treatment of a syphilitic lesion until the Wassermann became negative required a very indefinite period; it might be one year or several years.

Dr. PFAHLER said he had asked this question because it often happened that the general practitioner went on treating a lesion on the tongue as though it were syphilis for months and months when the Wassermann test was positive, without taking into consideration the possibility that the lesion might be malignant.

Dr. BURTON J. LEE, in closing, said that all workers in the cancer field should observe great caution in stating that cases are or are not cured. A better term was "satisfactory results to date." Those who were working in this field recognized the fact that recurrences might take place up to five, ten, or more years.

Dr. FORDYCE said it was not necessary to rely upon the Wassermann test. He thought a good clinician could tell the difference between syphilis and cancer. If a patient had a gumma it might be mistaken for cancer, but a very short course of antisyphilitic treatment would soon clear up the question if the lesion was in the transitional stage.

Dr. PFAHLER expressed the opinion that if they were going to treat all warts and moles as though they were precancerous it would sometimes be a pretty big undertaking. He cited the instance of a woman 84 years of age under his care for cancer of the breast with metastatic nodules. She had perhaps two hundred keratoses. He had told her to leave them alone unless they disturbed her. If a woman forty or fifty years of age had those lesions he might advise her to have them removed. Dr. Pfahler said he would not leave a pigmented mole on his body a day longer than he had to; he would have it destroyed by electrocoagulation and thoroughly destroyed.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 26, 1921.

DR. HAROLD BAILEY IN THE CHAIR.

Fatal Case of Rupture of the Uterus.—Dr. JOHN H. TELFAIR reported this case which occurred in a woman 32 years of age, para V. She gave the history that after having been in labor from 6.00 A.M. to 2.00 P.M., August 15, 1919, she was delivered by podalic version and extraction. The physician who delivered her left her shortly after delivery. About an hour after delivery the husband of the patient notified the attending physician that there was something wrong and asked him to return. He said it was not necessary and did not respond. About two hours after delivery the husband went to the physician and told him he thought his wife was dying. The physician said he would come after dinner. At 7 P.M. the woman was seen by the attending physician who immediately called an ambulance and sent her to Fordham Hospital. When admitted to the hospital at 8.00 P.M. she was in profound shock. If this woman had been seen within an hour or so of delivery she might have been saved. Examination upon admission to the hospital showed a deep laceration of the left side of the cervix extending upward to the lower uterine segment. Immediate laparotomy showed the laceration extending into the anterior uterine wall. A rapid hysterectomy was done and infusion given, but the patient died one hour later.

Complete Blindness Occurring During Pregnancy.—Dr. TELFAIR reported this case also. He said that the patient, 36 years of age, a para V., gave a family history showing cancer and tuberculosis. She had had four living children and three spontaneous abortions. Soon after becoming pregnant she noticed blurring of vision in the left eye. Following this the right eye behaved in a similar way. By the time she was ten weeks gravid she was completely blind. General physical examination showed a marked pyorrhea alveolaris and signs in the chest suspicious of a tuberculosis process in the right lower lobe. Examination of the eyes showed complete optic atrophy. The urine output was normal and repeated examinations were negative. The blood Wassermann was negative and the blood pressure normal. The spinal fluid was under slightly increased pressure. The *x*-ray examination showed no evidence of pathological lesion in the skull, there being no evidence of intracranial pressure and the sella turcica being normal. The blood chemistry examination showed normal results. The neurological examination suggested the possibility of a tuberculosis lesion involving the optic chiasm. Because of the marked pyorrhea most of the teeth were removed and the others treated. This had absolutely no effect upon the vision of the patient. She was admitted to the Hospital on February 17, 1921, and was due April 30. She continued totally blind up to the present time.

Dr. CHARLES GRAEF said he had examined the eyes

of the papilla. There was the appearance of complete optic atrophy. Optic atrophy, as they might recall, was roughly divided into two classes: (1) simple and primary atrophy, which came without any inflammation, usually due to such conditions as locomotor ataxia, paresis, or multiple sclerosis, etc. (2) secondary optic atrophy which followed inflammation of the nerves due to many causes. The disturbances of the uterus in pregnancy, and the toxemia of pregnancy were often among these causes. These two types of optic atrophy were distinguished by certain appearances of the fundus. In primary optic atrophy there was a thinning of the optic nerve as it came through the lamina cribrosa giving a so-called pepper-box appearance to the optic nerve head, with shallow cupping. In the secondary form which followed inflammation, there was an exudate and a deposit of connective tissue formation on the nerve head. One could not say with absolute certainty of course, but the indications were strong that this was a secondary optic atrophy. The woman must have had the optic neuritis at the time she became pregnant or soon after. These cases usually occurred in the later stages of pregnancy. If it were a primary optic atrophy there would be no hope of recovery of vision. Since it was secondary there might be a few nerve fibers remaining alive, and, as was well known, after delivery there was a general stimulation of absorptive activity throughout the body; it was possible that this might have some effect upon the optic nerves and that the patient might thus recover a certain measure of sight. It was not very promising however.

Dr. BAILEY cited a case that illustrated what might occur from the functional standpoint. A woman who had a preeclamptic condition in her first pregnancy and also in a third pregnancy, had in her second pregnancy at the eight month, one hour after rising, complete blindness. She was taken to the hospital and after an hour began to see a little. By 4 P.M. the blindness had quite cleared up. Her eye grounds were examined and nothing found. On the fourth day she returned home and went to an uneventful labor.

Dr. GRAEF said he had had a similar experience. If one did not find anything in the fundus and sudden passing blindness occurred it was due to uremia or circulatory disturbances in the optical cortex in the occipital lobes of the brain, or else it was a case of hysteria. Hysteria of that type was very common. This patient had no uremia so the blindness might be put down to hysteria or fleeting circulatory effects.

Eetropion of Abdominal Viscera, with Specimen.—Dr. M. O. MAGID presented this specimen of a stillbirth because of the rare occurrence of this condition and the small number of cases reported in the literature, and also because of the diagnostic difficulties it presented in the first stage of labor. The mother was a para I, 27 years of age. Her last menstruation was May 18, 1920. On February 5, the pains became regular and severe. Examination revealed an os dilated to the extent of about three and a half fingers, and extruding from it was a mass about the size of an orange. Adjoining this was a smaller mass about the size of a peach; there was a sulcus between them. The two masses were somewhat firm and seemed to be joined together higher up. The patient bled considerably at the time although her pulse, 90 per minute, was of good quality. The patient did not seem to be suffering from loss of blood. In the course of an hour the two masses presented themselves at the vaginal opening and with them came a loop of what at first seemed to be the cord, but was soon recognized to be small intestine, the two masses being lobes of the liver. Soon after these structures were born the remainder of the fetus was expelled in the transverse position in extreme extension. Instead of the cord, there were a few strands of tissue connecting the body of the fetus to the mother. These were tied and cut. The placenta, which was large and bore evidence of extreme fatty degeneration, was expelled spontaneously forty-five minutes later. The patient made an uneventful recovery and left the hospital on the tenth day. The fetus presented a normal appearing head, chest, and upper extremities. It appeared to be that of an eight months gestation. Instead of the abdominal wall covering the liver and intestines, there was merely a thickened peritoneal tissue layer. This apparently ruptured in utero. There was an absence of the bladder and genitals; the lower right extremity had no hip joint articulation and the buttock was missing. Both extremities were rotated so that the feet pointed toward each other. From their embryological data, it was apparent that the visceral arches failed to unite in the middle line, resulting in complete ectropion of the abdominal viscera.

Treatment of Syphilis during Pregnancy.—Dr. ALFRED C. BECK presented this preliminary report, which he illustrated with lantern slides. He stated that when he had been asked to read a paper on this subject he did not have his statistics in shape, and the time at his command permitted him to follow up only 73 patients giving four plus Wassermann reactions, 32 of which he had studied sufficiently to include in this report. A brief résumé of each of these 32 cases was presented. The study brought up the question whether they were justified in treating a pregnant woman as a syphilitic because she gave a positive Wassermann reaction, if there were no other evidences of syphilis. The study showed that women seen late in pregnancy and giving a positive Wassermann reaction frequently gave birth to nonsyphilitic infants, where five or six injections of salvarsan had been given. It was not necessary to render a mother Wassermann negative in order that the child might be Wassermann negative. The fetus in utero seemed to respond more readily to antisyphilitic treatment than the mother. Even one injection of salvarsan into the mother was of value as the infant born under these conditions responded readily to the treatment. The prenatal recognition of syphilis was of great value as with the knowledge of the presence of the disease the child could be treated immediately after birth. There was no danger in giving salvarsan late in pregnancy; it seemed to have no ill effect upon the kidneys and did not bring on premature labor. In only two cases was it necessary to discontinue the treatment because of the severity of the reaction. Even in threatened miscarriage itself due to syphilis one did not need to discontinue the treatment. A Wassermann test made on a child at any time under one month of age was of little or no value.

Dr. JAMES B. GIVIN stated that he had followed up most of these children and had been struck with the absence of luetic stigmata in them as compared with another group of children of syphilitic mothers who came to the pediatric clinic and who showed four plus Wassermann reactions. An interesting feature in these babies was the ease with which they responded to antisyphilitic treatment. They were given inunctions of mercury and not salvarsan. It might be that later on these children would show retarded syphilis. If any of the late signs of syphilis appeared it would emphasize the importance of following up these cases and keeping them under treatment, and repeating the Wassermann test at stated intervals.

Dr. GEORGE W. KOSMAK said he was interested in Dr. Beck's paper, particularly in the statistics he presented, and more so in his conclusion. He was afraid Dr. Beck was going to say that he had 32 cases of undoubted syphilis but he noticed that he modified that assertion somewhat. It seemed that it was scarcely fair to assume a positive diagnosis of syphilis even if one found a four plus Wassermann reaction. At the Lying-In Hospital they found the usual proportion of positive Wassermanns and a large number of tests were made. The babies were tested not later than two to four days after delivery. Many positive Wassermann babies were strong and vigorous and showed no evidence of lues. Therefore it made one rather doubtful whether he ought to make a diagnosis of syphilis where there was a positive Wassermann but no other evidence of syphilis. In women it was very difficult to get a history of a primary lesion and the secondary symptoms were so obscure that it was difficult to get any definite information. Of course we must have something definite to go by if we were going to establish a standard method of treatment for syphilitic patients but it was a question whether we should depend upon the specificity of the Wassermann test since it had been found that many other conditions give a positive Wassermann reaction—conditions having no relation to syphilis.

Dr. FREDERICK W. RICE said that at Bellevue and the Manhattan Maternity Hospitals they had been taking the Wassermann reaction on every pregnant woman and they had been giving vigorous treatment. If they found a positive reaction in the prenatal clinic they turned the patient over to the genito-urinary department for salvarsan treatment every two weeks with mercury between. The babies they treated for one month and then turned them over to the children's clinic.

Dr BAILEY asked about the alleged dangers of giving salvarsan. One case arriving at the hospital three days after its use presented the symptoms of acute yellow atrophy, and this patient died. The medical examiner refused to perform an autopsy because he said deaths from this cause were frequent.

Dr. BECK, in closing the discussion, said that when Dr. Healy asked him to read a paper on this subject he was able to find only 73 cases that had given four-plus reactions and of these only 32 had been followed up sufficiently to include them in a report at this time. Many more cases would be included in the complete report. In the beginning of the study the question came up "Did all these women have syphilis that gave a positive Wassermann reaction?" Up to eighteen months ago he had refused to treat a woman when she had a four-plus reaction and no other evidence of syphilis. The majority of these women gave negative histories, as was usually the case. Hence they had to rely upon the Wassermann reaction, and on account of the severity of the treatment he had insisted in having the Wassermann checked up by a second test, either in his own or in some other laboratory. Twenty-nine of these 32 women were definitely syphilitic. He felt that we did not know all that we should know about the Wassermann reaction in women during pregnancy and in the newborn. In none of the deaths in this series was autopsy performed so he could not say that syphilis had caused the deaths. With regard to Dr. Bailey's remarks, he did not hesitate to give salvarsan and they were giving it to a large number of patients. They had had a great number of patients who had had one, two, or three injections that were not included in this series. Hirst had said that he was afraid to give salvarsan in the last two months of pregnancy; most of the cases in this series had received salvarsan during the last two months of pregnancy without bad results.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December 14-17, 1920.

(*Continued from page* 572.)

PATHOLOGY.

1. Discuss immunity?
2. What are miliary aneurysms; where are they found, and to what condition are they contributing factors?
3. How is human tuberculosis of the lungs supposed to be contracted?
4. Describe a calcified blood vessel.
5. How is the number of bacteria in a solution estimated?
6. Describe an hypertrophied prostate gland; if it leads to obstruction to the flow of urine, what reaction occurs in the rest of the urinary system?
7. What is the significance of a focus of infection; for instance, an infected tonsil?
8. What was Louis Pasteur; when did he live; what were his principal contributions to human medicine?
9. What is typhoid vaccine; what has been accomplished by its use?
10. What local and general pathological conditions are expected in a severe untreated case of diphtheria.

PRACTICE OF MEDICINE.

1. Give the symptoms and treatment of epidemic cerebrospinal meningitis.
2. Give the symptoms and treatment of acute catarrhal bronchitis in a child one year of age.
3. Give differential diagnosis of hypertrophic cirrhosis and carcinoma of the liver.
4. Give differential diagnosis of pleurisy with effusion and primary lobar pneumonia.
5. Give diagnosis and treatment of typhoid fever.
6. Name the complications which may follow measles and the period of isolation.
7. Give the etiology and the treatment for erysipelas. What precautions should the physician take?
8. How would you treat a case of bronchial asthma?
9. What are the causes of vomiting in infants and very young children?
10. Give the symptoms of dementia praecox.

ANSWERS.

PATHOLOGY.

1. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic microorganisms. Immunity may be either natural or acquired.

Natural immunity is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The chief conditions which give immunity are: (1) A previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Active immunity is that form of acquired resistance to infection which is brought about by the activity of the cells of a person or animal as a result of having had the disease, or as a result of artificial inoculation with a modified or attenuated form of the causative microorganism.

Passive immunity is that form of acquired immunity which depends upon defensive factors not originating in the person or animal protected, but is passively acquired by the injection of serum from one that has acquired an active immunity to the disease in question. It is a sort of secondary immunity acquired by virtue of having received antibodies actively formed by another animal that has had to resist the infecting agent in order to produce them.

2. *Miliary aneurysms* are small multiple aneurysms which may be found in small arteries at the base of the brain; occasionally they are present in the pulmonary and mesenteric arteries. They are supposed to be due to some congenital weakness of the vessel wall, and are regarded as precursors of cerebral hemorrhage.

3. *Human tuberculosis of the lungs is supposed to be contracted* by the entrance of the tubercle bacilli through the respiratory tract by inhalation of mucus thrown off by an infected person while coughing, sneezing, loud speaking, etc.; it is also taken from dust similarly contaminated; handkerchiefs, soiled hands, milk, etc., may also be the means of conveyance. The bacilli may be taken in by the digestive tract and be carried to the lungs by the blood stream. The tonsils and retropharyngeal tissue may be the focus of infection, the cervical lymph nodes being next involved, and then the lungs.

4. *Calcification of arteries.*—"Calcified plates are frequently met with in the intima of the aorta and other large arteries as part of the change known as atheroma. It sometimes a more or less general calcification of the vessels, especially as a senile change, and is then frequently associated with other degenerative changes in the arterial walls. It is commonest in vessels of medium size, the arteries of the upper and lower extremities and of the brain being frequently affected. It may affect both internal and middle coats, often commencing in the muscle-cells of the latter. The calcareous particles, deposited from the vasa vasorum, make their appearance at first around and within the nucleus, and gradually accumulate until they fill the cell, which becomes converted into a small calcareous plate. The process may go on until the muscular coat is completely calcified; or it may be limited to isolated portions of the coat, giving rise to numerous irregularly distributed calcareous rings and plates, somewhat

suggestive of a piece of ipecacuanha root. These are best seen in vessels clarified and dried. From the muscular it may extend to the external and internal coats, until ultimately the vessel becomes calcified throughout. The vessel thus calcified loses its elasticity and contractility; its lumen is diminished, and it is transformed into a hard, rigid, brittle tube, or 'pipe-stem artery.' Such an artery is partially protected against dilatation, but is predisposed to rupture: in amputations great difficulty may be found in securing such vessels, as ligatures cut through them at once. The nutrition of parts supplied by them is more or less impaired, and general calcification of the arteries of the lower limb, therefore, predisposes to *senile gangrene*, inasmuch as it renders the vessels less able to adapt themselves to the varying requirements of the circulation. (Green's *Pathology.*)

5. *The Counting of bacteria*.—"Definite quantities of the material to be analyzed are mixed with gelatin or agar and poured into Petri plates. The exact dilutions of the suspected material must largely depend upon the number of germs which one expects to find in it. The plates, if prepared with gelatin, are allowed to develop at room temperature for twenty-four to forty-eight hours. If agar has been used, they are usually placed in the incubator at 37.5° C. At the end of this time, the colonies which have developed are enumerated. For this purpose, a Petri dish is placed upon a Wolffhügel plate. This plate consists of a disk or square of glass which is divided into small squares of one inch square centimeter each. Diagonal lines of these squares running at right angles to each other are subdivided into nine divisions each in order to facilitate counting when the colonies are unusually abundant. The Petri dish is placed upon the plate in such a way that the center of the dish corresponds to the center of the plate. The colonies in a definite number of squares are then counted. The greater the number of squares that are counted the more accurate the estimation will be. When the growth is so abundant that only a limited number of squares can be counted, these should be chosen as much as possible from different parts of the plate, and in practice one counts usually six squares in one direction and six at right angles to these, so as to preclude errors arising from unequal distribution. The final calculation is then made by ascertaining the average number of colonies contained in each square centimeter. If standard Petri dishes have been used, this is multiplied by 63.6, the number of squares in the area of the dish, and then by the dilution originally used.

"Thus if twelve squares have been counted with a total number of one hundred and forty-four colonies—the average for each square is twelve. Twelve times 63.6 is 763.2, which represents the total number of colonies in the plate. Now if 0.1 c.c. of the original material has been plated, this material may be assumed to have contained 10 × 763.2, or 7,632 bacteria to each cubic centimeter."—(Hiss and Zinsser's *Text-Book of Bacteriology.*)

6. *Hypertrophied prostate*.—"At first it retains its shape, then it becomes lobulated and irregular. The lateral lobes enlarge towards the rectum. The median lobe and the whole of the superior surface grow up into the bladder. A median constriction marks the attachment of the neck of the bladder, and separates the intravesical from the extravesical parts of the gland. The enlarged gland consists of either: (1) Excess of fibrous tissue: usual in the smallest specimens which cause symptoms; (2) Overgrowth of all the normal tissues: usual in the smooth medium-sized specimens; (3) Fibromyomatous tumors or fibroids: may form large masses; (4) Fibro-adenomata, *i.e.*, overgrowth of the glandular tissue: constitute the bulk of the largest specimens; (5) A well-marked laminated capsule consisting of layers of fibromuscular tissue surrounds the rest of the mass, and is continuous with the muscular walls of the bladder.

Changes in the urethra.—"Elongated from one to several inches. Curved with the convexity backwards. Tortuous from the pressure of enlarged lobules. Internal meatus may be distorted or blocked by the growth of the median lobe, or rarely held open by the same.

Changes in the bladder and kidneys.—"The bladder becomes first hypertrophied and then dilated, the muscular fasciculi being separated, and the mucous membrane pouched between the fasciculi. Cystitis occurs sooner or later. Hydronephrosis, pyonephrosis, or pyelonephritis may result from chronic retention and cystitis."—(Grove's *Synopsis of Surgery.*)

7. *Focal infection*.—"A local focus of infection may be the source of acute septicemia, but in addition a variety of chronic infections may arise with distant and important manifestations. The resulting infection may be either local or general. The importance and frequency of focal sepsis have been emphasized in recent years and it gives the clue to the etiology of many obscure conditions. . . . The organism most often concerned is some variety of streptococcus. . . . The local infection may be situated in many parts of the body; but in a majority the situation is in the mouth or tonsil. Investigation has shown the frequency of deep tonsillar infection, which may show no indication on the surface. . . . The lesions may be varied and situated in almost any part of the body. Perhaps the most frequent sites are the joints and fibrous tissues. Arthritis is common and many of the obscure pains, termed myalgia, neuritis, 'chronic and muscular rheumatism,' are really due to fibrositis secondary to a focal infection. Among other resulting lesions are endocarditis, myocarditis, gastric ulcer, cholecystitis, appendicitis and nephritis. The resulting disturbance is due to absorbed toxins or to bacteria which reach the blood stream or lymph and are carried to other parts."—From Osler and McCrae's *Practice of Medicine.*)

8. *Louis Pasteur* was a chemist and bacteriologist. He was born in 1822 and died in 1895. *His principal contributions to human medicine*, are: Discovery of the *Staphylococcus pyogenes* in boils, and of the *Streptococcus pyogenes* in puerperal septicemia; discovery of the bacillus of malignant edema; work on anthrax; discovery of preventive inoculation; work on hydrophobia.

9. *Typhoid vaccine* is a vaccine of killed typhoid bacilli which, when injected into the body, produces antibodies which protect the body against living typhoid baccili. The use of typhoid vaccines as a prophylactic measure against typhoid fever has been wonderfully successful in the army and also in civil life. Since the introduction of compulsory anti-typhoid vaccination in the United States army in 1910 there has been a steady, but decided, decline of typhoid. In 1913, there was only one case reported in 80,000 men. In the British army, the death rate from typhoid has been reduced 50 per cent.

10. "*Diphtheria* is primarily a local disease of the pharynx, of the larynx, of the nose, or of the skin. The bacillus lodges in the mucous membrane or skin, and produces a pseudomembrane. This consists of fibrinous exudation in the form of fine granular material or a fibrillar network, in which are embedded the epithelial cells and other tissue-elements and infiltrating leukocytes. The epithelial cells rapidly undergo coagulation-necrosis or granular degeneration, as do also the connective tissues when the process extends beneath the mucosa. The blood-vessels become obstructed by thrombosis or compression, and the tissue is therefore avascular. Nearly always the pseudomembrane thus formed is attached to the underlying tissues, and when removed a raw and bleeding surface is exposed. The depth of involvement, however, varies; sometimes the submucosa is soon involved; more often the disease is practically confined to the mucosa. The macroscopic appearance is that of a whitish, dirty-yellowish, or brownish membrane upon the mucous lining of the throat. This begins as one or several patches upon the tonsil, and spreads rapidly to the neighboring parts. In other situations the appearance is much the same. Inflammatory swelling beneath and around the diseased area is habitual. It is of great clinical importance to recognize that true diphtheria may occur in the form of typical follicular tonsillitis.

"*Internal* or *visceral lesions* may occur in the course of diphtheria or during convalescence. They are due to the action of the toxin, and not of the bacillus. Necrotic foci in the liver, showing advanced cellular degeneration of the cells with hyperchromatosis of the nuclei, and similar lesions of other organs, may be

seen in the body. Myocarditis and myocardial degeneration, renal degeneration and nephritis, and degeneration of the peripheral nerves and neuritis, may be met with."—(Stengel's *Text-Book of Pathology.*)

PRACTICE OF MEDICINE.

1. *Cerebrospinal meningitis* has an incubation period varying from a few hours to a week or ten days. The onset may be gradual or sudden (generally the latter), and is usually marked by a chill and rise of temperature. Headache, rigid neck, and hyperesthesia are constant; and vomiting, and mental, motor and sensory symptoms are often present. In fatal cases paralysis, coma, and convulsions have been observed. The *diagnostic factors* are: The presence of the headache, retracted and rigid neck, and hyperesthesia; vomiting, fever, and convulsions; lumbar puncture shows increased pressure in the spinal fluid and the presence of the *diplococcus intracellularis meningitidis*. The presence of Brudzinski's sign and Kernig's sign are also said to be diagnostic. *Treatment* includes the use of Flexner's serum (injected into the subarachnoid space after about 40 c.c. of the spinal fluid has been withdrawn). The patient is to be kept in a dark room, with his head elevated (but not flexed) and an ice bag applied to head and spine. Nutrient enemata may be required; both bowels and bladder need to be watched. Nervous symptoms may demand an opiate or chloral; urotropin is said to be of service.

2. ACUTE BRONCHITIS IN CHILDREN.—*Symptoms:* "The symptoms usually begin with a coryza, or follow an obstinate rhinitis or tracheitis. There is a hard, dry cough which soon becomes loose as more mucus is produced. The pulse and temperature are slightly elevated, rarely over 101° F. during the day, but may be a degree or two higher in the evening, while the respirations are always higher than normal. The child, as a rule, does not complain and may be quite willing to be about; infants, however, are often restless and irritable and vomiting may result from an attack of coughing. The stools are rarely normal, either constipation or loose stools being observed. It must be recollected that the sputum is swallowed by infants and children up to five years of age. The disease tends to recovery in from five days to a week. Severer forms are seen which are due to involvement of the smaller bronchi (formerly termed capillary bronchitis) in which the symptoms are more pronounced and there is some dyspnea. The pulse and respiratory ratio may be somewhat disturbed and a pneumonic process result from infection of the alveoli.

Treatment.—"Rest for the patient and fresh air are necessary requirements. A change to a different climate will often alone effect a cure. The bowels should be opened with a grain of calomel in divided doses or one or two drams of castor oil. The diet is to be restricted and water freely given. If the temperature is unduly high and is causing discomfort, an alcohol rub is indicated. The use of hot poultices and jackets are mentioned only to be condemned, and the same may be said of the so-called syrupy cough mixtures. If the secretions are persistently dry and the cough harassing, the Liq. ammonia anisatis in 3 to 5 drop doses in water to a child of five years or the aromatic spirits of ammonia in five to ten drop doses, diluted, is also effective. Do not give muriate of ammonia to children. If at night a sedative is necessary to allow the child to sleep, appropriate doses of any of the following drugs may be given: Codein, tincture opii camphorata, antipyrin, or sodium bromid.

"The room is to be kept well ventilated and the temperature not above 70° F. An enforced rest in bed with no further treatment than a free catharsis is often alone curative. If the child has adenoids and enlarged tonsils these should be removed at a later date to prevent subsequent attacks."—(Chapin and Pisek's *Diseases of Children.*)

3.

HYPERTROPHIC CIRRHOSIS.	CARCINOMA OF LIVER.
Absence of recognizable causes.	Hereditary history.
Occurs in young adults and in childhood.	Occurs usually after forty years of age.
Usually a primary affection.	Often occurs as a secondary growth.
Jaundice is slight unless grave symptoms develop; there is no cachexia.	Anemia is present, and also the development of a typical cachexia.
Paroxyms of pain. The case runs a slow course, usually lasting many years.	Pain more constant, with rapid emaciation. The case terminates usually within one year.
Enlargement is uniform.	The liver is irregularly enlarged, and contains umbilicated nodules.

—(Ander's *Practice of Medicine.*)

4. PLEURISY WITH EFFUSION	LOBAR PNEUMONIA
Onset marked by chilliness persisting for a few days.	Onset acute, with rigor, lasting one hour or longer.
Cough is irritating; no expectoration, or, if present, catarrhal in character.	Cough more marked, and accompanied by rusty or bloody, tenacious expectoration.
Sputum negative; tubercle bacilli rare.	Dense aggregations of pneumococci present.
Moderate fever of continuous type; declines by lysis.	Fever, 102° to 104° F.; falls by crisis.
Prostration moderate.	Prostration extreme.
Unilateral distention of the thorax.	Absent.
Countenance pale and anxious.	Mahogany-colored flush of cheeks.
Limited expansion at base of chest on the affected side.	Degree of expansion slightly, if at all, inhibited.
Tactile fremitus diminished or absent.	Increased over area of consolidation.
Interspaces bulging at base of chest.	Absent.
Percussion shows flatness, with great resistance to the plexiometer finger.	Dullness with less resistance, and sometimes a tympanitic note.
Diminished or absent breath-sounds over effusion the rule. Respiration murmur diffuse, distant, and generally unaccompanied by rales. Bronchial breathing may be present over the entire affected side of the chest.	Harsh bronchial breathing and presence of rales in first and third stages, unless a bronchus is plugged.
Friction sound heard in early and late stages.	No friction murmur; rales present.

(Anders and Boston's *Medical Diagnosis*).

5. *Diagnosis of typhoid fever* is based on (1) some characteristic signs and symptoms, such as the temperature curve, the rash, the enlarged spleen, slow pulse, leucopenia with relative lymphocytosis. None of these *alone* is diagnostic; but the combination is valuable. (2) The finding of the bacillus typhosus in the urine or blood is conclusive. The Widal reaction is positive in about 95 per cent. of typhoid cases.

Treatment of typhoid fever. The patient must be in bed, and no medicine given unless indicated. "Give no solid food, or that which would not readily pass through a fine sieve. Milk, if it agrees, albumin-water made from white of egg, beef tea, and chicken broth are the principal foods. Of late some authorities have advocated a light solid diet throughout, but nothing must be given that would increase the risk of perforation. The stools should be daily inspected. If undigested curd is found, milk is being given too often, or the gastric function is impaired. It may then be given with lime water or barley water. Beef tea should be sparingly used, lest it excite diarrhea. Alcohol is required mainly in the later stages, when the typhoid state has set in, and the heart is weak. Other stimulants are strychnine, ammonia, ether, etc.

"If the *diarrhea* becomes excessive give bismuth and opium, or lead acetate and morphia, or an enema of starch and opium. When the motions are very offensive intestinal antiseptics (calomel in small doses, salol, etc.), may be given. They are also useful in meteorism. If *constipation* be troublesome, give enemata. No purgative should be given after the first week. *Hemorrhage*—opium, lead acetate, or calcium lactate gr. xv every four hours, hypodermic injection of morphine or ergotin, ice-bag to the cecum. *Perforation.*—The main chance of recovery lies in early laparotomy and suture of the affected bowel. Every hour lost after the diagnosis is made, and the initial shock has passed off, increases the danger to life. Cases operated on within twenty-four hours may recover; later, recovery is very rare. In anticipation of operation, morphine may be given to relieve pain and diminish peristalsis. *Bed sores*—water-bed, cleanliness, stimulant and antiseptic lotions, dry dressings if the slough is large. High fever—quinine and cold baths. The antipyrin group is dangerous to the heart. The stools and urine must be carefully disinfected. During *convalescence* the diet must be increased with the utmost caution, and the possibility of relapse must always be remembered."—(Wheeler and Jack's *Handbook of Medicine.*)

6. *Complications of measles* are: Bronchitis, bronchopneumonia, laryngitis, diarrhea, convulsions, stomatitis, noma, otitis media, nephritis and endocarditis.

The *period of isolation* is from the beginning of the prodromal catarrhal symptoms until the cessation of the abnormal secretions from the mucous membrane—or from the commencement until the rash has disappeared for five days.

7. ERYSIPELAS. *Etiology:* The *streptococcus erysipelatis,* which gains admission through a wound or abrasion. *Treatment: Prophylaxis.*—Secure the asepsis of all wounds. All cases should be isolated to prevent the infection of others. *Local.*—In most cases all that is necessary is to apply lead, or lead and opium lotion. This has no curative action, but it relieves the stiffness and burning. Other applications, such as ichthyol, are, used, but do not hasten the termination of the process. A form of treatment which aims at getting ready a supply of phagocytes at a distance of 2 inches from the spreading margin is the most promising. The skin is irritated by free scarification, and the tissues then become infiltrated with leucocytes, which are ready to attack the cocci when they spread in this region. The part is kept covered with carbolic fomentations (1 in 40). *General.*—Good food and stimulants. The bowels should be kept acting by magnesium sulphate, and 2 to 4 grains of quinine with 15 minims of the tincture of perchloride of iron are generally given every four hours. Antistreptococcic serum sometimes is very useful, either injected or given by the rectum. The treatment of cellulo-cutaneous erysipelas is that of cellulitis."—(*Aids to Surgery.*)

The physician must be careful not to spread the infection; he should isolate the patient and his attendants, he should protect himself from infection, and disinfect himself, his hands, and his hair after attending the patient; he should also abstain from surgical operations and obstetrical cases while he is attending a case of erysipelas.

8. TREATMENT OF BRONCHIAL ASTHMA. "(1) *During the Attack.*—Remove any obvious cause of reflex irritation, such as overloading of the stomach. A brisk emetic often cuts an attack short; nitrites, especially nitrite of amyl, or chloroform may be inhaled. Belladonna, stramonium, and lobelia in combination with ammonia are useful remedies; the fumes of burnt niter papers, etc., are also recommended. A hypodermic injection of morphine may be needed; and pilocarpin or adrenalin may also be used hypodermically. The drug which has most claim to be regarded as specific is iodide of potassium. It should be given during the intervals and steadily persevered with. It is often successful, but as often fails, the disease being very refractory to treatment. (2) *During the Intervals.*—Change of air, careful diet, cod-liver oil, tonics, etc. A suitable climate must be found by experiment in each case. Such sources of reflex irritation as nasal disorders, gastro-intestinal irritation, uterine or urethral disease, must be sought for and removed. The diet must be light and non-stimulating, and the general health should be kept at the highest possible level." (Wheeler and Jack's *Handbook of Medicine*).

9. *Causes of vomiting in infants and young children.*—The acute febrile and infective diseases, meningitis, intracranial affections, acidosis, uremia, renal disease, intestinal obstruction, peritonitis, reflex causes (worms, teething, ear troubles), cardiac dilatation, heart failure, congenital hypertrophy of pylorus, spasm of pylorus, whooping cough, severe coughing in general, improper feeding, and dyspepsia.

10. *Symptoms of dementia præcox.*—"Many of the cases present some of the stigmata of degeneration, while some of them previous to the development of the disease have been bright. Others have presented peculiarities such as becoming delirious from slight provocation, convulsions in youth, susceptibility to alcohol, either the absence of sexual impulses or their early and unnatural development; eccentricities, precocious piety, seclusiveness, impulsiveness, moral instability, and weak-mindedness. Epileptiform or syncopal attacks may occur more or less frequently in the course of the disease; more rarely apoplectiform attacks, followed by a more or less permanent paralysis, occur as the first symptom of the trouble. Hysterical attacks also occur. Choreiform movements of the facial muscles, as wrinkling of the eyebrows, distortion of the mouth, rolling the eyes, "making faces," smacking the lips, sniffing, grunting, etc., are very characteristic. The deep reflexes are usually increased, as is also the mechanical irritability of the muscles and nerves. The pupils are usually dilated, and may be unequal. Hypalgesia, vasomotor disturbances, excessive secretion of saliva and sweat, irregular and scanty menstruation, vascular disturbances, subnormal temperature, anemia, either anorexia or voracious appetite, and in the early stages insomnia, and loss of weight, may be all present more or less frequently." (Potts' *Nervous and Mental Diseases*).

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

SOAPS AND PROTEINS. By Dr. MARTIN H. FISCHER. 272 pages and 14 figures. Price, $4.00. Published by John Wiley & Sons, Inc., New York.

STUDIES IN DEFICIENCY DISEASE. By Dr. ROBERT MCGARRISON. 270 pages, illustrated. Published by the Oxford University Press, American Branch, New York.

BELLEVUE AND ALLIED HOSPITALS, CITY OF NEW YORK, Eighteenth Anual Report, January 1, 1919, to December 31, 1919. 107 pages with tables.

THE POCKET ANATOMY. By C. H. FAGGE. 313 pages. Price, $1.75. Published by William Wood & Company, New York.

FASTING AND MAN'S CORRECT DIET. By R. B. PEARSON. 153 pages. Price, $1.75. Published by the author, Chicago, Ill.

OPERATIVE SURGERY. By J. SHELTON HORSLEY 721 pages, 613 illustrations. Price, $10.00. Published by C. V. Mosby Company, St. Louis, Mo.

DIATHERMY By ELKIN P. CUMBERBATCH. 193 pages with 44 figures. Price, $6.00. Published by C. V. Mosby Company, St. Louis, Mo.

INDISPENSABLE ORTHOPÆDICS, 2 Vols. By F. CALOT. 1108 pages, 1140 figures. Price, $14.00. Published by C. V. Mosby Company, St. Louis, Mo.

WARFARE IN THE HUMAN BODY By MORLEY ROBERTS. 285 pages. Price, $7.00. Published by E. P. Dutton & Company, New York.

GOUT. By L. J. LLEWELLYN. 469 pages with plates. Price, $7.50. Published by C. V. Mosby Company, St. Louis, Mo.

TWENTY-SIXTH REPORT OF THE BOARD OF HEALTH OF THE TOWN OF MONTCLAIR, N. J. 48 pages.

Medical History.

NEW BOOKS AND OLD.

XV.—THE LANCET.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

IT is scarcely probable that Thomas Wakley had any idea what was to be the result of his venture into journalism when on October 5, 1823, he brought out the first number of the *Lancet*. Now that the centennial of this old vigorous medical journal is rapidly approaching, it may not be out of place to make some comments on it and give a brief historical account taken partly from a leaflet recently issued.

In the fourth number of the first volume of the *Asclepiad*, published in 1884, by Benjamin Ward Richardson, there is a delightful account of Thomas Wakley under the title of "A Great Medical Reformer." Richardson states that when he was in the vestibule of the Esculapian Temple, Wakley was one of the most striking figures within it, was one of the first to welcome the newcomer, to strengthen him in intention and inspire him with hope. Of this remarkable man who served so long as coroner for Middlesex and as member of Parliament from Finsbury, Richardson says:

> This man was not, like my Gilbert and Harvey, a discoverer in natural science; he was not, like my Keats, a poet. He had few of the qualities of any of those of "our great ones of the past," whose lives I wrote long ago. But in his way he was very great, very powerful, very much feared, and, withal, and as a consequence, very severely attacked by many, but by none more than by those who felt surest that he would never divine, by their manner and bearing toward him, from whom the offense came.
>
> To my young mind it was a new experience to see the behavior with which this man was treated, such merciless aspersion, such truckling servility, such cowardice, and often too from quarters where it was least expected. I remember talking to my good old friend, Dr. Robert Willis, on this subject, and saying that I had half a mind to leave a profession in which I was morally disheartened, and try my luck at the bar. "You will fare no better there," he replied, "if you try it, and you had better go on. As to the man you name, in whatever profession he had entered, he would have shared the same fortune and misfortune. In the Church he would have been a Pope or a martyr; in the Law a Lord Chancellor, or a reformer out of the recognized pale; in the Army a General or a rebel; in the Navy an Admiral or a corsair. In Medicine he has no scope for such extremes, but he is what he is there, a character quite unique, utterly fearless, resentful of all narrow abuses, and, according to his lights, honest as he is fearless and determined; a man who would crush an enemy as he would a wasp and treat a flatterer, whom he knew for such, as a born enemy; but who loves his friends and helps some, whom he thinks well of, much beyond their merits."

When the *Lancet* was started the condition of the medical profession in the United Kingdom was not all that might be desired. The members of the profession for the most part were not learned, held no social position, and quackery reigned supreme. Wakley believed that this was largely due to the selfishness of the leaders of the profession and to the manner in which the great medical corporations were conducted. The medical profession was divided into two classes, the leaders trying to keep down the rank and file as much as possible. Wakley was a member of the Royal College of Surgeons and one of the first things he did as an editor was to point out in no uncertain terms that the great corporations were not doing their duty in the matter of educating the students and that the material in the hospitals was not properly utilized for instruction. All this made a great stir and the leaders of the profession were violently opposed to him, but the humbler members of the profession took the other side. Week after week the conditions were ridiculed, and eventually the personal liberty of the editor was threatened and a parliamentary committee held to inquire into the charges brought by the *Lancet*. Why Wakley was not murdered for some of his onslaughts is hard to understand. If you will turn to some of the earlier numbers of the *Lancet* and read some of the letters and some of the statements you can get some idea of his method of stirring things up. An example taken almost at random gives some idea of his method. It is from a leading article bearing the heading "Mr. Abernethy and His Chancery Application."

> Now had they conducted the contest at all like honourable opponents, and fought only with recognized legitimate weapons, we should not have complained; it was natural that they should contend, and lustily, too, for the security of those "golden mites" which custom had, for so long a period, allotted to them. Therefore had the "Hole and Corner" people disputed every inch of ground in the most resolute manner, by an honourable mode of warfare, it would have betrayed weakness and petulance on our part, had we complained of it, or even alluded to it; indeed, we should rather have complimented them for the tenacious adherence with which they had defended the following enlightened maxim of their forefathers:
>
> "It is their duty, all the learned think,
> T' uphold the cause by which they eat and drink."
>
> Opposition we expected—hostility we anticipated—but certainly not of the description we have met with; it has been unmanly to the last degree; it has been grovelling, base, and vile; it really would appear that we are engaged in a conflict with the lowest reptiles, rather than with beings which had been bred and nurtured in the bosom of civilized society. Our opponents never meet us fairly, never candidly; they substitute falsehood for truth, calumny for argument, and reply to remarks on public utility by a scandalous and disgraceful attack on private character. Such cowardly, assassin-like conduct portrays the rottenness of their cause, and, at the same time, is the best proof of the stability and purity of ours. Of the misrepresentations we have just alluded to, there cannot be a more glaring one than the assertion, that Mr. Abernethy will sustain a pecuniary loss from the non-attendance of students, arising from the publication of his lectures. At the very moment when the "Hole and Corner" surgeons utter this sentence they know it to be false—radically, flagrantly false. We are here designated as the robbers, while in reality we are the robbed. This we will prove to the entire conviction of every unprejudiced—nay, every prejudiced mind.

The book reviews from the very beginning have the same character which they have to-day, only more so. The reviews show that the books considered have been actually read, a rare thing for a book reviewer of any kind to do, but the chief feature is the pitiless criticism, the showing up of mistakes of all kinds and making much of typographical errors from which no printing is exempt.

As the result of Wakley's activities a new charter was obtained from the College in 1844. He next took up the administration of the larger hospitals. Reforms were gradually accomplished by

vigorous and persistent fighting. The *Lancet* published the conditions in the hospitals, reports of what they regarded as malpractice. The relations of the students and the staff were also attacked and finally reformed and the selling of resident appointments by the medical staff was done away with. Many of the persons interested claimed they were being slandered and took their cases into the courts.

Another very important reform which Wakley accomplished was the registry of the duly qualified practitioners, thus enabling the public to differentiate between the trained medical men and the quacks. A bill for this purpose and for a system of medical education was introduced into the House of Commons in 1846 by the editor of the *Lancet*, but the opposition of corporations prevented its passage. Eventually, however, the socalled Warburton's Act of 1858 brought into existence the General Council of Medical Education and Registration of the United Kingdom.

In 1851 another revolutionary campaign was started, this time against the adulteration of foods and an Analytical Sanitary Commission was instituted to examine foods and drink and the results were so striking that a Parliamentary Committee was appointed in 1855 and as a result an act against the adulteration of food was passed in 1860. This has been followed since by other legislation along the same line.

Many other studies and reforms have been undertaken by the *Lancet*, among others, the clinical investigation of the causes of death under chloroform. This is one of the studies which led to the practical abandonment of chloroform as an anesthetic except in certain selected cases.

It is hardly necessary to catalogue the large number of studies made in the *Lancet* Laboratory, but they included a very large number of subjects ranging from the chemistry of lager beer to the soot fall of London.

During the war the paper devoted its energies to the medical interests of the Allies and ran with great success a relief fund for the Belgian Doctors and Pharmacists.

The *Lancet* claims to be largest and the oldest medical paper in the world, but the first claim doubtless could not be maintained for certainly as large if not larger journals are now published, but its independence is refreshing and its continuous efforts in its attempts to correct abuses and to better medical conditions, both for the profession and for the public have made for it a host of friends who will join in their congratulations on the centennial celebration of this justly renowned journal.

Rivière's Potion.—In his work entitled *Thérapeutique des vieux Maitres*, Dr. Fiessenger has given an account of Lazare Rivière, one of the best known of the old Montpellier physicians, whose biographer was the famous Astruc. Dr. Leclerc, in this connection, makes a short contribution on the subject of "Rivière's Potion" to *La Presse Médicale* for May 14, 1921, xxix, 39. Astruc relates that on December 6, 1610, he appeared before the Faculty of Medicine of Montpellier to solicit from them the "doctors' cap." He was judged too imperfectly educated to receive this honor, and his case was therefore postponed for a year. Greatly humiliated by this set-back, he nevertheless resumed his studies and on May 9 of the following year, when 22 years of age, he passed a brilliant examination and received his doctorate. Far from sleeping on his laurels, he worked unremittingly and in 1622 received a chair in the faculty with the assurance of the deanship in his turn, which came in due time. Up to his death in 1655 he was regarded as one of the leading practitioners of France, both at home and abroad. His *Praxis Medica*, written in elegant Latin, shows that he was a man of good common sense and a prudent and sagacious therapeutist. He was noted for his eclecticism and introduced the teaching of chemistry into the medical curriculum of the college. He was willing to make use of the remedies of irregular practitioners if they did good work, and it is possible that his well-known anti-emetic potion was of this origin. It consisted of two grams of "salt of absinthe" mixed with a teaspoonful of lemon juice and was used to relieve the nausae and vomiting of severe fevers. The "salt of absinthe" was simply the ash of that plant obtained by incineration and consisted chiefly of potassium carbonate; which, when mixed with the citric acid of the lemon juice, liberated carbonic acid. This remedy still persists in the French Codex as a double potion, one of sodium bicarbonate and the other of citric acid, which are ingested in rapid succession, a teaspoonful of each at a dose, and still recommended for nausea and vomiting.

The French Medical College at Pondichery.—This institution originated on paper as far back as 1823, but the organization and instruction was of the haphazard order. It was a matter of benevolence and philanthropy to teach young Hindoos the rudiments of medicine. Not until 1863 was there a formal movement begun in connection with the French Naval Medical Service to give instruction in sanitation and vaccination and to give qualifications to the natives after they had been duly examined. The standards of education were raised until in 1890 a five-year course was established, and in 1903 it became necessary for the medical student to possess the degree of bachelor of arts, or its equivalent. At present there are three degrees conferred. The first is that of native health officer, which seems equivalent to Doctor of Medicine. The second is the degree of public vaccinator. The candidate must be able to read, write, and speak French, and must have pursued the first two years of the medical course. He is entitled to practise minor surgery and is ostensibly an expert diagnostician of epidemic diseases and versed in their treatment. The third degree of diploma conferred is that of midwife. Although nothing is said on this point, it is clear that the term vaccinator means much more than immunizer against smallpox, for India is the home of bubonic plague and cholera, both of which are dealt with on a huge scale by preventive inoculation; and it is quite evident that the rôle of immunizer can be no sinecure. The foregoing account is taken from an abstract in *La Presse Médicale* for May 7, 1921, xxix, 37, of an article by Guérin in the *Bulletin de la Soc. de Pathologie exotique*.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 16.
Whole No. 2658.

NEW YORK, OCTOBER 15, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

SURGERY IN ADVANCED CANCER.

WITH ILLUSTRATIVE CASES.*

BY WILLIAM SEAMAN BAINBRIDGE, SC.D., M.D., C.M.

NEW YORK.

FOR many years an earnest effort has been made to discover the essential cause of cancer. Since the dawn of the present century there has been much research on the subject, but at this time we must admit that we are as much in ignorance of the basic cause of the disease as were the Egyptians or the early Greeks.

The whole subject of cancer is so shrouded in a maze of uncertainty, and lack of exact knowledge is so apparent, that one is tempted to be discouraged, and feel that the solution of the cancer problem is almost hopeless. However, if one scans the literature of the last one hundred and fifty years, he will find evidence of marked progress, for some of the diseases such as actinomycosis, tuberculosis, blastomycosis, and syphilis which formerly were included under the term "Cancer" are now recognized as entities and treated as such. Since the nature of these diseases has been determined only after years of intensive research, it seems hardly within reason to suppose that the end of differentiation has been reached, for that which is termed "Cancer" to-day may be, after all, a heterogeneous group of diseases. This thought should be a source of great encouragement and while we continue endeavoring to discover the essential cause or causes of cancer, we should endeavor to eliminate all known contributory factors in the causation of the disease.

It is a well accepted truth that surgery has a distinct place in precancerous conditions, in well developed cancer, and in many instances even in the advanced cases. The medical profession realizes that it assumes greater risks of recurrence and of operative mortality as it attacks more advanced stages of malignant disease. However, in the light of our present knowledge adequate surgery properly applied seems often to offer the best hope of relief and possible cure.

The object of this paper is to illustrate by case reports the value of radical surgical procedure in apparently inoperable, incurable, and irremovable cancer. For the sake of clearness, the paper has been divided roughly into four groups.

Group I. Surgery may remove complications of a non-malignant nature which mask the true limits of the cancer and, by removing these complications, prove the seemingly inoperable cancer to be entirely operable.

CASE A.—G. H.*; female; 54 years of age; married; 2 children. This patient consulted me November, 1909. She had been constipated for a long time and three years previously had developed a great deal of pain, gas, and general discomfort in the left side of the abdomen. Two years later mucus and blood, gradually increasing in volume, were discharged from the rectum. In May, 1909, exploratory laparotomy was performed by another surgeon, but so many adhesions were found that he considered the disease too far advanced for surgical interference.

On examination, November, 1909, I found intestinal stasis with marked cachexia, great loss of flesh and strength, and the lower pelvic colon almost totally obstructed by advanced cancer of the rectum. With the hope that the first operator had been mistaken in the extent of the disease and believing that, at all events, a colostomy would relieve the pressure and pain, exploratory laparotomy was performed. Adhesions from an old peritonitis following childbirth years before, were found and separated. Salpingo-oophorectomy for a diseased left ovary and tube was performed, and by the combined operation, using the vaginal outlet, two and one-half feet of intestine with mesorectum and mesosigmoid were removed and an end-to-end anastomosis was made between the bowel above and the remaining portion of the rectum below by a circular enterorrhaphy. Pathological examination proved this to be a case of adenocarcinoma of the rectum.

The patient had an uninterrupted recovery. She has gained 38 pounds in weight since the operation, has absolute control of her bowels and today, June, 1921, is a perfectly well woman.

Group II. Surgery may not remove the disease but may so confine it that the patient may live many years in comfort and comparative health.

CASE A.—T. J.; male; 53 years of age; married. Patient consulted me May, 1917. Two years previous he had an infection of the left lower jaw, and later a lump appeared on the same side of his neck. This lump was excised and proved to be a cyst. A few months later a discharge from the right ear developed. In January, 1917, the patient consulted a specialist for a painful condition of the throat and the physician pronounced the condition cancerous. The man then saw three other specialists, all of whom agreed with the first diagnosis. X-ray treatment was prescribed.

On examination May, 1917, I found a bulging mass, seemingly behind the soft palate on the right side, and an enlarged gland under the deep muscles near the angle of the right inferior maxilla. The growth seemed to involve the maxillary sinus on the right side and block the right posterior naris. There was a bad odor from the mouth. The patient was advised to have the glands in the neck removed and the blood vessels tied off, so as to retard the growth as far as possible. In May, 1917, all the lymphatic glands in the neck on the right side were removed, the external carotid and all its branches were tied off, with the ex-

*Read before Wayne County Medical Society, Alumni Week of the Detroit College of Medicine and Surgery, Detroit, June, 1921.

*Preliminary report in *New York State Journal of Medicine*, October, 1913.

ception of the terminal branch. One month later the external carotid and all its branches on the left side were ligated. At the same time the lymphatic glands on the left side were removed. The primary growth was not interfered with. On pathological examination the gland was found to be a degenerated mixed tumor.

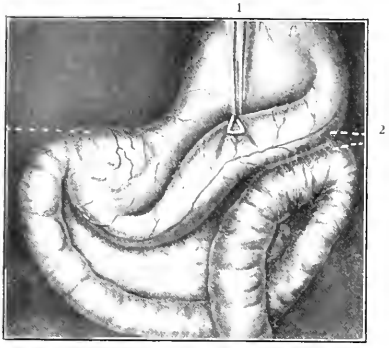


FIG. 1.—Group IV, Case A. 1. Forceps grasping stomach and bringing site of gastroenterostomy into view. 2. Opening from stomach into small bowel. 3. Area of carcinoma.

The patient had an uninterrupted recovery and in June, 1921, was in excellent condition. There was no evidence of disease in the neck. The nasal passages were no longer blocked and there was no discharge. During the war he took a very active part in Y. M. C. A. work and suffered no ill effects from long and strenuous hours.

CASE B.—O. S.; male, 55 years of age; married. This man consulted me July, 1917. His left tonsil had been troublesome for years, but three months previous to his visit it had grown much worse and three times during this period pieces of tonsil had been removed, once for diagnosis and twice for the elimination of the disease. On examination I found advanced carcinoma of the glands of the neck on the left side and of the soft palate, the mass extending towards the base of the tongue.

July, 1917, operation was performed for removal of the glands on the left side of the neck and ligation of the external carotid and its branches. This was done merely as a palliative measure, since the cancer was irremovable, the clinical diagnosis having been proved correct by pathological examination. No operation on the mouth was attempted.

The patient had an uninterrupted recovery and later was treated with radium. In October, 1917, he reported his general condition good and his neck in excellent shape, though the mass had not diminished materially in size.

In February, 1918, his physician in a distant city reported that the patient had developed ulcer of the stomach and peritonitis had set in, resulting in death.

CASE C.—W. S.; female; 45 years of age; married; children. In May, 1909, I was called in consultation for the patient who was in the menopause and suffering from a severe uterine hemorrhage. A number of physicians had seen the case and agreed that there was an irremovable cancer of the uterus, with a large cauliflower growth of the cervix, involving the whole upper part of the vagina and that nothing could be done except to give the patient morphine to relieve the pain. The pelvic glands were involved and the growth encroached upon the bladder.

Because of the patient's great suffering, both mental and physical, I described to the family the value of the lymphatic block and starvation ligature operation. Upon their urgent request a laparotomy was performed. The right and left ovarian arteries, the internal iliac arteries, and the sacra media were ligated and a large mass of lymph glands along the large vessels with both tubes and ovaries were removed. Radium gelatin was injected into the left side of the uterus, the broad ligament on that side being more involved than the right.

The patient had suffered marked pain in the left lumbar region as well as in the pelvis, and had had frequent and painful urination. When the abdomen was opened the left ureter was found blocked, and practically from the pelvic brim upward to the kidney it was dilated almost to the size of an adult thumb. The left kidney showed beginning hydronephrosis. After the starvation ligature and lymphatic block operation was performed, the ureter was separated very carefully from all points of pressure, and the bladder, which was empty, became full and the ureter was no longer distended. The pathologist's report was that of carcinoma uteri.

The patient had an uneventful recovery and gained more than twenty pounds in weight. She went to the country; was able to take long walks and had a comfortable summer. There was no hemorrhage and but a slight vaginal discharge which was easily controlled by ordinary douches. There was no return of pain in the left kidney region until just before the terminus late in the fall when an acute congestion of the kidneys, from pressure, evidently due to blocked ureters, caused an illness of a week, with death.

CASE D.—E. M.; female; 72 years of age; married. This patient consulted me March 1, 1909, for profuse and continued uterine hemorrhage. On examination, the cervix and vault of the vagina were found to be characteristically brawny. The patient was bedridden, in a grave condition, with uterine hemorrhage a constant danger and considered a hopeless case by those in attendance—with only a few days at most to live. There was cancer of the uterus with extensive involvment of the contiguous structures.

To control the fetid discharge and prevent hemorrhage, operation was performed and both internal iliac, both ovarian and the sacra media arteries were ligated.

The patient's convalescence was uneventful. She gradually regained strength, and was able to go about town in comparative comfort and without fear of uterine hemorrhage. On one occasion, after undue exercise, there was a slight venous oozing, but nothing sufficient to be of serious moment. Cachexia finally became marked, the patient failed and died more than ten months after operation.

CASE E.—C. P.; male; 69 years of age; married. Two years previous to consulting me the patient developed violent pain in the epigastrium and, later, passed blood streaked stools. An *x*-ray examination of the colon showed a constriction near the junction of

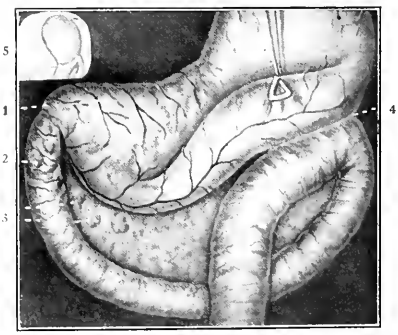


FIG. 2.—Group IV, Case A. 1. Area of involvement of gastric organ by carcinoma greatly increased. 2. Extension of malignant disease by continuity into first portion of duodenum. 3. Malignant involvement of glands at head of pancreas. 4. Site of gastroenterostomy opening with stitches entirely covered by changes since first operation. 5. Schematic drawing of what was left after operation.

the sigmoid with the rectum, about 5 cm. to 7 cm. in length and involving the entire wall of the intestine.

In May, 1917, a left inguinal colostomy, in two stages, was performed. Two months later an incision was made in the perineum preparatory to removal of the

rectum. The growth was found to be tightly adherent to the bladder and so high that it was impossible to remove it from below. An effort was then made to attack it from above but the mass in part proved irremovable. To retard the growth the blood vessels were ligated. The partition between the rectum and the urethra was found to be so necrotic that it was not possible to save it all and a plastic operation had to be done.

The patient's recovery was uneventful and three years after the operation, June, 1921, his physician reported that he had gained twenty-eight pounds in weight and was in excellent health.

Group III. Surgery may be advantageously employed to remove secondary conditions, save suffering and prolong life, without totally removing the growth.

Case A.—R. V.*; female; 29 years of age; married. This patient consulted me in May, 1907. She had had an exploratory laparotomy in another city and the diagnosis of irremovable round celled sarcoma made. The condition of the patient was such as to make this

Fig. 3.—Group IV, Case D. Ulcerating epithelioma before operation; dorsal view.

diagnosis seem improbable and I advised another exploratory laparotomy. On June 12, 1907, a second laparotomy was performed and papillomatous degeneration of the uterus, tubes, and ovaries was found, extending to the intestines and liver. A detached portion was removed for microscopic examination and the laboratory report was that of malignant adenopapilloma. Ten days later panhysterectomy was performed, a large papillomatous mass in the pelvis removed and a great amount of fluid evacuated.

The patient had an uneventful recovery. During the remaining ten years of life she had 18 laparotomies and 100 tappings under general anesthesia. About every six months it was necessary to open the abdomen and remove more of the papillomatous material, relieve the points of obstruction and a number of times excise portions of the large and small bowel. At a number of the operations oxygen was introduced into the abdomen by the method which I have described elsewhere (*Annals of Surgery*, March 1909.)

The fluid continued to collect in the abdomen, necessitating the many tappings. The patient remained in the hospital two or three weeks after each laparotomy and two or three hours after each paracentesis abdominalis. She had no cachexia, her bowels moved regularly, her color was good and her weight averaged

Fig. 4.—Group IV, Case D. Ulcerating epithelioma before operation; palmar view.

forty pounds more than at the time of her first operation. She was able to do her housework until within six weeks of her death and except for the discomfort experienced when her abdomen filled with fluid, she felt perfectly well.

Fig. 4.—Group IV, Case D. Appearance of the hand after the operation—ready for the plastic work.

The patient died in another city January, 1917, of intestinal obstruction and pneumonia. From the date of her first operation, June, 1907, she lived ten years in comparative comfort, even marrying a second husband during this period.

*Preliminary report in *N. Y. State Journal of Medicine*, October, 1913.

This case emphasizes the importance of differtiating between types of malignant neoplasms, and the fact, as stated at the beginning of this case, that surgery may be advantageously employed to remove secondary conditions—thus saving suffering and prolonging life.

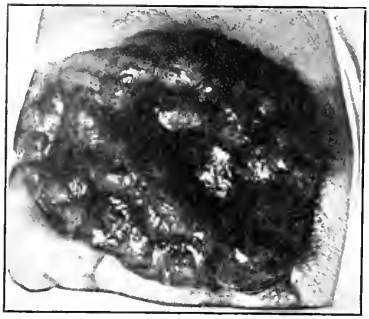


FIG. 6.—Group IV, Case E. Plaster cast showing the condition of advanced epithelioma of face and orbit.

Group IV. Radical surgery in advanced cases of carcinoma may totally remove the disease or permit the patient to go for many years without a recurrence.

CASE A.—J. H.; male; 49 years of age; married. This patient consulted me October, 1912, for continued nausea and the gradual loss of flesh and strength. *X*-ray pictures taken at this time showned carcinoma extending along the anterior wall of the stomach and including the greater curvature near the pylorus. There were in addition adhesions around the pylorus; the ascending and transverse colon were largely fused and there was an ileopelvic angulation.

November 1, 1912, a posterior gastroenterostomy was performed, but the condition of the patient, which was that of extreme anemia and emaciation, did not warrant the removal of the growth. After two months of forced feeding, the patient gained more than ten pounds, and a second operation was performed December 31, 1912. Between the first and second operations the cancer had increased two hundred per cent. and the disease had extended to the glands and head of the pancreas.

At the second operation an incision was made through the old abdominal scar. Three-quarters of the stomach, the upper half of the duodenum almost to the papule of Vater, with a portion of the head of the pancreas, and the large lymphatic glands in the neighborhood of the common duct, were removed. The free use of warm normal saline solution in the abdomen and submammary hypodermoclysis during the operation helped the patient to withstand shock. The pathological diagnosis was adenocarcinoma of the stomach. (Figs. 1 and 2.)

The patient was operated upon in December, 1912, and in May, 1921, he reported, as at intervals since the operation, for examination. He weighs 23 pounds more than he did in 1913, works every day and is able to eat and digest any kind of food without the least discomfort.

From all clinical signs, the *x*-ray pictures, the emaciation of the patient and the advanced state of cancer as seen at the first operation, there seemed very little in the history on which to base a hope of cure. But in spite of the unfavorable signs and conditions, the man has enjoyed eight years of absolutely normal existence and his present physical appearance would indicate that he may go on indefinitely with the hope that he is permanently cured.

A point of special interest in this case, referred to earlier in the report, is that during the two months between the first and second operations, when the patient was being built up for the more radical surgical procedure, the local condition extended very rapidly. It is a fine point of decision for the operator as to how far he should endeavor to improve the general condition of his patient before attacking the cancer.

CASE B.—M. A.; female; 34 years of age; single. This patient was referred to me in March, 1905. She had cancerous degeneration of the scar tissue of the right thigh, the result of burns many years earlier. Eight years previous to consulting me she was operated on for cancer at the same site and this operation was followed by many others, repeated recurrences taking place. At each operation the involvement was found to be deeper and finally the case was declared to be inoperable, as the disease had encroached upon the buttocks and groin.

On examination I found cancerous degeneration of scar tissue extending well down to the bone and involving all the soft parts underneath and around the large vessels on the inner side of the right thigh. The patient had lost much strength and flesh and showed great emaciation. I advised amputation at the hip joint, which was performed April, 1905. The difficulties of the operation were greatly increased by the fact that the disease had become so extensive as to leave nothing but short flaps of soft tissue available for covering the stump. Typical Wyeth amputation was done with the use of Wyeth pins. Pathological diagnosis was that of carcinoma of the femur and soft tissues.

The patient had an uneventful recovery and fifteen years later, November, 1920, reported herself free from recurrence and in excellent physical condition.

CASE C.—C. S.;* female; 44 years of age; married. This patient consulted me November, 1912, for profuse leucorrhea tinged with blood. This discharge had been

FIG. 7.—Group IV, Case E. After removal of the epithelioma; before plastic operation.

present three years and two surgeons whom the patient consulted diagnosed the condition as irremovable cancer of the uterus.

On examination I found evidence of advanced cervical carcinoma with extension into the body of the

*Preliminary Report in *New York State Journal of Medicine*, October, 1913.

uterus and apparent involvement of the broad ligaments and pelvic glands.

Operation was performed in November, 1910, panhysterectomy and vaginectomy, with double arterial ligation of internal iliacs, sacra media and ovarian arteries and removal of both ovaries and tubes, and the glands along the ureters from the receptacalum chyli to the obturator foramen on both sides. This is the operation for starvation ligature and lymphatic block which is described in the writer's book "The Cancer Problem," pages 385-395.

The pathological report was that of carcinoma of the cervix and uterus; chronic fibrocystic ovaries and hyperplasia of the pelvic glands.

The patient had an uneventful recovery and in May, 1921, over ten years after the operation, reported that she was in perfect health.

CASE D.—N. M.; female; 27 years of age; married. This patient consulted me November 16, 1914, for a fungoid growth, the size of a hen's egg, involving two fingers of the right hand and extending laterally to the back of the hand. The growth was ulcerated and there was enlargement of the epitrocheal gland on the right side. Three surgeons whom the patient consulted agreed that amputation of the arm was imperative.

Conservative operation was advised and on November 23, 1914, I removed the growth and part of the ring and little finger. Subsequent to operation there was some contraction of the little finger and the first phalanx of the third finger but this condition was improved later by plastic operation. (Figs. 3-5.)

May, 1921, the physician of the patient reported that she is in excellent health, that there is no recurrence of the cancer and the patient is able to use her hand without any discomfort.

CASE E.—B. G.;* female; 46 years of age; married. Eight years before consulting me the patient developed a small ulcer on the lower lid of the eye, following diphtheritic infection. The ulcer grew slowly for seven years but during the eighth year increased in size very rapidly.

When I first saw the patient, April, 1909, she was suffering from a large fungating epithelioma of the left orbit, involving the eyeball and extending to the dura mater.

FIG. 8.—Group IV, Case E.—Appearance of patient after plastic operation.

Operation was performed and the entire growth removed, including the contents of the orbit together with the inner wall down to the dura. The wound was then packed with gauze and allowed to granulate preparatory to plastic operation. A subsequent recurrence, with a leak of cerebral spinal fluid, necessitated a second operation, when an area of the dura, about the size of a ten cent piece, was removed. Plastic operation was performed at a later date.

The patient now wears a specially constructed glass over the eye. Her health is good, and, in the twelve

FIG. 9.—Group IV, Case E. Showing appearance of the patient wearing specially constructed spectacle. When the hair, which in the photograph is drawn back to show the extent of the scar, is allowed to cover the forehead, the patient is not unsightly.

years since the operation, there has been no recurrence of the condition. (Figs. 6-9.)

In order to give the patient the greatest chance in all these operations for cancer, the surgeon should first eliminate, as far as possible, any complicating factors present, including toxic ones arising from infections of the teeth, tonsils, sinuses or other source. If there is a site for absorption from external ulcerating cancer, the usual procedure for cleanliness should be observed. This also applies to mucous surfaces, such as the mouth and lower bowel. The gastrointestinal tract should have attention and, when possible, for a few days preceding operation the use of colonic irrigations, six to ten gallons a day, containing a dram of bicarbonate of soda to a pint of water, will prove very efficacious in eliminating poisons, hydrating the tissues and lessening acidosis. Preliminary to operation, all the usual safeguards against shock, such as morphine and atropin, are of value.

During operation the patient needs to be fortified for the severe surgical procedure, and hypodermoclysis, with normal saline or alkaline solution, may be given under the breasts as a support even before the patient shows evidence of the need of additional body fluid. If there is an abdominal section, normal saline solution can be advantageously employed, constantly pouring into the abdomen the warm fluid as it is taken up by the tissues. Thus the body heat is supported, the body fluid kept up, friction incident to handling the tissues is lessened, and the danger of postoperative adhesions is greatly diminished.

For the past ten years the author has uniformly

*Reported in part in "Campaign Against Cancer," *American Journal of Dermatology*, Vol. XV, No. 7, 1911.

employed the Murphy drip of one ounce glucose and two drams bicarbonate of soda to a quart of tap water, giving forty drops per minute until recovery from shock and a satisfactory functioning of the kidneys is obtained.

The victim of advanced cancer who confronts months of terrible suffering often will gladly accept the risk of fatality in order to secure relief. In facing these seemingly inoperable cases it is well to remember that radical surgery frequently *can* alleviate pain and *may*, in some instances, effect a permanent cure.

34 GRAMERCY PARK.

ANOTHER CASE OF ULCERATIVE COLITIS SUCCESSFULLY TREATED BY COLONIC IRRIGATIONS FROM ABOVE.

BY MAX EINHORN, M.D.,

NEW YORK,

PROFESSOR OF MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; VISITING PHYSICIAN TO THE LENOX HILL HOSPITAL.

A SHORT time ago I* reported a severe case of ulcerative colitis treated by injections into the large bowel, through the jointed intestinal tube, with beneficial results.

In as much as this mode of treatment is new and promises to be useful, I consider it of interest to describe a new case successfully treated by the same method.

The case is as follows:

Alfred S., age 20, volunteer soldier. Health had been good until September, 1919, when patient noticed bright red blood in stool. At first it appeared only occasionally, but soon was found with each bowel movement. He entered a hospital in Germany in latter part of September, 1919, and had a course of treatment lasting three weeks. For about three weeks following the hospital treatment the stool was free from blood. There were practically no other symptoms at this time. But the condition grew steadily worse until he came to this country in August, 1920. At this time there were present: anorexia, diarrhea, asthenia, and considerable loss of weight.

FIG. 1.—X-ray of patient Alfred S. one day after the third joint had been inserted. The two metal joints are visible in the intestine. Most of the small intestine is recognizable by the course of the tube and the metal capsule is situated in the ileum.

FIG. 2.—Two days after fourth joint had been inserted. All three joints are visible in the small intestine and the capsule deep in the ileum.

Previous to admission to the hospital the patient had been having 1 to 13 bowel movements daily, very often with tenesmus, and bright red blood persistently present. Had lost 16 pounds in weight from date of onset of disease to time of admission to the hospital.

Date of admission, December 7, 1920. Weight on admission, 132 pounds. Gastric analysis: HCL=50; total acidity=75; blood, negative. Rectal injections of 10 per cent gelatin (nocturnal) given from December 8 to 15, inclusive. Tannin-agar was given 1 dram t.i.d. Proctoscopic examination revealed inflamed ulcerative areas extending down to within 4½ inches of the anus. On December 13 the first section of the intestinal tube given; on the 14th the second part was attached; on the 15th the third part was attached, and on the 17th the fourth part was attached.

Calcium carbonate 0.5 to 1000 c.c. of water per drip through the tube twice a day was started on December 14. On the following day the *x*-ray showed the tip of the tube in the coils of the small bowel. On December 15 the following was given by injections:

R

Myrtle extract
Aq. distil. .....āāʒii ss
Starch .....ʒi

This rectal injection was given in place of the gelatine.

On December 16, 1920, *x*-ray shows the capsule of tube in the ileum (Fig. 1). December 19, 1920, *x*-ray shows tip of tube well in coils of small bowel (Fig. 2). On December 20, 22 and 24 the *x*-ray shows the tip of the tube at the same place (Ileocecal junction) in all three pictures (Fig. 3, 4, 5). On December 24 calcium carbonate 1.0 to 1,500 c.c. of water b.i.d. per tube

*Max Einhorn: A New Intestinal Tube with Remarks on its Use in a Case of Ulcerative Colitis. *Am. Journal of Med. Sciences*, April, 1921.

and ichthyol 15 drops in latter part of the drip.

Persistent examination of stool shows no parasites or amebas. Blood is present constantly. From December 25 to January 2, inclusive, two ounces of a 1 per cent solution of mercurochrome (220) was injected into the tube slowly in the middle of the day. Calcium carbonate solution was used morning and night. On January 1, 1921, one section of the tube was removed, and on January 3 the whole tube was removed through the mouth.

FIG. 3.—Same patient, one day later. Capsule end of the tube is situated in the cecum.

During the last week of treatment the stools were formed, patient having not more than three evacuations and usually but one daily. Blood was present in ever decreasing amounts. The patient felt better, the appetite was better, and he was generally improved. 1=3=21.—His weight was 130 pounds on January 3, and 153 pounds on January 22.

Since leaving the hospital patient has gained 23 pounds. Has one formed movement daily and no blood.

Remarks.—The case detailed above presented a very severe ulcerative lesion of the colon not yielding to any of the usual modes of treatment. Strict dietary régimes and rigorous medicinal measures applied in hospitals here and abroad proved of no benefit. Our efforts, likewise, were at first of no avail.

It appeared that this was a case in which a colostomy for direct flushings of the colon from above would be required. Instead of the operation, as in the first case described, the jointed intestinal tube was used, in order to accomplish the same result, namely, irrigation of the large bowel with various medicaments from above.

This, indeed, accomplished a cure. As detailed above, mercurochrome, 60 c.c. of a 1 per cent. solution, was instilled daily through the tube as soon as the latter had reached the cecum; while a solution of calcium carbonate (0.5; 1000) was instilled twice daily in quantities of a quart or a quart and a half at a time as soon as the tube had reached the small intestine. This was continued all the time until the tube had been withdrawn. The patient was nourished in the usual way by the mouth. The diet did not deviate from the usual antidiarrheic regime.

The appended *x*-ray photographs show the position of the tube, at first in the duodenum, and ultimately in the cecum. In as much as the entire colon had to be treated, no more joints had been added to the tube, since that spot (the cecum) had been reached.

While in my first case (*loc. cit.*) the tube after completing the course of the treatment was allowed to pass through the rectum, in the case reported it was withdrawn by the mouth.

Encountering quite some resistance in pulling the tube up, it was considered wise to accomplish it, not all at once, but in two sittings. Accordingly but one distal joint was pulled up, and unscrewed, while the remaining joints were left in the intestine for another day. Then the other three intestinal tube joints were withdrawn gently in a few minutes, not causing any pain or discomfort.

As above stated, the patient gained twenty-three pounds in about two months following the treatment and has remained perfectly well ever since. The two cases reported show the value of the intestinal tube as a therapeutic agent. They also clearly demonstrate that the removal of the tube can be accomplished without difficulty either by letting it pass through the rectum or by withdrawal through the mouth. It is, of course, understood that whenever there is suspicion of some obstruction within the intestine the tube will have to be pulled up through the mouth. In this instance, especially when there is much resistance encoun-

FIG. 4.—After four days and filling up the tube with a 2% bromide of sodium solution. The capsule is visible in the cecum and the course of the entire small intestine is clearly discernible.

tered when withdrawing the tube, it is best to perform this act in two sittings, first disengaging one joint, leaving the other tube joints in the alimentary tract for another day, when the rest is removed. The procedure is in this way made more comfortable for the patient.

20 East Sixty-third Street.

CLINICAL CALORIMETRY.*

By CHARLES FRANK MORSMAN, M.D.,

SPOKANE, WASH.

THE main facts of basal metabolism which we must always have in mind when we diagnose a case of hyperthyroidism or one of hypothyroidism and when we decide upon a plan of treatment for the case under consideration, have been known for a quarter of a century. But we have been unable to apply our knowledge, except in a few favored institutions, since the apparatus used in estimating it has been too cumbersome, too expensive, and too difficult of application.

Clinical calorimetry has been of slow but gradual growth and is based upon scientific facts. There have been none of the spectacular and unscientific advances and biased empiricisms in this branch of medicine as unfortunately the medical profession has witnessed in some of the other branches of our dignified calling. There is a striking similarity between clinical calorimetry and calorimetry used in determining the heat value of food and fuel. In the latter the chemist determines the caloric value of the material under consideration by placing a definite quantity in a cylinder supplied with an excess of oxygen, which is immersed in a definite quantity of water, and burns it by means of a glowing platinum wire which is heated by an electric current. The rise of temperature in the water surrounding the cylinder is determined by the thermometer, and from this is easily determined the quantity of heat given off by the oxidation process. In the former a chamber large enough to hold the man or animal under study is constructed. It is surrounded with water jackets and arrangements made to supply the subject with oxygen.

Pettenkofer is given credit for having perfected an apparatus for the study of metabolism by measuring heat radiation, as far back as 1862. In 1892 Isaac Ott used a simple apparatus of this type in the study of a man who was ill of malaria. However, we must give the Russians the credit for making the earliest elaborate studies of metabolism. Their reports were buried in obscure journals and they did not realize the importance of complete rest on the part of the subject under study.

It was not until 1908 that a real foundation for the scientific study of metabolism began to assume definite form. Since that time our knowledge in this branch of science has increased many fold. Atwater, Benedict, Lusk, Allen, and many others have made many studies in this field. They employed the apparatus of Pettenkofer or its modifications. This method is known as direct calorimetry. The reader is referred to the article by Eugene F. DuBois in the first volume of Oxford Medicine, page 379, which is a most excellent review of the important facts of the science of metabolism.

When Benedict announced, in the May 16, 1918, number of the *Boston Medical and Surgical Journal*, his apparatus which is now called the Benedict Portable Respiration Apparatus, for the estimation of oxygen consumption, he placed within the grasp of the entire medical profession a practical means by which basal metabolism may be accurately determined by indirect calorimetry. Since this apparatus has been placed on the market at a reasonable price, the work is being rapidly taken up in various parts of the country.

Benedict and his co-workers in the Nutrition Laboratory of the Carnegie Institution of Washington at Boston, are working almost entirely upon normals, both adults and children. Various other workers are devoting their time to the study of abnormals. Among these men may be mentioned DuBois of New York and McCaskey of Fort Wayne. DuBois and others have studied metabolism in goiter, in diabetes, and in other disturbances of health and he has given us an ingenious chart, which may be found in part 2 of the June 15, 1916, issue of the *Archives of Internal Medicine*, from which we may readily determine the body surface in square meters. McCaskey has studied this new method in its application to clinical practice and his three articles which appeared in the *Journal of the American Medical Association* of July 26, 1919, and April 3, 1920, and in the October 11, 1919, number of the *New York Medical Journal* are very interesting and instructive.†

Benedict took advantage of the fact that the surface radiation from the animal body may be accurately determined by measuring its oxygen consumption. His apparatus consists of a spirometer, a motor and blower to produce a constant circulation in the machine, a breathing appliance, a thermometer, and a jar of soda lime to take up the carbon dioxide given off by the patient.

In its application, the patient fasts for fourteen hours and then presents herself at the laboratory where she is weighed and measured for height, after which she is put at complete rest, lying on a couch, for thirty minutes, before the test is applied. Then she is asked to breathe from and into the apparatus for a period of five minutes to accustom her to its application. After a rest of ten or fifteen minutes, the test is again applied for a period of ten minutes by stop watch. The amount of oxygen which she has consumed in this application is noted and the volume is corrected to zero centigrade and to sea level. A third application is made as a check. The volume per hour corrected as to volume is calculated, and we must remember that each liter of oxygen consumed represents 4.825 calories of body surface radiation, and knowing our patient's weight in kilograms and height in centimeters, we have her surface area in square meters from the DuBois chart. We must remember that the average for women is 36.9 calories of surface radiation per square meter per hour and for men the average is 39.7 calories per square meter per hour.

*Read before The Spokane Academy of Medicine, November 11, 1920, and the Spokane County Medical Society, April 14, 1921.

†McCaskey's paper, Basal Metabolism Determinations with the Original Portable Benedict Apparatus, etc., appeared in the *Jour. A. M. A.*, lxxvi, April 9, 1921, since this article was written.

Two new apparatus for the estimation of basal metabolism have been described. In the *Journal A.M.A.* of August 21, 1920, Jones describes his apparatus, and Benedict and Collins describe their apparatus in the *Boston Medical and Surgical Journal* of October 14, 1920. I have seen neither of these apparatus. From the cuts and descriptions I have seen of them, I should say that the new instruments are more truly portable than Benedict's original apparatus.

It is very difficult to say just what variation from the average oxygen consumption may be admitted to be within normal limits. Heretofore, the limits have been conceded to be ten per cent. below and ten per cent. above the average, but in the light of present knowledge it would appear that it is necessary to extend these limits somewhat. Hendry, Carpenter and Emmes in the September 4, 1919, issue of the *Boston Medical and Surgical Journal*, showed in a study of seventeen presumably healthy Harvard students, two whose oxygen consumption remained persistently 14 per cent. below the average, and one who persistently consumed 11.5 per cent. above the average. In Benedict's communication in the March 4, 1920, issue of the *Boston Medical and Surgical Journal*, he warns us in italics that "There is no inflexible standard for normal metabolism for any given age, weight, height, or sex from which all normal individuals never vary."

In my own work, I consider that the metabolic rate of a given patient is normal when that individual's oxygen consumption falls within 12 per cent. above to 12 per cent. below the average. It must be remembered that the metabolic rate is but one point to be considered in diagnosis and as a basis for the determination of a plan of treatment. The metabolic rate must be checked by other laboratory findings, by physical examination, and by objective and subjective symptoms. It is evident that the more facts one has under consideration in a given case, the more nearly correct will be one's judgment in diagnosis, prognosis, and treatment.

By basal metabolism is meant that minimal amount of cell activity necessarily the result of the continuous organic functions of respiration, circulation and secretion. In the practical application of these studies we test out especially hyper- and hypofunction of the thyroid gland. In the various disturbances in which nutrition is involved, as for example in the anemias and diabetes, basal metabolism has proven of interest but of very little practical value.

Eugene F. DuBois says, in the "Medical Clinics of North America" of January, 1919: "Granting the value of the test (measurement of the basal metabolism) is it practicable? Calorimeters are out of the question except in a few laboratories. On the other hand, the simpler forms of apparatus for determining the basal metabolism are comparatively reasonable in cost, and fairly easy to operate. They are much less expensive than an electrocardiograph, and the technic is not so difficult. Still, there are many pitfalls waiting for the careless investigator, and it is advisable that anyone who starts to measure the total metabolism should begin with a series of normal controls."

"'But why,' says the practitioner, 'should I, who have seen hundreds of cases, go to all this trouble when I can perfectly well tell from the clinical aspect whether or not the metabolic rate is increased?' Such guessing is very common, quite fascinating, and not risky for one's reputation unless the results are checked. On the other hand, those clinicians who have checked up their guesses in two or three hundred experiments realize the frequency of their errors, especially in atypical cases, and are not surprised if they do not come within forty per cent. of the true figure."

Perhaps one may add that it is not absolutely necessary to do blood counts, uranalyses, or gastric analyses, if one is careless and does not desire to practice modern medicine. I know one practitioner of medicine who scorns to use the blood pressure apparatus and boasts that he can determine the blood pressure accurately enough for clinical purposes by palpating the radial artery. If one wishes to give his patients the best there is in medicine, he will freely use the proven laboratory methods which make for better diagnoses.

In the article just mentioned, the author draws these conclusions: "The diagnostician who interprets the basal metabolism intelligently will be able to determine the degree of thyroid activity. The surgeon who operates on thyroid patients will find that the basal metabolism is of a great help in following his results. He will also find that in many cases a fifteen-minute test with the respiration apparatus will save the patient a needless operation."

Means, in the *Boston Medical and Surgical Journal* of June 15, 1916, says, under the title of "Studies of the Basal Metabolism in Diseases, and their Importance in Clinical Medicine":

"In conclusion I should like to emphasize the following points: (1) Basal metabolism can be readily studied in a hospital clinic with comparatively inexpensive apparatus. (2) The normal basal metabolism is a fairly constant affair, and hence wide variations from it in disease are of interest to the clinician. (3) A marked rise occurs in hyperthyroidism. (4) A marked fall occurs in hypothyroidism. (5) In regard to hyperthyroidism it seems probable that the basal metabolism furnishes (*a*) The best index as to the severity of the disease, hence is a quantitative means of following the course and of judging of the effectiveness of treatment: (*b*) A valuable aid in differential diagnosis. 6) Enormous grades of obesity are possible in the presence of a normal metabolism. (7) When a reduction in the metabolism was found in obese subjects, there was also clinical evidence of defective internal secretion. (8) A clearer conception of the food requirements in disease is furnished by the basal metabolism than any other factor."

McCaskey says, in the April 3, 1920, number of the *Journal A.M.A.* that the routine determinations of basal metabolism are worth while in two groups of cases:

"1) In all cases of definite goiter and especially if associated with health disturbances to ascertain the degree, if any, of its toxicity. (2) In a large group of cases either with or without goiter, with symptoms resembling either closely or remotely those of thyrotoxicosis." In this last group he includes psychoneurotic disturbances, tachycardia, bradycardia, cardiac myasthenias, certain arrhythmias, fine tremors, hyperhidrosis, hypo-

hidrosis, general debility, loss of weight, and slight temperature disturbances.

The metabolic rate may be used as a basis for the determination of the plan of treatment in Graves disease. Sistrunk of the Mayo clinic in the issue of January 21, 1920, *Journal A.M.A.*, informs us that a very careful selection is made of the type of operation for patients with a rate above plus 40 per cent. They hesitate to perform a primary thyroidectomy on a patient whose metabolic rate is 60 to 70 per cent. above normal. In those acute cases primary ligations of the two superior thyroid poles are done a week apart to prepare the patient for the major operation. The result of thyroidectomy may be checked by determining the metabolic rate. We are able to diagnose hyperthyroidism, determine the status of the case in reference to operation, and finally to check the result of operation by metabolic rating.

In going over the literature relative to metabolic studies, one is struck by the comparative lack of reference to hypothyroidism in its various phases. There is no doubt that this condition is much more common than is generally acknowledged. Many of the cases of so-called neurasthenia fall within this group. Heretofore such cases have not been given adequate attention by the medical profession and they have fallen en masse into the hands of the various cults of uneducated, unscrupulous, counterfeit physicians. It is not well to call every case we do not understand, neurotic or asthenic or by some other indefinite term which is merely a confession of lack of thoroughness. Every obscure case should be studied fully and carefully, and in consequence one will be surprised by the number of satisfied patients he will add to his list.

McCaskey reported eight cases in the April 3, 1920, issue of the *Journal A.M.A.* Three of these are cases of hypothyroidism. Else reported three cases, one of which is hypothyroidism, in the July, 1920, issue of *Northwest Medicine*.

I wish to report four cases from my own list, including two of hypothyroidism:

Case I.—L. K., female, age 27, married, housewife. Family history is of no interest except that her father is extremely emotional and has an ungovernable temper, and a sister is given to periods of mental depression.

Personal History.—Had tonsillitis during childhood. Has not had arthritis. At the age of 20 began to feel listless and tired, especially after meals. Lost weight rapidly. Was married at 23. Child was born at age of 24. At age of 25 had lacerated perineum repaired and appendix and tonsils removed. At time of examination patient was very despondent and believed that nothing could be done for her.

Examination.—Patient very emaciated, weight 86.5 pounds; skin rough, pulse 62, blood pressure 70-100.

Blood Examination: normal. Uranalysis: normal. Test meals: normal.

Basal metabolism: minus 23 per cent

Diagnosis: Hypothyroidism

Treatment: Dietetic and ¼ gr. thyroid ext. t.i.d. Three months after treatment was instituted, patient declared she felt entirely well and her weight was 110¾ pounds. Two months later her weight was 119½ pounds.

Case II.—A. L. J., female, age 49, married, housewife. Chief complaints were of migraine and eczema.

The family history is uninteresting except that one sister has goiter.

Personal history shows that as a child she was constipated and often was sick with "bilious attacks." She was not a robust child. She had tonsillitis frequently. Menses began at the age of twelve, and were regular and very often painful. Periodical headaches began at the age of twenty and occurred at the menstrual period. Headache with vomiting occasionally occurred at irregular times. Patient attended college and worked hard to complete her course in music, and graduated in 1896. She afterward taught music in large classes until 1901 when she was married. All of these years she had headaches with vomiting. These occurred frequently. Patient has not menstruated for three years, and still the headaches occur at rather more frequent intervals than formerly. The patient has always been very fond of sweets. She has always been depressed after meals. She had a "nervous breakdown" in 1905 and suffered a similar attack in 1914. She has never been pregnant. Physical examination: Height 5 ft. 8 inches; weight 117 pounds; skin rough and eczematous; some teeth missing, no palpable glands. Romberg is negative. Pupils respond to light and accommodation. Deep reflexes subnormal. Heart is normal. Pulse, 70; blood pressure, 70-100. Blood examination shows hemoglobin 80, R. B. C. 4,790,000, W. B. C. 5,000. Gastric analysis gives the following facts: the motor meal returned 20 c.c. of clear, slightly greenish fluid, no food particles, total acidity 34 degrees, free HCl, 26. The Ewald meal was withdrawn at the end of the 45 minute period and 50 c.c. obtained. Total acidity, 58, free HCl, 38, combined 15, organic acid and acid salts 5. Uranalysis showed a normal urine.

Alimentary glycemia test showed fasting blood with a sugar content .086 per cent. at the end of the first hour after the ingestion of 1.75 grams of glucose per kgm. of body weight, .10 per cent.; second hour, .10 per cent.; the third hour, .15 per cent.; fourth hour, .18 per cent. Sugar did not show in hourly samples of urine.

Test by Benedict's apparatus showed a basal metabolic rate of minus 20 per cent.

Roentgen examination of gastrointestinal tract showed incompetent ileocecal valve, slight gastroenteroptosis, and extreme stasis of the large bowel. Patient still retained some of the barium at the end of 123 hours. Diagnosis: Gastroenteroptosis, colonic stasis, hypothyroidism. Treatment: Patient was put to bed for two weeks, suitable diet was instituted, and thyroid extract ¼ gr. t. i. d. was given. The thyroid extract was kept up for six months. Patient had two headaches after treatment was begun. This is written eight months after treatment was instituted. Patient now weighs 140 pounds, her eczema has entirely disappeared, she had not had a headache for six months, and is in better health than she had been for thirty years.

Case III.—K. R., male, age 19, student. Chief complaints were of rapid heart, distress after meals, insomnia, and constipation.

Family history: Father is "nervous," mother had a "nervous breakdown" ten years ago, one brother died at the age of 18 of some obscure liver condition.

Personal history: Was well as a child. At the age of 12 suffered a fracture of the arm as the result of falling from a horse. About a month after this accident patient became very nervous. Was not able to attend school for two years. He was able to do no work until three years ago because of rapid heart action. Patient felt well from January, 1917, to January, 1920, when he was ill with influenza. He was confined to his bed for nine days then hurried home to the death bed of his brother. Since that time patient has been introspective and irritable. This condition has grown rapidly worse lately. Patient says he feels "unreal." He dreads to begin an undertaking because of fear of result upon health.

Stomach symptoms: During the period of illness following fracture the patient suffered from attacks of abdominal pain which were always accompanied by much intestinal gas. This disturbance disappeared during the three years of good health. In February, 1920, the stomach began to give trouble again. Now there is much gas and a "full" sensation after the ingestion of food. There is no pain. There is complete anorexia. There is no vomiting or headache. There is much "heartburn." Constipation is obstinate.

Physical examination: Patient is fairly well nourished. Skin is soft and pliable. There are no palpable

glands. Thyroid is not palpable. Tongue protrudes in the median line. Tonsils appear normal. Teeth in fair condition. The hair is abundant. Heart outline is normal. Heart sounds are normal. Pulse 122 and after an hour's rest on a couch the rate is 105. Blood pressure 126-88. Chest examination gives no abnormal lung findings. Abdominal examination reveals only a tender area upon deep pressure 5 cm. above umbilicus. Romberg negative, deep reflexes normal. Pupils respond to light and accommodation; eye signs are all negative. Arm extended with fingers widely separated shows tremor.

Laboratory tests: Uranalysis normal, gastric analysis, motor meal (fasting stomach) free HCl 66, total acidity 116. Ewald meal: Free HCl 60, total acidity 88. Blood examination: Hemoglobin 90, R. B. C. 5,000,000, W. B. C. 6,400. Rate of basal metabolism, plus 23 per cent. Wassermann positive to three antigens. Roentgen examination showed hyperperistalsis of the stomach and small intestine and colonic stasis.

Diagnosis: Hereditary syphilis and mild hyperthyroidism.

Treatment: The patient is now undergoing antisyphilitic treatment.

Case IV.—N. H. S., female, widow, aged 46; embalmer. Chief complaint is tumor of the neck. Family history contains no striking facts. Personal history: Was well as a child and young woman. Sixteen years ago, shortly after birth of a child, a swelling of the neck was noticed. Tincture of iodine was applied for about a month. Twelve years ago after childbirth the tumor increased in size. About three years ago began to have increased heart action, which subsided after two years, and has not been noticed lately. About one year ago friends noticed that her eyes began to be prominent. Appetite is normal. There is some insomnia and some nervousness. There is no headache. Some vertigo at times. In February, 1920, all the teeth were extracted and double plates were obtained in June, 1920. Patient has gained some weight in the past six months.

Physical examination: Patient is well nourished. Skin is generally soft and pliable, though there are some rough areas. Tongue protrudes in median line. Tonsils are in place and appear normal. Patient has no teeth, and gums are in good condition. On the anterior aspect of the neck on the left of the trachea there is a tumor extending upward 4 cm. from the clavicle and 4 cm. laterally. Tumor is fairly tense, but responds to pressure and moves with swallowing. There are no palpable glands. There is no tremor. The eyes appear somewhat prominent. Temperature is 98.2°, pulse 78. Heart outline normal. Heart sounds normal. Blood pressure 110-80. Chest examination reveals no abnormal condition of lungs. Romberg is negative. Deep reflexes subnormal. Pupils respond to light and accommodation. The eye signs of Möbius, Stellwag and Von Grafe are all negative. Uranalysis reveals a normal urine. The metabolic rate is minus 14 per cent. Blood examination, R. B. C. 4,500,000; W. B. C., 6400; hemoglobin, 90; stained smear shows no abnormalities. Roentgen examination of heart at two meters shows normal measurements. Wassermann test is negative. Diagnosis: Cyst of thyroid. Case referred to Dr. A. A. Matthews of Spokane, who removed a cyst from the thyroid on June 28, 1920. Patient made an uneventful recovery.

Résumé—1. Clinical calorimetry is now within the reach of all.

2. Clinical calorimetry is based upon scientific facts.

3. Basal metabolism rating is entirely dependable if done carefully.

4. Clinically, metabolic rating is applicable to disturbances of the thyroid gland and in conditions simulating those disturbances.

5. Clinical calorimetry is an exact laboratory procedure and may be profitably added to our diagnostic armamentarium.

6. Four case reports are here given, two of which are of cases of hypothyroidism.

624 Pierrepont Building.

THE ACTION OF RADIUM ON TUMORS OF THE BONE.

WITH A REPORT OF TWO CASES.

By ISAAC LEVIN, M.D.,

NEW YORK,

Assistant Physician in Cancer Research, New York University and Bellevue Hospital Medical College; Chief of the Department of Cancer Research of Montefiore Home; Chief of the Radiotherapy Division of St. Rose Hospital.

Processes of repair, inflammation, or tumor formation, are accompanied, as a rule, by a reaction of the adjoining normal tissues of the organism. This reaction is either of a regressive nature and consists in the destruction of the normal tissue and its replacement by lymphoid or tumor cells, or it is progressive and manifests itself in the formation of a connective tissue stroma, a fibrous capsule or a scar.

The difference between the mechanism of reaction against injury of bone tissue and all other tissues consists in the fact that the former possesses special cells for both the regressive (osteoclasts) and progressive (osteoblasts) reactions. The regressive reaction of the bone tissue, osteoporosis, or destruction of the bone, is undoubtedly identical with the destruction of all types of normal tissues adjoining a local inflammatory process or a growing tumor. Osteosclerosis, or bone formation, on the other hand, presents an attempt by the organism to heal or overcome the pathological process, or to repair the injury caused by the loss of the bone. The two reactive processes, the osteoporosis, or destruction of the bone, and the osteosclerosis, the new bone formation, predominate the pathological picture to such an extent that it occasionally becomes difficult to distinguish the underlying clinical condition.

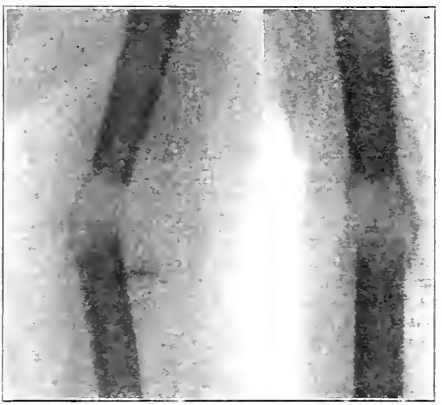


Fig. 1. Fig. 2.

Fig. 1.—Pathological fracture in the middle of shaft of right humerus; shows complete bone destruction. Fig. 2.—Fracture of humerus two weeks after first radium application; shows a callus formation at the fractured area.

The writer has shown in a previous publication [1] that in skeletal metastasis of carcinoma the two reactive processes within the bone, the osteoporosis and the osteosclerosis, are frequently present alongside, near the same tumor. Usually the osteosclerosis is very imperfect, the metastatic

nodule increases in size, suppresses the power of the organism to create new bone, and progressively destroys the old bone. The spontaneous healing power of the organism is thus quite imperfect.

The writer has demonstrated on a series of

Fig. 3.—Photograph showing the swelling of the right leg in the case pictured in Fig. 2.

cases (1, 2) that radium and roentgen therapy may enhance the healing power of the organism, destroy at least a major part of the malignant tumor, and surround it with newly formed bone. The following two cases, which have not been previously published, may further illustrate the mechanism of the action of radium on malignant tumors of the skeleton.

Case I.—Mrs. F., 54 years of age, consulted Dr. Willy Meyer, for carcinoma of the left breast. In the course of the examination there developed a pathological fracture in the middle of the shaft of the right humerus. Roentgenogram (Fig. 1) showed complete destruction of bone of the diaphysis of the humerus in an area over one inch long. There was no clear evidence of skeletal metastases elsewhere. In view of the fact that Dr. Meyer was acquainted with the writer's results in radiotherapy of skeletal metastases and the condition in the breast was operable, he decided to do a radical removal of the breast and refer the patient to the writer for the treatment of the fracture. The method of treatment consisted in covering the fractured area with three packs of tubes of radium emanation. One pack was placed over the anterior surface, the other over the external and the third over the internal surface of the humerus. In all 208.9 millicuries of radium emanation were applied for sixteen hours. The emanations were filtered with $\frac{1}{4}$ mm. of silver, 2 mm. of brass, 1 mm. of leather and about 2 inches of gauze. The splints were applied over the radium packs to retain the correct position of the bone. One week later a similar application was made for sixteen hours of 249.1 millicuries. The following week, or two weeks, after the first radium application, a roentgenogram (Fig. 2) showed a callus formation and the ends of the bone in good position. The patient could support her arm without splints.

Such a prompt formation of a functionally perfect callus in a pathological fracture which on the first roentgenogram did not show the least tendency at osteosclerosis indicates that radium therapy must be an efficient agent in many diseases of the skeleton in which osteosclerosis could neutralize the pathological process.

Case II.—Mrs. G., age 24, consulted the writer in 1920 for a tumor in the region of the upper third of the right tibia. (Fig. III shows the swelling of the right leg.) The roentgenogram (Fig. 4) shows a defect in the upper third of the tibia of an area about two inches long and one inch wide. The patient refused an amputation. The writer then excised the tumor, which invaded the muscles, and excochleated the bone to such an extent that only a thin shell of the outer wall of the compact bone of the tibia remained. A cavity was thus formed in the bone about two and one-half inches long into which was placed a specially constructed brass box containing a series of radium emanation tubes, 213.0 millicuries in all and left for 16 hours. This was followed by several applications of radium packs over the operative field. A roentgenogram (Fig. 5) taken twelve months later showed the cavity filled with compact bone. Palpation also failed to detect the cavity which was formerly present in the bone.

The analysis of these two cases, as well as of all the previous cases reported by the writer, indicates that radium causes a very rapid formation of new bone. The callus in Case 1 formed more rapidly than it would have formed in a traumatic fracture without the aid of the radium. It seems feasible to suppose *a priori* that radium therapy may also hasten callus formation in fracture and increase the success of bone implantations. In fact, Knox (3) claims to have used *x*-ray in cases in which bone grafts have been used in the restorative operations.

The analysis of Case 11, as well as of the sarcoma cases previously reported, clearly indicates that similar results may be obtained in other pathological processes of the skeleton. Multiple myeloma of the bone is more akin to lymphosarcoma than to true sarcoma, or carcinoma, and must therefore

Fig. 4. Fig. 5.

Fig. 4.—Arrow indicates a defect in the upper third of the right tibia. Fig. 5.—Arrow indicates new bone formation in the same tibia twelve months after treatment.

be more radiosensitive than the latter conditions. Chronic inflammatory diseases of the skeleton, osteitis or osteomyelitis, present frequently pathological pictures very similar to those of sarcomata of the bone. It is very difficult, for instance, to

distinguish between a giant cell sarcoma and a so-called hemorrhagic osteomyelitis. Moreover, the writer has previously (4) shown that the action of the radium and roentgen rays on tumors and on infectious granulomata is quite analogous. It is plausible to expect then that if a focus of chronic osteomyelitis were prepared surgically in the same manner as it was done by the writer in Case II, and then treated with radium, a satisfactory clinical result may be obtained.

REFERENCES.

1. Levin, I.: The Prognostic and Therapeutic Significance of Skeletal Metastases in Carcinoma of the Breast, *Annals of Surgery*, March, 1917, p. 327.
2. Levin, I.: The Rationale of Radiumtherapy in Cancer, *The American Journal of Roentgenology*, Vol. vii, No. ii, p. 552-563, November, 1920.
3. Knox, R.: Radiography and Radiotherapeutics, Vol. ii, p. 561, 1917.
4. Levin, I.: Morphological changes induced in Tumors under the Influence of Roentgen Rays and Radium, Proceedings of The New York Pathological Society, N. S., and Vol. xiv, No. 5, p. 81, May, 1915.

RECTAL CANCER; OPERATIVE METHODS.

By HENRY O. SOMMER, M.D.,
WASHINGTON, D. C.

WHILE doing some literary work to find out what the late Professor Van Lennep, of Philadelphia, had done in the field of operations for rectal cancer, I found the following remarkable statement in the Transactions of the Hahnemannian Institute of Philadelphia, 1902-1903, vol. x, p. 247, at the time of the presentation of one case. "The operation of Kraske *aims* to leave an artificial anus through the sacrum *or* to preserve the sphincters and unite the divided ends of the gut." I am inclined to believe that Lennep was misquoted by some recording secretary, unless he had an entire misconception of Kraske's aims, which seems improbable, whatever the merits of those aims may be considered, as shown by the quotations later given.

His principle and *aim* was to unite the gut ends completely, in full circumference, wherever possible and advisable and to preserve the sphincters. Moreover, he did not leave an "artificial anus" through the "sacrum," but when he judged it safer to leave one temporarily, by uniting only a half circumference of the gut, he allowed it to empty through the spatium sacroischiadicum, either of natural size, or enlarged by the sacral resections if the extirpation of the tumor had required it. This has been shown by numerous other writings, as well as those quoted later for more ready reference only, but as in Lennep's own case and the case I of Kraske's quoted later this complete union is not always possible or advisable. Also, to reiterate, the resections of the sacrum are always avoided if the sacroischiadic space is large enough to obtain the objectives without.

The quotations to which I refer are in the *Medical Times*, New York, July, 1901, on page 196, sic: "The artificial anus is to be regarded merely as a makeshift which is at times very valuable as a preliminary operation" (he refers here of course to the inguinal), "but is wherever possible to be avoided as a palliative operation." Here he of course refers to both the inguinal as well as those behind after extirpating the tumor through the spatium sacroischiadicum. In his cases II and III, page 195, he showed clearly that his desire was to avoid the artificial anus. Case II: "The two ends of the gut are united in a circular suture," which means that the whole circumference is closed and not merely the half as in his case I, and in Lennep's one case referred to in the beginning. Also in his case III, page 195, "the rectum and the lower part of the S. romanum (meaning the sigmoid flexure) are pulled down from within the pelvis, resected, and united. . . . The union is very easy of execution." This was a complete anastomosis and not a half circumference. In two very creditable articles by Pennington and W. E. Darnall, I have observed the following: "Notwithstanding the unfavorable opinion respecting it entertained by many authors, Kraske's plan of sacral resections judging by the figures furnished by Bacharach gives good results (Pennington, *J. A. M. A.*, lxxi; 23, p. 1893, Dec. 7, 1819). That means of course where it is unavoidable, or the individual case requires it. I am surprised, however, that Pennington in an attempt to cover the literature or to discuss the methods so broadly has omitted all discussion of the abdominosacral, or as it would be better named, the abdomino-spatium-sacro-ischiadicum method, especially as he accentuates the abdominoperineal method and—after enunciating the principles of cancer eradication thus . . . "It is a well recognized procedure to begin the dissection from above and to work down against the lymph current" . . . —asserts flatly: "Obviously this can be done *only* by the abdominoperineal route," especially as hidden in the literature of his obscure footnote references are the following views of others whose eminence does not allow of their being so lightly discarded when so emphatically expressed. Jones says: "The combined abdominosacral operation I believe is admitted to be theoretically superior but has yet to be proven practically. . . . It may be stated, however, without exaggeration, that the proportion of 3 year cures is larger than with the posterior operation; it is quite evident that the mortality is much higher. . . . Judging by the course of my cases I am convinced that the [operative] mortality can be reduced to that of the Kraske [sacral] operation. I have operated on sixteen patients by the two-stage combined operation with three deaths, a mortality of 18 per cent. In extenuation of these figures, it may be said that no effort has been made to choose proper cases because I was trying to convince myself of its value. The 3 patients who died were all over 63 years. . . . If under such circumstances we can reduce our mortality to 18 per cent., it is fair to assume that with proper selection of cases it may be reduced to 10 per cent." Mayo says: "The *sacral* operation either as a primary operation, or as the second stage of the abdominosacral method is the *operation of choice* for the actual removal of the rectum; the great advantage of this particular operation lies in the fact that the disease can be extirpated widely at a single operation if necessary. In over 191 cases in our combined series, this type of operation was performed as a primary operation or as the second

stage of the abdominosacral method. The abdominoperineal combined method performed as a single operation is perhaps the ideal method," but he adds, "the combined abdominosacral operation in *two* stages has much to commend it and *has a mortality of less than one half* that of the abdominoperineal combined operation in one stage. This method also permits the removal of tumors of the most extensive description from the rectum proper, a situation in which the abdominoperineal combined operation affords insufficient access." But at any rate Pennington contradicts Darnall's sweeping assertion that the "old Kraske operation and others have been relegated to the junk heap." Darnall shows later on that he means bone resections in general and not the one he has named alone. Darnall's article ("Advantages of the Vaginal Route in Resection of the Rectum for Cancer," *J. A. M. A.*, June 7, 1919), has well elucidated, especially by illustrations, the applicability of the vaginal method always an elective one for some easier cases, but he has failed to discuss its limitations in full further than to admit that it "is practicable only when the tumor is movable and is situated in the lower half of the rectum," and he quite rightly says, "If it is as high as the rectosigmoid junction then the abdominovaginal method should be employed." He says "much has been written lately concerning the abdominal route, the sacral route, and the abdominoperineal routes, but I do not find that much is said about the vaginal route in women." In the *Medical Times* of August, 1901, p. 226, he will find that considerable has been written and done about the vaginal method by Rehn and others and its contraindications elucidated, especially with reference to the danger of hemorrhage, because of the "blood vessels entering the intestines from the rear," also that "always, however, will the space between the tubera ischii and symphysis be narrower than the sacroischiadic space in a normal pelvis. Others have said "in the case of the usual carcinomata affecting the parspelvica the diseased glandular structures lie directly at the external wall of the portion of the gut and farther up the sacral cavity; in advanced cases even to the promontory of the sacrum and farther up along the spinal column; from these facts we deduce that for the extirpation of the carcinomata recti these methods are the best which make the rectum accessible at the same time with the excavatic sacralis." There are other anatomical facts and points in the surgical technique of the vaginal method, which have been much discussed and sometimes practically applied, but I have referred to the literature enough except to say that it appears to us and some others that the entrance by the vaginal route depends just as much on the capacity of the pelvic entrance as that by the sacral route with perhaps one exception, *i. e.* that in a *flat rachitic pelvis the entrance may be somewhat larger.* Besides this it has been emphasized "that the entrance by the vaginal method has its absolute limits, *i. e.* posteriorly in the anal ring, anteriorly in the symphysis, laterally in the tubera ischii; whereas, with the sacral cut it is easily possible to increase the entrance by permanent or osteoplastic resections."

As Rehn and Lierman years ago practised and advocated the vaginal method for some cases, and as there have since been others who have, and as Darnall has not without some reason shown such enthusiasm for it, it is a pity that he did not support his argument by a brief citation of cases that have been so operated, their immediate operative mortality or survival and the duration of cure before recurrence.

It appears from these comments, the subject matter of basic practical work and the literature to which I have referred, and in which more ample references can be found, that it is largely a matter of specific indication as to which method shall be applied and that none of them have been "relegated to the junk heap."

Pennington has done a service by showing that a group of 218 have survived three years and a group of 130 cases 5 years or more. The figures vaguely implied under "or more" become interesting, especially as I have years ago shown groups which fall within this sphere and because such groups, being relatively small, are the ones of real interest both as to the operator's skill and the methods employed and their microscopic character. There are 2 cases of 6 years; 1 case 6¾ years; 2 cases that survived 8½ years; an unstated, but probably small, number that survived "8 and 11 years;" 1 case of 8¾ years and an ungiven, probably small number, that have survived or reached 14 and 16 years. These last two figures approach Dent's I (one) case of 21½ years, which, operated on in 1882 by an ancient method, is the longest survival of which I have seen record.

This Dent case must be regarded as a biological freak and a combination of skill and luck, and not be regarded as showing that the perineal method, no matter how good, is the best and only one to be used or there would have followed no such search for and development of later methods, as it has long been known to the masters of rectal surgery. This case was such an anomaly both pathologically and surgically, and evidently so regarded by Dent, that its main features should be explained as follows: "A large hard and somewhat nodular mass of malignant disease was found on the posterior and left aspect of the bowel just inside the anus and with the finger it was just possible to reach healthy bowel above. . . . The growth was evidently of some thickness, extending deeply into the ischiorectal fossa. . . . " On admission there were seen several small external piles, but on the posterior wall of the rectum was a hard lobulated mass about one inch in diameter. . . . The lower five inches of the bowel were removed. . . . Full control of the feces but only *partial* control of *liquid* feces was attained. The perineal operation in *this instance* appears to answer quite as well as the more modern methods of Kraske and Bardenheuer. . . . The *remarkable* feature of this case is that the patient *survived* 21½ years and then died from a disease which though it remained latent for so long a period was undoubtedly secondary to or directly connected with the mischief. He refers to enlargement and nodules of the liver and frankly regrets that there was no postmortem. There was also "*no microscopical* examination" of the tumor at the time of

the operation, which might throw some light on its true nature, and the *real* reason for such a long duration "cure."

From the *very low location* of the tumor in the rectum—"just inside the anus"—and because the finger could so easily pass through and reach healthy bowel above and because only 5 inches of the bowel were excised it is quite clear that this particular case was an elective one in which the perineal method was more or less particularly indicated, and that it was not one of those troublesome cases which because of their location, their size, and other complications are the cause of many later more radical innovations especially such as the many sacral resections and the abdominal operations and various operation combined with the abdominal.

As to the future benefits to patients it is clear, from the size and adjacent complications of the growths of tumors of the rectum and sigmoid which come to the master operating surgeons, that the general practitioner must more early suspect, scrutinize, and conscientiously interpret ill-defined anal, rectal, and abdominal symptoms and use the instrumental rectal and sigmoidal examinations especially higher up and have *x*-ray plates made rather early, even if they turn out negative, rather than too late!

Unless Pennington's interpretation of the results obtained by radium in rectal carcinoma can be disproven by more comprehensive work and publications he has virtually shown that radium is only a palliative for definitely and absolutely "inoperable cases," which is itself not a definitely standardizable term as yet, depending much upon the ability of the surgeon, and that some temporarily inoperable growths or allegedly inoperable growths were made fit for or possible of removal by operation. Hence in those patients who "absolutely refuse intervention" but are "operable" it would seem more conscientious not to yield too much to the patient's notions and spend a little effort in advising him to be operated upon, even though this may take some moral courage that may not react to the benefit of one's popular reputation in case of a fatal outcome by operation, for if the case does later progress to almost inoperability the operation and after treatment are not a comedy for either patient or surgeon, and unfortunately such are the cases that form the bulk of statistics, and are the cause of the low 3 year limit of duration "cures" before recurrence. It is also a surgical maxim that those methods of operation alone which offer a clear examination of the adjacent structures, and thorough mechanical work and eradication are the only ones which offer safe immediate results and relief of sufficiently long duration to make them worth while for the patient to undergo the risk of operation, for the average operative mortality rate is 15.6 per cent, and is still a risk that must be considered by a man with a conscience even if it does show 84.4 per cent. on the favorable side of the balance. Those methods which make this thoroughness possible, with judicious selection and prudent but courageous application, are the combined methods—and they are no novelty—the abdominospatium sacroischiadical, the abdominoperineal and the abdomniovaginal, though possibly not always in the order named. They have no sole originator and the names of their various originators and modifiers are a secondary matter, and have been amply honored, but their literary controversies, while they have helped some, have tended somewhat to obscure the issues by a mass of brilliant names whereas it is the principles they have demonstrated and expounded which are valuable, based on a thorough study of the anatomy and pathology of the pelvis and abdomen and its surgical technique. The abdomen has long been no "Forbidden City" to surgery.

ROENTGEN DIAGNOSIS OF THE PATHOLOGICAL APPENDIX.

BY CHARLES EASTMOND, A.B., M.D., F.A.C.P.

BROOKLYN, N. Y.

CONSULTING ROENTGENOLOGIST TO LONG ISLAND COLLEGE HOSPITAL, JEWISH HOSPITAL, KINGS COUNTY HOSPITAL, NORWEGIAN AND JAMAICA HOSPITALS; ATTENDING ROENTGENOLOGIST, PECK MEMORIAL HOSPITAL.

THE term pathological appendix is used in preference to chronic appendicitis because the term chronic appendicitis means that there is still an inflammatory condition existing, whereas the term pathological appendix merely means that there *has been* a pathological process which has brought about certain abnormal changes in the organ. The existing pathological condition may be quiescent and producing no symptoms either local or remote; or there may be changes of function in adjacent parts of the gastrointestinal tract without the presence of any local clinical manifestation of disease.

The roentgen examination of the appendix is dependent upon the rendering visible of the organ through the filling of its lumen with some substance which is opaque to the rays. For this either barium sulphate or bismuth subcarbonate is used. The former is now in general use because of its relative cheapness and is in every way satisfactory. Fluoroscopic examination is of even greater value than the radiographic method in the study of the appendix. About ninety per cent. of all appendices may be rendered visible. This statement is based on the consensus of opinion of a majority of roentgenologists. The mere filling of an appendix by the barium or bismuth meal does not, in the author's opinion, signify pathology.

It may be worth while to describe the technique for an examination for the detection of pathological conditions referable to the appendix and the procedures to be carried out. The patient is given a meal of two to four ounces of barium in one pint of buttermilk or fermented milk six hours before the first observations are made. This meal may be taken at home or may be given at the laboratory.

At the examination at the six-hour period the following points are to be considered:

1. Stomach residue; if present, its quantity.
2. The relative ileal residue.
3. The terminal ileum. Is it fixed or freely movable? Is its lumen regular or irregular? Is it straight or is it kinked?
4. The appendix. Is it visible? If it is visible, is the lumen regular or irregular? Is it freely movable, or is it fixed as a whole or at any point? Is it straight or is it kinked? Is it tender?

5. Cecum. Is it dilated? Are its margins regular or irregular? Is it fixed or is it freely movable? Are there points of local tenderness?

6. Head of barium column. To what point has the barium progressed during the interval?

Twenty-four hour period.—That is to say, twenty-four hours after the ingestion of the barium meal; the same points are covered as are they at the forty-eight hour period. If the cecum is not well emptied at this time, the patient continues to return at twenty-four hour intervals, notes being taken in reference to all the above points until the cecum is empty or practically so. The question of barium retention in the appendix after the cecum is empty is of the greatest importance.

Head of the barium column.—The progress which the barium meal makes during a given interval is an excellent determining factor of the power of function of the parts concerned. Under normal conditions the head of the barium column at the six hour period is in the proximal portion of the transverse colon and at the rectum at the twenty-four hour period.

Before considering pathological conditions, it is necessary to describe the normal tract. The stomach should be empty at the six hour period. Residue at this time means interference with motility. This may be due to mere atony as is seen so frequently in ptosis; it may be caused by local gastric, pyloric or duodenal pathology, or it may be the result of a reflex (pylorospasm) from disease of the gallbladder or appendix.

It is difficult, in fact almost impossible, to state the amount of ileal residue which may be present at the six hour period without its being considered pathological. Should the ileum be completely emptied, one anticipates local pathology. Excessive residue depends upon many factors and of itself is of little importance. If the stomach is still discharging its contents into the small intestine at the six hour period, it is but natural that the ileal residue would be greater than if the stomach emptied rapidly. On the other hand there may be an obstructive condition in the cecum or the right side of the intestine which may cause a damming back of the intestinal stream. The terminal ileum normally presents a uniform diameter. The terminal four or five inches are freely movable because of the long mesentery. Fixed kinks and angulations are not present under normal conditions.

The normal appendix presents a homogeneous lumen of uniform diameter; it is freely movable, is not tender upon pressure, and presents no sharp kinks or angulations and with the cecum it is empty.

The cecum normally presents a range of mobility of from one to two inches; its margins are smooth and regular except for the possible appearance of a peristaltic contracture; it is not tender.

The diagnosis of pathological appendix depends upon the presence of either direct evidence in the form of abnormalities of the appendix itself or upon secondary evidence through the existence of changes in the adjacent parts, the result of appendiceal inflammation.

The direct evidence through local changes in the appendix is as follows: 1. *Lack of homogeneity of the appendiceal lumen.* This means that there are one or more areas within the lumen of the appendix which do not present the same density as the remaining parts because of a diminished amount of barium present. A local area which fails to show the full amount of barium, in other words a filling defect or local area of diminished density, is usually indicative of the presence of a concretion. Appendiceal concretions frequently possess sufficient density to be apparent on the *x*-ray plates and thus establish the diagnosis without the use of the barium meal.

2. *Irregularities of lumen.*—This is usually seen to be of two types. There may be dilatation of the tip producing the socalled "clubbed appendix," while the other type of lumen variation is a contraction of the lumen over a larger or smaller part of the organ, the result of chronic inflammatory changes.

3. *Abnormal Fixation.*—The normal appendix is freely movable. Abnormal fixation may involve any portion of the organ from its tip to its base or the entire organ may be bound down.

4. *Tenderness* of the appendix upon palpation is also indicative of pathology. By tenderness is not meant that upon pressure of the palpating finger the patient says that it hurts, but rather that one is able to feel the unconscious response in the way of a tightening of the abdominal wall.

5. *Abnormality of form* through angulation or coiling of the organ so that it appears like a spiral spring does not indicate pathology, but with the existence of such an appendix there are usually additional factors present and drainage is poor.

6. *Retention of the contents* beyond the emptying of the cecum. This is very important.

The indirect evidence is of value in confirming the evidence shown by the appendix itself and in those cases where the appendix cannot be visualized, it is of extreme importance. This indirect evidence is based on:

1. *Adhesions of the terminal ileum.* These are identified by the immobility of the part, its failure to hold its barium contents, by which is understood that the barium is seen both proximal and distal to the affected part with none between. The previous incidence of typhoid fever must be excluded as a source of these ileal adhesions.

2. *Abnormal fixation* of the cecum is very suggestive, if not absolutely indicative of old appendiceal inflammation, provided that malignancy and tuberculosis, especially the latter, can be excluded. A sign of importance and one to which attention has only recently been called is a flattening of the inner margin of the cecum. This is very suggestive of appendiceal disease of the chronic type, but it must always be borne in mind that this appearance may be the result of contraction following an appendiceal operation. In the presence of this sign, inquiry must be made as to whether the appendix has been removed.

3. *Functional disturbances.*—There may be very rapid advance of the barium through the colon so that at the six hour period the head of the barium column may be even at the rectum. This constitutes the socalled "racing colon." It is of interest in such cases to find that the barium may be distributed throughout the colon at the six hour period, but that practically no additional progress has been

made in the subsequent eighteen or more hours. Retention of barium in the cecum after emptying of the colon beyond signifies adhesions.

Another functional disturbance that must be mentioned is pylorospasm. This may occur associated with disease of the gallbladder but is more often associated with appendiceal conditions. This is of importance from the clinical standpoint because, not infrequently, the patient complains merely of epigastric disturbances with a local point of tenderness in the epigastrium (solar plexus) with absolutely no signs or symptoms referable to the right iliac fossa. This is also of interest in this connection because frequently pressure upon the appendix will reproduce the umbilical or epigastric pain of which the patient complains.

Before leaving the subject, attention should be called to associated lesions in this field which might give rise to symptoms simulating those of pathological appendix. The Lane kink is familiar to all and needs no special mention. Adhesions of the ascending colon or around the hepatic flexure in the form of bands are also familiar conditions. New growths of the cecum are not uncommon and tuberculosis is occasionally encountered. Insufficiency of the ileocecal valve with or without tenderness on pressure upon the valve is often found. Spasm of the ileocecal valve is occasionally encountered in patients who clinically present symptoms of chronic appendicitis. Little has been said of this condition but it is a distinct entity and the roentgenographic findings are very definite.

In conclusion the roentgen examination of the appendix is exact in its findings and it is not too much to state that the patient suspected of having chronic appendicitis should have the benefit of a competent and complete *x*-ray examination before operation. First, to learn whether the disease does lie in the appendix and, second, to determine whether there is an associated pathology elsewhere in the neighborhood. Furthermore, with previous knowledge of the location of the appendix and of existing complications the operative procedures may be shortened and at the same time associated complications may receive proper treatment.

483 Washington Avenue.

TREATMENT OF FOOTBALL INJURIES.

By HARRY EATON STEWART, M.D.,

NEW HAVEN, CONN.

ATTENDING SPECIALIST IN PHYSIOTHERAPY, U. S PUBLIC HEALTH SERVICE.

Last year a preliminary report was made of the results obtained by the use of physical methods in the treatment of injuries to athletes.* The experience derived this year from a still larger number and greater variety of cases, coupled with the use of additional types of apparatus, has modified to some extent the estimate of the relative value of certain treatments. It has more than confirmed the opinion that the period of disability from these injuries can be materially shortened by the proper blending of various physiotherapeutic measures. Since football is responsible for such a large part of the injuries due to athletic competition, the more common types of trauma met in that game only will be considered in this paper.

Many a football championship has been won in the medical consultation room by the proper selection of treatment in the case of some invaluable player. The problem confronting the coach and trainer is no easy one. Injured players must be kept in touch with the development of the team and participate in kicking, passing, signal drill, and scrimmage at the earliest possible moment. It is not enough that they be ready to play in the final game, but they must be returned in time to regain both condition and speed. Most of the severe injuries occur in the more strenuous mid-season games, so that the time within which they must be gotten into condition again is a comparatively short one.

It would seem that some plan could be arranged by the physician, physical director, trainer, and coach similar to the convalescent conditioning exercises used in many of the army hospitals. There men softened by months of hospitalization were gotten into condition in spite of the handicap of a fracture or ankylosed joint. It should be a simple matter to work out exercises that would *keep* a player in good condition for a few days or weeks.

The Yale players were referred by Dr. Leonard Sanford, Mr. T. A. D. Jones, and Mr. John Mack. The Princeton men were sent by Dr. D. B. Sinclair, Mr. William Roper, and Mr. Keen Fitzpatrick. The report of the excellent work of Lieut. M. Hines Roberts, M.C., U.S.N., with the football injuries of the U. S. Naval Academy team is quoted through the courtesy of the Commandant, Rear Admiral Scales.

In his work with the Annapolis team during the season of 1920 Dr. Roberts treated over three hundred men from the "A" and "B" squads and class teams. Muscle contusions were the largest class of cases, followed by sprains, fractures, dislocations, strains, and synovitis.

These cases were treated by prolonged radiant light and heat, high frequency in the form of direct diathermy twice daily for one hour, followed the next day by the sinusoidal current. A small portable machine was used. The players were allowed a light work out, signal drill, etc., as a rule on the second day, with scrimmage the third. Great care was taken to protect against reinjury. All injuries were reported at once to physician or trainer and the team "rubber" was never allowed to work on injuries except under direction.

Among the joint injuries those of the knee were most common and most severe. Rest, baking, diathermy, and support were used. Muslin bandages proved better than elastic supports for the knee. Canvas figure-of-eight bandages of the ankle worn by the entire squad prevented many injuries to this joint. When injured, prolonged rest, vigorous treatment, and additional adhesive support carried well up the leg were used. There were seven fractures during the season. Rest in bed was insisted on in tenosynovitis of the Achilles tendon.

Case I.—B. H. A. Annapolis.

Injury.—Received blow to medial surface of left thigh above knee. Considerable swelling, pain, and stiffness over rectus femoris and adductors.

Diagnosis.—Contusion of muscle.

Treatment.—Hot packs followed by direct diathermy (one hour) three hours after injury. Excused from formations. Second day, diathermy and sinusoidal current with improvement noted. Light workout. Third

*Stewart: The treatment of Injuries to Athletes, *Journal A. M. A.*, April 3, 1920, lxxiv, pp. 947 and 948.

day, much better. Treatment continued, padded and s rimmaged. Fourth day. No disability remaining Dismissed.

CASE II.—W. C. C., Annapolis.

Injury—Repetition two days later of severe blow to rig h. thigh. Was swollen, hard, k otty, and tender.

Diagnosis.—Severe muscle contusion.

Treatment.—Rest, baking, and diathermy. Next day sinusoidal current added. Light work out the third and scrimmage the fourth day. Fifth day reinjured worse than before. Treatment repeated daily and dismissed on the eleventh day.

CASE III.—D. B. L., Princeton.

Injury.—Right shoulder twisted and kicked in Annapolis game two weeks ago. Patient able to raise arm to throwing position but unable to execute the movement because of pain and weakness. Marked tenderness over coraco-acromial ligament.

Diagnosis.—Sprain of shoulder.

Treatment.—Radiant light and heat 20 minutes followed by direct diathermy 2000 m. a. 20 minutes, and vibration Patient able to go through vigorous throwing movements. Two days later threw a number of passes in the Harvard game with some pain after the first throw. Treatment repeated twice the following day. Had no further disability.

CASE IV.—T. M., Yale.

Injury.—After a hard fall noticed pain and weakness on inner side of left thigh just above knee. Insertion of the vastus internus was swollen and tender.

Diagnosis.—Tear of insertion of vastus internus.

Treatment.—Support, radiant light and heat, and diathermy. On third day light massage and vibration added. Continued scrimmage with one slight reinjury. Discharged on the fifth day.

CASE V.—R. C. G., Princeton.

Injury—Kicked on right calf six weeks ago with same injury one week later. Muscle sore and stiff, unable to rise on the toes.

Diagnosis.—Traumatic myositis.

Treatment. Radiant light and heat with 1500 c.p. lamp, whirlpool bath, and diathermy. No disability after third day.

CASE VI.—R. E. J., Yale.

Injury.—Hit on right thigh by shoulder of tackler two weeks ago. Received "rubbing" at first followed by daily baking and poulticing with no improvement. Examination showed a large dense mass covering about half the front of the thigh.

Diagnosis —Chronic traumatic myositis.

Treatment.—Radiant light and heat, di ect diathermy 2200 m.a. for 20 minutes followed by hacking massage and heavy vibration, Static Morton wave after third day. Ran three miles on fourth day and returned to play on the sixth.

Comment.—I have given Dr. Roberts' results because they show what a physician with an inexpensive equipment can accomplish by the careful application of physiotherapy to injuries. It will be noted that the type of portable high frequency machine used by him delivers not over 1000 milliamperes of current, which necessitated the longer treatment given. The current from this type of machine used to produce muscular contraction is perhaps more of a wave than a true sinusoidal current, but accomplishes the desired result

Dr. Roberts' technique of applying diathermy on the first day gave results which indicate that at least one day of disability may be saved by this method. The fear of reestablishing capillary bleeding in a torn or bruised muscle by the active hyperemia induced by diathermy has heretofore led to a twenty-four hour delay in the application of this current. The problem resolves itself into some method of applying heat to increase active hyperemia followed by the removal of the excess blood and lymph through mechanically squeezing the muscle.

The first requirement is perhaps best met by a combination of radiant light and heat, steam towel or oven, and direct diathermy. Indirect diathermy (with the autocondensation cushion attached to one pole and a movable electrode to the other) or simple high frequency from the Tesla pole may be used. Direct diathermy with sheet metal electrodes seems to give the best results. They may be placed on opposite sides of the part, or above and below a joint such as the elbow. When used in the latter manner they should entirely encircle the limb. A heavy lather of soap will keep perfect contact with the skin and prevent burns. Rubber bandages are more satisfactory than any other type.

The first requirement is perhaps best met by a etc., in fresh injuries, massage, sinusoidal current, and Morton wave from the static machine are to be preferred. When the exudate is more or less organized static sparks and heavy vibration are indicated.

It is of the greatest importance that the future welfare of the player be constantly kept in mind and that treatment be kept up beyond the season if necessary, so that he may not be handicapped with chronic weakness. This unfortunate condition arises all too often when the season is over and a man is no longer of value to the team.

420 TEMPLE STREET.

INDICAN AND A HIGH SPECIFIC GRAVITY OF THE URINE.

BY JOHN C. WARBRICK, M.D.,

CHICAGO.

THE question might be asked: Is there any relation between the amount of indican in the urine and a high specific gravity of it?

A much higher specific gravity than usual might tend to point to that dreaded disease diabetes, or to some metabolic disturbance in the body, due as it might be, to some excessive nervous tension for a time. The presence of more or less indican in the urine may have some relation to the amount of putrefaction going on in the bowels; however, a high specific gravity can occur where the amount of indican is small, as has been proved more than once.

A high specific gravity can also occur, as has been found where the amount of chlorides, phosphates, and sulphates is quite small. It cannot then be said that the amount of indican regulates the specific gravity of the urine, for a high specific gravity may be found when the amount of indican is high and also when it is low.

The amount of indican no doubt has a relation to the degree of putrefaction going on in the intestines, which of course bears a relation to the amount of protein food ingested from time to time. The degree of putrefaction going on in the intestines would seem to depend a great deal upon how the proper hygiene of the body is carried out. If it is well maintained the amount of indican can hardly be very high, because it is got rid of by the system when well regulated in any quantity. If, however, this is neglected, as it often is, the amount of indican may gradually become high.

An examination of six specimens of urine was made in each instance where the specific gravity was unusually high. The case was that of a man just a little beyond middle life, in full possession of both mental and physical vigor, but at times subjected a nervous tension from overwork.

In each specimen of urine examined the specific gravity was found to be very high, so that the tendency was to think it almost a sure case of diabetes. This, however, was soon disproved, because at no time could any sugar be detected in the urine after a careful examination. Thus the condition of the urine was in no way related to any seeming diabetic state.

The specific gravity of the urine ranged from that of the high figure of 1036 to a much higher one still of 1046—rather an unusual one to find except in severe cases of diabetes.

The amount of chlorides, phosphates, and sulphates was noted at each examination and the degree of indican was also registered. The figure for the chlorides in each instance in this case was not high. In one case only did it extend well beyond the maximum daily amount, but it was over the minimum daily figure in all but two cases, when it registered the same. In only one case where the point for the chlorides registered high was the index for the amount of indican also found to be high. Indican, however, was present in two cases only where the specific gravity of the urine was found to be high, so that in four of the cases no indican could be noted.

The amount of sulphates in these cases was fairly high, tending to point to suboxidation of tissue change. In four cases it equalled the daily maximum figure and in two of them it was far beyond that point; however, no indication could be found at either of these examinations.

As for the amount of phosphates in one case only was the amount high, and this registered beyond the maximum daily figure.

The examination of each specimen of urine was made soon after a full meal had been taken, which was generally after breakfast in the morning. The results of the urinary examinations are as follows, and it may be said for those who do not readily understand the figures for the amount of chlorides, phosphates, and sulphates, that the urine was of course sedimented in a graduated tube for the specific purpose and these are marked off all the way from 1 c.c. to 15 c.c., such tubes not being at all new.

The figures for the chlorides, phosphates, and sulphates represent the amount of each in c.c. precipitated in the tube after the solution necessary in each instance has been added to the urine; for instance, the amount of chlorides found might be any way from 5 c.c. to 50 c.c. The opposite figure is the amount of c.cs. found changed into grains, as, for instance, if the amount of chlorides was 15 c.c., then this multiplied by 15.5 grains in one gram gives the amount of grains, 232.5 of the chlorides, which is not very hard to understand.

Always multiply the amount of chlorides, phosphates, and sulphates found each time in c.c. by 15.5, and you get the amount of grains a day of each passed. The benefit of this is evident, for it is important to know the amount of tissue change going on in the body, whether there is suboxidation or superoxidation of the tissues, and the amount of chlorides found, also that of the sulphates, tends to indicate the degree of this.

The figures also act as an index of the amount of food taken into the body.

1. Yel., red. SpGr. 1046 Cl. 15:232.5 Phos; hates 1/4:4. Sulph 3:46.5 Ind.
2. Yel. red. SpGr. 1038 Cl. 15:232.5 Phos. 1 4:4 Sulph. 3:46.5 Indican 5
3. Yel., red. SpGr. 1038 Cl. 10:155 Phos. 1 4:4 Sulph. 3:46.5 Indican 0
4. Yel., red. SpGr. 1040 Cl. 15:232.5 Phos. 1.4:4 Sulph 3:46.5 Ind. 0.
5. Yel., red. SpGr. 1040 Cl. 10:155 Phos. 5:232.5 Sulph 10:155 Ind. 0.
6. Yel., red. SpGr. 1038 Cl. 30:465 Phos. 3:46.5 Sulph 3:46.5 Ind. 11.

396 EAST 43RD STREET.

Medicolegal Notes.

Physical Examinations in Personal Injury Cases.—The Missouri Supreme Court states its views as to the trial court's power to appoint medical examiners in personal injury cases thus: "The law invests the trial court with authority to appoint physicians to make physical examination of the plaintiff in a physical injury suit. The defendant cannot demand it as a matter of right, but the court in its discretion may do it in the furtherance of justice. When the court makes such an appointment, he does so because he determines in his discretion that the case calls for the opinion of disinterested and unbiased physicians, not friends of either parties, whose testimony is likely to be biased. This court, in case of State ex rel. v. Anderson, 194 S. W. 268, placed the authority of the court in such cases upon the same ground as the general power to compel a discovery. Wigmore on Evidence, vol. 3, § 2194, treats of the subject in the same manner and says: 'Apart from specific privileges, then, a person is bound, if required, to furnish evidence by exhibiting his corporal features, his chattels, and his premises to the inspection of the tribunal or its duly delegated officers.' Wigmore then quotes from a Federal case of Justice Brewer as follows: 'A person who testifies to his physical condition may be compelled (there being no improper exposure of person) to uncover his body, that the jury may see whether there be such a physical condition as he has testified to.' The power to make such an appointment involves an order requiring the plaintiff to submit to examination. The court could not compel plaintiff to submit to such examination by the witnesses for the other side. The physicians appointed in such cases are the officers of the court. The order is made because an exhibition to the jury or the court of the infirmities about which the inquiry is made would not disclose the facts as fully and clearly as the examination of experts would reveal them."—Atkinson v. United Rys. Co., Missouri Supreme Court, 228 S. W. 483.

Explanations by Experts of X-Ray Photographs.—In an action for injuries to the plaintiff's leg by a fall on a defective sidewalk, it was held that it was not error to refuse to permit the defendant's expert to testify as to what appeared in the *x*-ray photographs of the injured leg, in view of the court's previous holdings that the photographs themselves are the best evidence of what appears on them. The court said: "It is proper for an expert to explain an *x*-ray photograph in such particulars that are not understood by a layman. See State v. Matheson, 142 Iowa, 414, 120 N. W. 1036, 134 Ann. St. Rep. 426. What the jury could see and understand about the matter is not the subject of expert testimony, and this we understand to be the effect of our prior decisions. A radiograph may be used for purposes of demonstration by an expert as though he had the object itself before the jury for explanation. Sheldon v. Wright, 80 Vt. 298, 67 Atl. 807. That the bone can be distinguished from the flesh in an *x*-ray photograph, and that the bone would make a heavier shade than the muscle is proper expert testimony. Such scientific facts would not be known by the average layman. Missouri, K. & T. Ry. Co. v. Coker (Tex. Civ. App.), 143 S. W. 218."—Daniels v. Iowa City, Iowa Supreme Court, 183 N. W. 415.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, October 15, 1921.

FIGHTING TUBERCULOSIS WITH CHRISTMAS SEALS.

THE sale of Christmas seals as a feature in the war against tuberculosis has come to be an established annual event, which serves the double purpose of raising funds for the work and of focussing the attention of the public on the need of keeping up a continuous fight against the white plague if we are to hold the ground that has been won. That the fight is well worth while is shown by the fact that the death rate from tuberculosis has been steadily declining since an organized effort to control the disease has been in operation. The death rate from tuberculosis in all forms in the Registration Area of the United States in 1900 was 201.2 per 100,000 inhabitants; in 1904, the year the National Tuberculosis Association was founded, the death rate was 202.6. Since this time the number of deaths from tuberculosis has fallen steadily from year to year, which the exception of the years 1917 and 1918, when it increased, until in 1919 it was 125.6 per 100,000 population.

It is estimated that there are approximately 132,000 deaths a year from tuberculosis in the United States. In 1919 in the Registration Area there were actually reported 106,985 deaths from tuberculosis. The Registration Area then included 81 per cent. of the population of the United States. At the same rate there would be 132,000 deaths in the entire country. If the prevalence of tuberculosis had not diminished since 1900, we would have lost more than 210,000 lives in 1920. Because of this decrease, therefore, in one year alone more than 75,000 lives have been saved.

In the attainment of these results the sale of Christmas seals has been by no means an insignificant factor. The way in which this movement became one of national scope is interesting. The first tuberculosis Christmas seals to be sold in this country were offered to the public in Wilmington, Delaware, through the efforts of Miss Emily P. Bissell in 1907. She had read of the use made of seals to raise funds for a children's hospital in Norway, and she believed that a similar fund-raising method could be followed successfully here. From the proceeds of the first Christmas seal sale $1,000 was donated to help start Hope Farm in Delaware. Miss Bissell was secretary of the local Red Cross, and in 1908 she was backed by the national Red Cross in a country-wide seal sale.

In 1919 the National Tuberculosis Association began to conduct the Christmas seal sale annually in its own name. The amount secured through these sales has grown from $135,000 in 1908 to $4,000,000 in 1920. The total amount raised in the preceding thirteen sales was approximately $16,000,000. This year there will be put on sale 920,000,000 stamps. The funds raised from seal sales have been called "seed money" and have been wisely used to spread information regarding tuberculosis and to organize public opinion in an effort to control and prevent the disease. During the period in which this work has been carried on, sanatoria and other institutions to treat tuberculosis, worth in the aggregate over $150,000,000, have been built. The National Association has always directed the expenditure of these funds for the specific purposes represented by that organization. The conditions of poor housing, overcrowding, and unemployment that we are experiencing as an aftermath of the war call for unusual effort both in educational work and in actual financial relief if progress in the reduction of the tuberculosis death rate is to continue on the same scale as during the past fifteen years.

THE PSEUDOPARALYSIS OF RICKETS.

THE pathogenesis of pseudoparalysis of rickets is still very obscure because of insufficient histological data, so that it is only by hypotheses that the mechanism of this affection can be surmised. Berg, who seems to have been the first to have emitted an opinion on the subject, states that when a lower limb is set in motion by muscular contraction and a step is taken the sum of the work accomplished is composed of the two following elements: firstly, a reaction against the limb to be moved, and secondly, the communication to this limb of the force necessary to move it. The sum of these two actions represents the muscular work accomplished; therefore, it is evident, according to this observer, that when one is standing motionless all the work employed is to maintain rigidity of the lower limbs and to overcome the tendency to fall. Now when walking, the work accomplished is increased, the body being at the same time transported and supported. The muscular tissue, being weakened by the defective nutrition of the rachitic blood, is incapable of performing these two acts simultaneously, and in certain cases in which the force is still sufficient to carry the body weight, it will nevertheless be insufficient to originate movement. This incapacity is still more increased by the weakness of the ligaments and osseous system and by the flaccidity of the muscles. On the other hand, the extreme sensitiveness of the muscular tissue is likewise a cause, and when pain is present it is clear that the little patient will seek a restful attitude.

Unquestionably, these propositions emitted by Berg are quite acceptable, but it appears only logical to give a larger place to pain than does this observer. In reality, what are the clinical data found in these cases? Usually they are as follows: For some time past the child has become tired much more quickly than was his wont, his movements are less precise, he staggers when walking, standing is difficult and possible only for a short time. Finally, even when making slight movements, the child cries out and by his gestures shows that he suffers. This pain has certainly great importance, and it is to prevent its occurrence that the patient immobilizes his joints and avoids all motion. To remain still so as not to suffer is the fixed idea of the patient.

To explain the cause of the pain engendered in rachitic pseudoparalysis one is compelled to enter the domain of hypotheses. In these cases there is no detachment of the epiphyses as in Parrot's syphilitic pseudoparalysis, neither is there any juxta-articular traumatism as in Chassaignac's disease. Radiography of these cases shows that there is not a trace of solution of continuity or detachment of the epiphyses, neither is there any skeletal tumefaction as in Barlow's disease. Rachitism is the only cause. It is undoubtedly by an excess of perturbation that this morbid process causes in the skeleton in the proximity of the epiphysary points, from defective nutrition as well as, perhaps, by muscular and tendinous changes, that the clinical phenomena encountered in these cases of pseudoparalysis should be explained. The lack of solidity of the limbs in the proximity of the joints, the abnormal softness of the insertions of the tendons, the defective nutrition of the groups of muscles are all so many important factors which disturb the accomplishment of the motor functions and are susceptible of giving rise to pain, and hence the appearance of pseudoparalytic phenomena.

THE RIGHTS OF CHARITY PATIENTS.

One of the problems that is always confronting visiting and resident physicians in hospitals having large open wards is that of the unruly or obstinate patient. It is naturally quite annoying to the busy physician who is giving his time and skill gratuitously to be met with a refusal to submit to very necessary diagnostic procedures or to treatment of an indispensable sort. In such cases the physician, who is accustomed perhaps to have his word regarded as law by the hospital staff, is too likely to issue a curt order that so-and-so be done, regardless of the patient's wishes.

One must pause a moment, however, to consider several angles to this question. The patient himself, even though poor and ignorant, and for the time being receiving free treatment, has certain rights. Let the physician endeavor for a moment to get the patient's viewpoint. Let him suppose himself a layman obliged to seek treatment in an open ward. Suppose he is told that he must submit to a metal instrument being thrust into his bladder, or a large needle into his spinal column, or that he must take castor oil, which he detests, or be thrust out into the world again. Diagnostic and therapeutic procedures, we must remember, which have become commonplaces to us, seem often mysterious and terrible to patients. Too often, moreover, instead of taking a few minutes to explain their innocuous nature, the doctor simply orders them done and the patient, when the interne or nurse appears with formidable looking instruments, is frightened and easily becomes antagonistic. Lumbar puncture, for example, which, except in very exceptional circumstances, is absolutely free from danger and no more painful than a hypodermic, seems an alarming operation to a layman. Too brusque attempts to explain it are worse than useless, for the mere idea of someone thrusting a needle into the spinal column gives the patient visions of sudden death or at the least of excruciating pain.

Let the physician then bear in mind, first, that the charity patient is possessed of inalienable rights including those of free choice as to whether or not he will take certain medicines or submit to physical examinations. The fact that these rights are frequently ignored and that these patients, being usually poor and without influence, seldom seek legal redress, has no bearing on the moral aspect involved. Thus, secondly, the physician should read diligently the history of medicine until he becomes convinced, which he will in time, that no diagnostic manipulation or therapeutic procedure can be certainly said by the physicians of the age which employs it to be so indispensable and of such absolute value as to warrant them in seizing another human being by the throat, so to speak, and forcing him to submit to it.

Steinach's Rejuvenated Rats.

In a book entitled "Die Verjüngung," by Steinach, which appeared last year, there were several case histories of elderly men who had been "rejuvenated" by a very simple operative procedure, consisting in the subcutaneous division of the vas deferens, which is stated to confer all the benefits of testicular grafting. However, the author emphasized especially the alleged results of some elaborate experiments on rats which led the way to the human trials. The book made some talk and was more or less severely criticized, but the most severe criticism has recently been voiced by Fiebiger, who noted in the rat-photographs of the book that the animals suffered from mange, and declares that the entire experimentation is vitiated because in investigations of that character the animals should necessarily be in sound health (*Wiener klinische Wochenschrift*, July 28, 1921, xxxiv, 30). Rat mange, or rat-scabies, is extremely common and due to a parasite closely related to the *Sarcoptes scabiei* in man. The lesions due to the mite comprise pustules, crusts, and shedding of hair. The irritation causes also the formation of condylomata acuminata. The areas of preference are the ears and tail, and in mild cases no other regions are implicated. In more severe cases the nose and ano-

genital region suffer. Finally the entire trunk, paws, etc., may be involved. As an occasional complication may be mentioned the presence of rat lice. Rat-mange is by no means a local affection, for in the more severe cases it leads to anemia, emaciation, and cachexia. While the rats in Steinach's experiments must necessarily be senile it is manifestly improper to make use of animals with advanced mange; and the photographs show clearly that they were thus affected. Steinach, however, ignores the affection in his book. The crux of the matter is that mange when severe will induce precocious senility, and when the condition is cured the rat may recover his original status, which may involve return of potency. Steinach was aware that the animals were in part lousy, but claims that after delousing their condition was not essentially altered for the better. Fiebiger does not, of course, assert positively that Steinach's work is a total failure, but evidently it must be controlled by other experiments in which the senile condition is surely primary and not precociously due to severe mange. He also points out that the ages of Steinach's rats were too low for true senility (19 to 38 months).

Spirochetes in the Blood in Erythema Multiforme.

Apparently erythema multiforme has been added to the increasing list of the spirochetoses, although clinically there seems to be little similarity between it and the other members of the family. The discoverer of the organism in the blood is Professor Massini of Basle (*Schweizerische medizinische Wochenshrift*, August 11, 1921, li, 32). The spirochete in question bears a notable resemblance to that of Weil's disease or spirochetosis icterohemorrhagica. By reason of the lively motions exhibited, the author chooses to call the new organism *Spirochæta agilis*. It cannot be seen in recent blood, but on the fourth day of a blood bouillon culture can readily be seen in the dark field. In the light field no stain yet tested can bring the organisms into view. They have been cultivated only as far as the second generation. In the body they do not appear to enter the blood before the fifth day of the disease and disappear about the ninth. The patient in whom the organisms were found was a woman aged 61 with an alleged rheumatic history and a further record of sciatica and bronchitis. During 1921 she had repeatedly suffered from swollen ankles and finger joints. When admitted there was bronchitis but rheumatism was quiescent. The disease for which she sought treatment was a febrile angina (diphtheria excluded), in the midst of which appeared the outbreak of erythema multiforme. The latter was typical and need not be described. Whether the spirochete entered the blood from the fauces is unknown; there seems to have been no attempt to cultivate it from throat smears.

Propagation of Gastric Toxins and Ferments Along the Vagus Nerve to the Medulla.

The earlier reports of the original work along this line of Loeper, Debray and Forestier were of experiments with the abnormal ligated stomachs of animals. When certain substances were introduced into such stomachs they could be shown to diffuse the length of the vagus, in a manner somewhat similar perhaps to that shown by tetanus toxin under other circumstances. The vagus was practically always impregnated with some of the contents of the stomach, including pepsin. The later results are reported in *Le Progrès Médical* for August 6, 1921, xlix, 32. In the first experiment with two fasting dogs erosions were produced in the gastric mucosa, using a sound or similar implement. The pylorus was now tied and a solution of formal in glycerin injected into the stomach. Two hours later the vagus, medulla, and sciatic nerve were tested, and while the first named gave a positive reaction, the medulla gave a doubtful one, and the sciatic control was flatly negative. The experiment was repeated with tetanus toxin, and guinea pigs were tested with pulp made from the several nerve structures. Both the vagus and medulla gave positive reaction, but the sciatic a negative one. Injection of antitoxin prevented the positive results. The third experiment was made with pepsin. It has long been known that this substance diffuses along the vagus during digestion. An extract made from the vagus and one from the bulb both showed peptic powers on albumin.

News of the Week.

Plague Kills Many in India—A despatch from London reports that hundreds of persons are dying of plague in the city of Jubbulpur, the capital of a district in central India. It is said that deaths are so numerous that it is impossible to bury or burn the bodies of the dead, and that the city is almost panic stricken.

United States Government Buys Hospital in New York.—The Government has purchased the Roman Catholic Orphan Asylum at Kingsbridge Road and Sedgwick Avenue, the Bronx, and expects to replace the home with one of the largest hospitals in the country for the care of disabled soldiers under the jurisdiction of the United States Public Health Service. This will make it possible to return the Polyclinic Hospital to its trustees by the first of the year. The new hospital will not only care for the 300 patients now in the Polyclinic Hospital, but for the 1000 in the Fox Hills Hospital on Staten Island. It is believed that this move will go a long way toward solving the problem of hospital facilities for ex-service men in this district.

Prussian Marriage and Birth Rates.—Prussian statistics show that the marriage rate has doubled since 1913. About 15 persons in every thousand were married in 1913; in 1920 the rate was 28 and now it is 32. The annual birth rate has not kept pace with the increase in marriages. In 1920 the average birth rate per thousand was 25, while in 1913 it was 29. The tendency of the birth rate to decrease was already in evidence a decade before the war. The surplus of births over deaths was 10 per thousand in 1920 and 13 in 1913.

Drugless Physicians Push Legislation.—The Drugless Physicians' Association is sponsoring two bills which will be proposed at a special session of the Oregon Legislature to be held soon. One of these bills would limit the charge for an

operation by any doctor to $50, and the other would require all prescriptions to be written in English. An unsuccessful effort was made at the last legislative session to pass a bill providing that all prescriptions be written in English and made in triplicate with an exact diagnosis of the ailment and with a statement as to the particular use of each drug prescribed.

Increase in Drug Addiction Reported in New York.—A great increase in drug addiction in New York City is reported by Dr. Carleton Simon, special deputy police commissioner, for the quarter ending September 30. The arrests from January 1 to October 1 numbered 2488, while those for the third quarter alone numbered 932. Of 659 cases brought to trial 93 per cent. of convictions have been obtained. According to this report over 50 per cent. of those arrested have criminal records. The increase in the number of arrests for addiction is coincident with the enactment of the new amendment to the Sanitary Code relating to habit-forming drugs which went into effect a little over two months ago.

Auto Accidents in New York State.—According to the report of the National Highways Protective Association, 213 persons met death by automobiles in the State of New York, including New York City, during the month of September. In New York City during the past month 47 persons were killed by automobiles, 10 by trolleys, and 3 by wagons.

Conference on Hospital Coordination.—Plans for the creation of a permanent board to coordinate hospital work among the health services of the Government were discussed by President Harding on October 8 with a committee representing about a dozen governmental agencies which deal with hospitalization and similar functions. Reports submitted showed that more than 7,000 beds are now available in Government hospitals. Among those present at the conference were Brigadier-General C. E. Sawyer, Surgeon-General Ireland, Rear Admiral Stitt, Director Forbes of the Veterans' Bureau, and Dr. Lavender of the Public Health Service.

Experts to Study Longevity.—Statisticians of the Census Bureau are preparing a special report based on a study of 3,500 men and women in the United States who have reached the age of 100 years or over. All available data surrounding the lives of centenarians will be collected. It is hoped through this investigation to gain new light on the question as to how to live to an advanced age, on the question of whether men or women live longer, and as to the effect of marriage and celibacy on longevity.

Hospitals Consolidate.—The Laura Franklin Free Hospital for Children, at 17 East 111th Street, will become a part of the new Fifth Avenue Hospital of New York on January 1, 1922. The Laura Franklin Hospital will not lose its identity but will be concentrated on one floor of the new Fifth Avenue Hospital, where there will be accommodations for more than again as many children as it now cares for.

Hospital Addition Opened.—A new building providing fifty additional beds at the Lutheran Hospital of Manhattan was open to visitors on October 9, and will be formally dedicated on October 16.

The Alvarenga Prize.—The College of Physicians and Surgeons of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $300, will be made on July 14, 1922, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Information with reference to the details of the competition may be obtained by writing to Dr. John H. Girvin, Secretary, 19 South Twenty-second Street, Philadelphia, Pa. The Alvarenga Prize for 1921 has been awarded to Dr. John W. Churchman of New York City for his essay entitled "Selective Bacteriostasis of Gentian Violet."

Dr. Lewis A. Coffin has removed his office to the Medical Chambers at 114 East Fifty-fourth Street, New York.

Dr. Marcus A. Newell, formerly of Sheridan, Wyoming, has removed to New York City, and is associated with Dr. Edward Wallace Lee, 616 Madison Avenue.

Dr. Clarence L. Starr, chief surgeon at the Hospital for Sick Children, Toronto, has resigned his post to accept the position of Professor of Surgery at the University of Toronto.

Harvey Society Lecture.—Dr. C. R. Stockard, Professor of Anatomy, Cornell University Medical College, will deliver the First Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, October 22, 1921, at 8:30 o'clock. His subject will be "The Significance of Modifications in Body Structure."

Gifts to Columbia University.—Columbia University announces the acceptance of gifts to the amount of $37,209.32, among which are the following of medical interest: The Borden Company gave $10,000 for research in food chemistry. Mrs. Elizabeth Coolidge gave $2,400 for the maintenance of the Coolidge Fellowships in medicine. Dr. and Mrs. Harold Lee Meierhof have given $1,000 to establish the Harold Lee Meierhof prize in the department of pathology.

Prize for Medicinal Cure of Cancer.—The Cosmopolitan Cancer Research Society of Brooklyn, chartered by the State in July, announces a prize of $100,000 provided by an anonymous donor for a "medicinal" cure for cancer. The objects of the society are to provide treatment to cancer patients unable to pay and to investigate various cancer remedies. The work of the society is supported by private contributions.

The American Academy of Ophthalmology and Oto-Laryngology will hold its twenty-sixth annual meeting in Philadelphia, October 17-22, 1921. In addition to the scientific sessions various clinics and exhibits will be provided for the members and guests of the society.

Openings for Physicians in the U. S. Public Health Service.—Examinations of candidates for entrance into the regular corps of the U. S. Public Health Service will be held November 14, 1921, at Washington, D. C., Chicago, Ill., and San Francisco, Cal. Candidates must be between 22 and 32 years of age, and graduates of a reputable medical school. They must pass satisfactorily

oral, written and clinical tests before a board of medical officers. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Obituary Notes.—Dr. EDWARD LELAND MOONEY of Syracuse, N. Y., died suddenly of heart disease on October 1, at the age of sixty-two years. He was graduated from Michigan University School of Medicine in 1886, and was a fellow of the American College of Surgeons. He was a member of the American Medical Association, the Onondaga Medical Society, and the Syracuse Academy of Medicine. He was physician to the Hospital of the Good Shepherd and on the staff of the Syracuse Free Dispensary.

Dr. BENJAMIN F. MILLINGTON of South Londonderry, Vt., died following an operation in a Brattleboro hospital on September 21, at the age of sixty-one years. He was graduated from the University of Vermont College of Medicine in 1886.

Dr. ISABELLE MATHISON RANKINE, formerly of Brooklyn, N. Y., died in Tappan, N. Y., on September 26. She was graduated from the New York Medical College and Hospital for Women in 1882, and for many years was on the visiting staff of the Eastern District Homeopathic Dispensary.

Dr. WALTER JOHN WHITEHOUSE, Jr., of Marcus Hook, Pa., died of nephritis at the Chester Hospital on September 19, at the age of thirty-nine years. He was graduated from the Medico-Chirurgical College, Philadelphia, in 1905. He was an assistant surgeon in the United States Public Health Service and for eleven years was attached to the Quarantine Station at Marcus Hook.

Dr. JOHN W. WARREN of Snyder, Tex., a graduate of the Kentucky School of Medicine, Louisville, in 1891, died about September 8, at the age of sixty-four years.

Dr. AARON TILZER of Portland, Ore., died on September 15, at the age of fifty-six years. He was graduated from the University of Oregon Medical School in 1897.

Dr. JOHN W. DENISON of Parsons, Pa., a graduate of the University of Michigan Medical School in 1885, died on September 18, at the age of sixty years.

Dr. JOSEPH KERR WEAVER of Norristown, Pa., a graduate of Jefferson Medical College, Philadelphia, in 1867, died suddenly of cerebral hemorrhage on September 30, at the age of eighty-three years. He was a fellow of the American Academy of Medicine and surgeon general of the National Guard of Pennsylvania for a number of years under five governors. He was one of the founders of the Norristown Hospital.

Dr. JOSEPH G. SAVANNAH of Farmingdale, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1917, died on October 2, at the age of thirty-four years. He was connected with the Tuberculosis Preventorium at Farmingdale, and served during the World War in the Medical Corps of the United States Army. He was also a member of the staff of the Ann May Memorial Hospital at Spring Lake, N. J.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, September 23, 1921.

Influx of Medical Students.—When the medical schools open here in October there will be another very large influx of medical students, and the resources of the schools will be tested to the utmost. The president of the General Medical Council, Sir Donald MacAlister, in his opening address at the May session, drew attention to the overcrowding of the profession. However, this warning appears to have carried no weight, although, of course, it was absolutely justified. It must be borne in mind that the education of a medical man is nowadays an extremely expensive affair and the prizes of the profession are few. At least £1,500 is required to carry a medical student through his course, and his chances of making money subsequently are meagre in the extreme, for he may consider himself fortunate if he is able to gain a comfortable livelihood. With overcrowding, competition is keen, even ruthless, and the less persevering, or sometimes the most scrupulous, must inevitably go to the wall. A marked feature of this somewhat inconsiderate rush to join the ranks of the medical profession is the increasing eagerness of women to become qualified to practise the healing art. The war undoubtedly has had much to do with this innovation. Women workers in the war zones and outside these zones naturally witnessed the exercise of the surgeon's and physician's craft on a wide scale, and many of them were impressed favorably by it. Moreover, the exigencies of the war were responsible for numerous appointments of qualified women as internes in hospitals, appointments which had not been open to them previously — that is to say, except on very rare occasions. It may be added that in these positions women acquitted themselves remarkably well—in some instances with conspicuous success. Now that the barrier of custom has been partially broken down, women compete with men for the resident appointments which are open to both. Again, the sphere of women's usefulness in medicine has of late been greatly widened. Research, for which women are frequently peculiarly well adapted, offers good opportunities. Maternity and child welfare work, the latter especially, provide other openings, and certain appointments in the public services are available to women. Lastly, there is quite a considerable demand for the services of medical women by the missionary societies, as in some countries, India for example, religion and caste do not admit of the medical attendance of the majority of the female population by men. It will thus be seen that various causes have combined to increase the number of medical students in this country and this in face of the fact that the nature of medical practice is undergoing a great change, and that the future of the medical profession, if certain radical reformers have their way, looks by no means rosy.

Public Medical Service Demanded by the Friendly Societies.—The National Conference of Friendly Societies is holding its sittings at the

present time. In the opening address the president spoke of health questions and the medical profession, saying that, so far as the valuation surpluses were concerned, there appeared to be a great diversity of opinion as to the form the additional benefits should take. Personally he thought this was regrettable. Instead of dabbling with the question of health through the medium of extraneous benefits, they ought to concentrate their attention on securing a thorough, all-embracing public health service under the Ministry of Health. This, of course, would include the public health service which they had demanded on many occasions. The speaker went on to say that it was patent that they were not getting the value for the enormous sum paid to the medical profession, a total nearly as great as the amount spent on sickness, disablement, and maternity benefits. The economists in the House of Commons, when discussing the administration of health insurance, should bear this point in mind. No one was satisfied, unless it was the doctors, with the present medical service. A proper medical service must be correlated with hospitals, nursing, and other services. A fine nucleus existed already in the present public health services, and it was in the extension of these that they must look for the solution of the preventive side of the work. Many of the diseases today were due to preventable causes, and if much disease was to be eradicated they must turn to the child and see that it was brought up and trained under healthy and sane conditions. The speaker said more in a similar vein, but enough has been quoted to show the trend of his argument. He, like most of the members of the Friendly Societies, desired the nationalization of the medical profession, whereby the profession would lose its independence and its members would be more or less at the beck and call of their patients, who, in turn, would perhaps be guided by opportunist politicians.

Suggested Reduction of Panel Doctors' Pay.—As a straw showing which way the wind is blowing, the suggested reduction of the capitation fee for medical services under the National Health Insurance Act is interesting. The matter was discussed at a meeting of general practitioners called by the Medical Practitioners' Union. The following resolution was placed before the meeting: That this meeting of panel practitioners affirms that the eleven shillings fixed recently by arbitration is inadequate to cover the services rendered, and will tolerate no reduction whatever.

Investigation of the Causes of Dental Decay.—The Medical Research Council, in consultation with the Ministry of Health, has appointed the following committee to investigate the causes of dental decay: Prof. W. D. Halliburton, M.D., F.R.S. (chairman); Norman G. Bennett, M.B.; Leonard Colebrook, M.B.; I. M. Hamil, M.D.; Sir Arthur Keith, M.D., F.R.S.; Mrs. Edward Mellanby, J. Howard Mummery, M.R.C.S.; C. J. Thomas, M.B. Professor Halliburton is the professor of physiology at King's College, London; Doctors Bennett and Howard Mummery are very well known in the dental world, Sir Arthur Keith is the Curator of the Museum of the Royal College of Surgeons, Mrs. Mellanby, together with her husband, Professor Mellanby, has done a great deal of valuable work on rickets and the dietetic problems associated with it; Doctor Colebrook is a bacteriologist who has been associated with Sir Almroth Wright at St. Mary's Hospital, and is now assistant to the bacteriological department of the Medical Research Council; Doctor Hamil is on the staff of the Ministry of Health, and Doctor Thomas on that of the London County Council.

International Dental Exhibition.—An international dental exhibition was held a week or so ago in London and appears to have been a success. A vast amount of ill health and even of disease are attributed to focal infection, and, while the sinister influence of decayed teeth and infected gums may have been exaggerated, there is no doubt that both as primary and contributory causes they are important factors. The investigations into the national health which were an outcome of the war afforded overwhelming evidence that the condition of the teeth of the population of Great Britain generally was deplorable. Consequently, in order to provide for the health and efficiency of the nation at the present time and in the immediate future, the services and care of the dentist will be more greatly in request than in the past. The exhibition gave convincing evidence of the progress that has been made in dental treatment. To the mass of the population the dentist is regarded merely or mainly as a puller of teeth, as he was regarded in the Middle Ages. However, it may be pointed out and strongly emphasized that the population at large should be taught that the chief function of the scientific dentist is not extraction but conservation of teeth. An individual is immensely handicapped and his life is darkened if he has lost all or most of his teeth, no matter how good the substitutes may be. It is to be hoped that the investigations of the committee of the British Medical Research Council, referred to above, may result in discovering at least some of the principal causes of dental decay, for unless the basic cause is known successful treatment is practically impossible.

Infant Mortality in London.—Infantile mortality in London increased considerably during July and August, owing to diarrhea and enteritis. During June the average death rate from these two causes was 11 per 1,000. For the seven weeks ending August 27 the figures were 30, 29, 52, 65, 103, 154, and 142. This extremely high death rate must be largely ascribed to the phenomenal drought.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, October 1, 1921.

Cancer Increasing.—Attention is being called at present by many competent observers to the increase which, year by year, has been taking place in the incidence of cancer. This is not a new warning, as those who have followed the history of this dire morbid process are aware. Hitherto, however, it has been possible to meet the figures given to prove increase, by arguments of a very cogent character. For one thing we were entitled to expect

that perfected methods of diagnosis would discover instances of the disease which, without them, must have passed unrecognized. No one was in a position to deny that both physicians and surgeons had, during the last few decades, vastly increased the number of their instruments of precision; new tests had been devised, new data ascertained, novel conceptions built up. To suggest that with all this added knowledge and power at their disposal physicians would not more easily and rapidly detect and recognize the disease appeared on the face of it absurd. Nor was this the only argument against acceptances of the statements of increase. It was pointed out that the expectation of life in Western Europe has been steadily enlarging; many more people than formerly would thus reach the "cancer age." This fact would account for a proportion of the recorded cases.

These considerations, unfortunately, can no longer be accepted as a complete answer to the fears which are now being expressed on the Continent and in England. Regardless of the fact that our powers of recognizing cancer have not materially improved during the past decade, and that the expectation of life has not been increased to any extent, the cancer increase progressively continues. Indeed the very arguments which at one time appeared to offer assurance tend now to support the evil tidings. For improved diagnostic methods must necessarily imply earlier treatment, and we have been told over and over again that the one certain and hopeful thing about malignant disease is that, if it is recognized early and dealt with radically, it can, in many instances, be permanently eradicated. Most surgeons believe that cancer is curable if surgical treatment be resorted to in time, hence this circumstance should have tended to reduce the mortality. But the mortality has risen and not fallen. Moreover, the greater expectation of life does not by any means imply that more people reach the cancer age. It may simply mean that fewer people die in infancy and adolescence.

Consequently there would seem to be but small doubt that in Europe, and probably also in America, at a time when almost every other important disease is becoming less of a menace, cancer is slowly progressing. That environment plays a very small part indeed seems evident from the fact that the well-to-do suffer equally with, or even more severely than, the poor. Food may conceivably be a factor and many scientific men have advanced this view. It has been stated by some that cancer is unknown within the Arctic Circle, others maintain that it represents an after-result of precedent infections among which syphilis stands preeminent.

These views are quite indefinite enough to warrant us in refusing any adherence to them, with the possible exception of syphilis. Nor shall we consult our best interests by taking stock in those who claim the discovery of cures or nostrums. Both radium and the *x*-ray have strong advocates, and both have certainly succeeded in particular instances and as certainly lamentably failed in others. The truth would seem to be that treatment of the local condition is often unsuccessful, and a great amount of work remains to be done before any sort of conclusion can be reached. The present situation of the cancer problem is far from encouraging.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 29, 1921, clxxxv, 13.

1. Two Cases of Carcinoma of the Kidney, One with Invasion of the Vena Cava and Right Heart. William S. Quinland.
2. Congenital Atelectasis. Samuel A. Cohen.
3. Calculus in the Submaxillary Gland. Frederick Sherman Hopkins.
4. The Mesotherapor for Ear and Nose Treatment. James Taylor, Jr.

1. Two Cases of Carcinoma of the Kidney, One with Invasion of the Vena Cava and Right Heart.—William S. Quinland reviews the literature and quotes a case reported by Newman (*Glasgow Medical Journal*, 1896, xlv, 179), which resembled the first case herein recorded. In this case, a man fifty-five years of age, the anatomical diagnosis was carcinoma of the kidney with metastases to the liver, heart, lungs, adrenals, lymph nodes and mesentery. There was tumor thrombosus of the inferior vena cava and right auricle, chronic passive congestion of the liver and lungs, chronic nephritis, chronic bronchitis, atrophy of the spleen and arteriosclerosis. A microscopical study of these tumors indicates that they are primarily of renal cell origin because of the papillary arrangement of the cuboidal cells much like that of adenoma of the kidney. Also the findings of groups of typical adrenal cells so easily differentiated from the tumor cells present in the adrenal gland, make it more apparent that the tumor must be of renal origin and not a hypernephroma. The tumor in Case 2 seems to be an adenocarcinoma of renal origin which has in places taken on the characteristics of a more malignant form of carcinoma with a loss of glandlike structure, and the possibility of producing subsequent metastases. Although there is nothing original in the opinion that carcinoma arises in the first instance from renal epithelial cells, one seldom sees a case in which the structure of the original tumor and its metastases approach so nearly the structure of adenomata of renal cell origin. The relatively low statistics of cancer of the kidney are due to the many difficulties in making a correct diagnosis of the disease and to the tendency of classifying these tumors as hypernephroma. Invasion of the inferior vena cava and right heart is of comparatively rare occurrence, such cases being diagnosed only at autopsy. The frequency with which the liver is affected in such cases as compared with the spleen and other organs makes it possible that invasion of this organ is effected by way of the hepatic veins. It is of interest, though not surprising, that carcinomata of renal cell origin may show many of the characteristics of malignant hypernephromata of adrenal origin, such as a marked tendency to invade the renal vein, since the cells from which they originate are embryologically so similar.

Congenital Atelectasis.—Samuel A. Cohen states that atelectasis even to a considerable degree may be found at necropsy in an infant who in life presented few or no symptoms. Most hospital cases show a small infant, with cold extremities, a feeble cry or a failure to cry, in some instances even after having been pinched. Not infrequently there is a dusky color or cyanosis. A large percentage of these babies are too weak to suckle. Physical examination usually shows a feeble, cold, puny baby, skin and mouth dry, depressed fontanelle, and subnormal temperature. Local examination of the chest may reveal nothing but poor resonance throughout. Comparison of the two sides of the chest, if both lungs are equally affected, is of no value. Often both tops and bases will be impaired. There may be increased resistance and marked dulness over the affected areas and hyperresonance over the rest of the lungs. Auscultation may sometimes reveal medium coarse râles, though more often fine crackles or showers are heard. Vesicular breathing is most frequent. There may, however, be any type of breathing. The more serious cases attended with collapse and particularly with subnormal temperature have a slow pulse from 70 to 90. Evidence based on a series of cases shows that diagnosis is made more frequently on symptoms than on physical signs. In over half the cases examined no evidence of atalectasis was found

by physical examination of the chest. The *x*-ray, however, has been of great help in detecting congenital atelectasis, having led to the diagnosis in about half the cases. The roentgenogram very often shows a broad shadow at the hilus, rarely clear cut and sharply defined, while the peripheries of the lungs are usually clear. Any treatment that causes the infant to breathe more deeply should be instituted, provided it does not result in too great expenditure of the infant's energy. Effort should be directed to increasing the infant's vitality by good hygiene and proper feeding. Congenital atelectasis is often preventable if mothers would see to it that their infants are made to cry in the earlier weeks of life. Occasionally the attending physician fails to see that the baby cries sufficiently. Crying is the only source of exercise during the early days of life. It is not cruel if the baby does not cry to make it cry.

Journal of the American Medical Association.

October 1, 1921, lxxvii, 14.

1. The Rôle and Development of Drug Therapy. L. G. Rowntree.
2. The Treatment of Carbon Monoxide Poisoning. Howard W. Haggard and Yandell Henderson.
3. The Prevention of Simple Goiter in Man. David Marine and O. P. Kimball.
4. Vesical Calculus. John L. Crenshaw.
5. Hypertension with Minimal Renal Lesions. Eli Moschcowitz
6. Diagnosis and Treatment in Pathologic Conditions of Urinary Tract in Children: Modern Methods. William E. Stevens.
7. Köhler's Disease. George I. Bauman.
8. Lavage of the Renal Pelvis: An Experimental Study. Vincent J. O'Conor.
9. Hepatoduodenostomy, with Observations on the Lyon-Meltzer Method of Biliary Drainage. Arthur D. Dunn and Karl Connell.
10. New Method of Preventing Postoperative Intraocular Infections. George Huston Bell.
11. The Repair of Scleral Wounds (Including Rupture) Near the Limbus. Lee Maston Francis.
12. Complete Discission of the Lens by the V-Shaped Method. J. Lewis Ziegler.
13. The Treatment of Otitis Externa with Acriflavine. J. Coleman Seal.

2. The Treatment of Carbon Monoxide Poisoning.—Howard W. Haggard and Yandell Henderson state that carbon monoxide poisoning is so common in modern communities that the death rate on its account is comparable to diseases which, if not the commonest, rank close to the commonest. The therapeutics of carbon monoxide asphyxia are, therefore, important. They have recently worked out a standard for exposure to carbon monoxide which may be expressed by the rule: Multiply the time of exposure in hours by the concentration of the gas in parts per 10,000 of air. If the product equals 3 or less, there is no appreciable physiologic effect. If it equals 6, there is sometimes slight malaise. If it equals 9, a headache or some nausea is produced in most people. If it equals 15, the conditions are dangerous for anything beyond brief exposure. If it is more than 15, they are extremely dangerous even for brief exposure. When a man or animal is asphyxiated by illuminating gas the course of events is as follows: As the blood gradually takes up more and more carbon monoxide, the increasing oxygen deficiency induces an augmentation in the volume of air breathed per minute. This, of course, augments the absorption of gas; but it has another effect, it washes the carbon dioxide out of the body. Now, the normal stimulus for breathing is the carbon dioxide, which the blood carries to the respiratory center. A time comes when the lack of carbon dioxide has progressed to a point at which respiration stops, for lack of this stimulus. If, however, before death the subject is removed from the gassing chamber to fresh air, but is not further treated, the condition for the next half or three-quarters of an hour is one of extremely feeble breathing. During this period little carbon monoxide is eliminated. The condition of acute asphyxia continues and is exacerbated by the poor respiration. At this time the greatest injury is wrought to the nervous centers by lack of oxygen and the conditions in the body are not appreciably better than before removal from the gassing chamber. If, however, 8 or 10 per cent. carbon dioxide is added to the oxygen, an altogether different result is obtained. Under inhalation of this mixture breathing is quickly restored to normal, or more than a normal amount. With the aid of this full ventilation of the lungs, the mass action of the oxygen in the alveoli quickly displaces carbon monoxide from the blood. Certain other changes also occur in the blood, dependent upon the restoration of its carbon dioxide, and the recall of alkali from the tissues. This treatment, the authors believe, is the long sought and ideal therapy for carbon monoxide poisoning, but its application will require a rather specialized apparatus. Such an apparatus was devised by them for oxygen inhalation by gassed soldiers during the war, but it did not come into extensive use. Oxygen containing 8 per cent. carbon dioxide is not yet on the market. Developments in these matters are under way. For miners gassed after dust explosions, and for men overcome during rescue and salvage operations, this treatment holds out hope for diminishing fatalities. It is not so probable that the overnight case of illuminating gas poisoning will be as easily helped, since the crucial feature of the proposed inhalation therapy is the termination of the tissue asphyxia at the earliest possible moment.

3. The Prevention of Simple Goiter in Man.—David Marine and O. P. Kimball review the experimental physiology which demonstrates the underlying principles of goiter prevention and call attention to the ease with which they may be applied. The results of their two and one-half years' observations on school girls in Akron, Onio, were as follows: Of 2,190 pupils taking two grams of sodium iodide twice yearly, only five have developed enlargement of the thyroid; while of 2,305 pupils not taking the prophylactic, 495 have developed thyroid enlargement. Of 1,182 pupils with thyroid emargement at the first examination who took the prophylactic, 773 thyroids have decreased in size; while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids have decreased in size. Klinger has recently reported even more striking curative results in the school children of the Zürich district. It has been demonstrated that simple or endemic goiter in man may be prevented as cheaply and as simply as in the lower animals by the administration of three to five mg. of iodine twice weekly over a period of a month, and repeated twice yearly. There are no dangers worthy of consideration associated with the administration of the quantities of iodine used by Klinger or the writer. Simple or endemic goiter develops most commonly during fetal life, around the age of puberty, and during pregnancy, and any plan which provides for its control during these three periods of life will practically eliminate endemic goiter. The prevention of goiter of childhood and adolescence should be a public health measure, best administered through the schools in order to combine the important additional matter of education. The prevention of goiter is not only good preventive medicine, it is better preventive surgery.

5. Hypertension with Minimum Renal Lesions.—Eli Moschcowitz emphasizes the thesis which he has brought forward in former papers that no mechanistic interpretation can explain how hypertension can result from any variety of destructive lesions of the kidney, experimental and otherwise, and that all clinical and experimental evidence seems to prove that arterial disease, when associated with hypertension, is the result rather than the cause of hypertension. In the present communication five cases are reported in which hypertension and other clinical evidences of nephritis were present, although the kidney showed but slight lesions, certainly less than conventional teaching led one to expect. These cases, which the writer's experience and the study of reported observations leads him to believe are not at all uncommon, show that clinical and postmortem nephritis are by no means synonymous, and that above all, as he has previously insisted, the presence and the degree of hypertension bear no relation to the extent of the lesion. These observations lend no support to the belief that the hypertension of chronic nephritis is of renal origin, but are not inconsistent with the thesis that hypertension is one of the factors in producing nephritis, better termed arteriocapillary fibrosis. Evidence is adduced to show that arteriocapillary fibrosis is merely the localized and prominent manifestation of a generalized capillary and vascular disease. This accounts for

the associated clinical phenomena referable to other organs in hypertensive disease, e. g. brain, aorta, heart, pancreas, arteries, etc. In this conception arterial disease and arteriocapillary fibrosis are not maladies which bear any mutual relation to each other, but are contemporaneous reactions to the same insult. Evidence is again submitted that the lesions of the secondary contracted kidney (malignant contracted kidney), in which hypertension is present, and the decrescent kidney (benign contracted kidney, arteriosclerotic kidney, primary contracted kidney), in which hypertension is slight or absent, are morphologically, to all intents and purposes, identical. To explain the pathogenesis of the latter form of contracted kidney, the hypothesis is submitted that whereas in the secondary contracted kidney the most important if not the main factor in its production is vascular hypertension, in the primary or benign contracted kidney it is vascular tension. Hypertension according to this conception is merely an exaggerated phase of a normal functional process. The functional changes in the organism are consequent on compensatory mechanisms.

9. Hepatoduodenostomy, with Observations on the Lyon-Meltzer Method of Biliary Drainage.—Arthur D. Dunn and Karl Connell describe experiments carried out on a patient without a gallbladder or common duct which show that the assumption is not necessarily true that the B, or dark, viscid fraction of the A B C magnesium sulphate bile sequence represents gallbladder bile and that we are not as yet justified in localizing disease in the biliary tract on evidence afforded by the Lyon-Meltzer method of bile segregation. Their experiences suggest that the following possibilities may be the answer to the A B C phenomena in the Lyon-Meltzer test: First, an enterohepatic circulation of magnesium in which the latter, carried to the liver in the portal blood, acts directly on the liver as a cholagogue, *producing a bile flow rich in pigment*, or, second, a destruction of red corpuscles, possibly by the magnesium ion, somewhere in the portal system, resulting in sudden dumping of an increased quantity of blood pigment on the liver, which reacts to this stimulus by an increased output of bile rich in pigment.

The Lancet.

September 10, 1921, cci, 5115.

1. Presidential Address on the Aims and Boundaries of Physiology. Walter M. Fletcher.
2. A Lecture on the Reeducation of the Blinded, with Special Reference to the Blinded Sailor and Soldier. Arnold Lawson.
3. A Lecture on the Part Played by the Endocrine Glands in the Evolution of Man. L. Bolk.
4. The Significance of Some Early Symptoms of Nervous Disease. Judson S. Bury.
5. Studies from the St. Andrew's Institute of Clinical Research. I. Present State of Medical Knowledge Regarding the Diseases Common Among the People. Andrew Rowand.
6. The Psychopathology of Pulmonary Tuberculosis, with Special Reference to Treatment. D. G. Macleod Munro.
7. The Use of Luminal Sodium in Epilepsy. J. Tylor Fox.
8. Alpine and Subalpine Climatic Treatment. I. The Place of Alpine Spas in Medicine. E. Bosdin Leech. II. Switzerland and Nerves. S. A. Kinnier Wilson. III. Swiss Health Resorts for Tuberculosis. A. Neville Cox.

5. Studies from the St. Andrew's Institute of Clinical Research. I. Present State of Medical Knowledge Regarding the Diseases Common Among the People.—Andrew Rowand publishes the outcome of an inquiry in what proportion of cases met with in general practice it is possible to arrive at a diagnosis. There were in all 974 cases, 314 Institute cases, and 660 private patients. Of this number 275 cases were diagnosed, 38.21 per cent. being Institute cases and 28.23 private cases. This experience serves to emphasize the fact that the differentiation of disease is lamentably inadequate and that some new method of classification must be found to save us from the increasing complexity and confusion which are the despair of the medical practitioner. Sir James Mackenzie's classification has been extended to include six groups, not in order to amplify it as a classification of diseases, but to form a classification of the cases with which a doctor has to deal in his ordinary work. The classes are as follows: *Class* I. In this class the symptoms enable the primary diagnosis to be made. The standard example of diseases of this kind is conjunctivitis; other examples are tuberculosis, dysentery, syphilis, malaria, diphtheria, ringworm. *Class* II. In this comparatively small class are included diseases in which, while the symptoms are recognized, the injurious agent has not been recognized, though its nature can be inferred. Examples of this class are measles and scarlet fever. *Class* III. This is a large group and includes diseases with a well recognized group of symptoms, but where the nature of the agent is not recognized. Examples of this class are asthma, acidosis, epilepsy, herpes zoster, hysteria, and recurrent vomiting. *Class* IV. In this class are placed end-results, by which is meant not the concluding stages of known progressive disease, but conditions of permanent damage to organs or tissues, the original noxious agent, whether known or unknown, having ceased to be of importance and the damaged organ itself giving rise to the symptoms of disease. Examples of this group are a variety of heart affections, arteriosclerosis, malignant disease, and senility. *Class* V. In this class are included cases in which a definite local lesion or morbid condition exists, giving rise to symptoms, the noxious agent causing the mischief being unknown, and no uncoordinated symptoms being present, so far as can be determined, indicative of more widespread disease. The lesion may be visible or inferred from the symptoms observed. Here watch must be kept for more generalized symptoms. Bronchitis may be taken as a typical instance of this group. *Class* VI. This class contains the cases showing a number of uncoordinated symptoms with no recognizable common cause. This constituted the largest group of cases in the series studied, being 43.03 per cent. of the Institute cases and 53.03 per cent. of the private cases. This large group of undiagnosable cases presents an invaluable field for study.

6. The Psychopathology of Pulmonary Tuberculosis, with Special Reference to Treatment.—D. G. Macleod Munro points out that although there is probably no disease in which there is such close correlation between body and mind, little attention has been paid to this intimacy of association. There are certain well marked features of the psychic state of the average phthisical patient. In general these may be said to indicate reversion to the congenital or infantile type, and such suppression and modification of these as may have resulted from environment and education is largely abolished. Many become introspective, selfish, egocentric, weak-willed, and lacking in self-control, though not a few become morally stronger as a result of the self-abnegation called forth in the course of the long battle for health. In those of ordinary attainments there is at times a species of mental excitation with an added keenness of intellect of which no adequate explanation has been offered unless we accept it as resulting from prolonged intoxication set up by the endotoxins of the bacillus. In those of literary and artistic attainments this psychic and mental excitation has been found to occur in marked degree, and in the long and tragic roll of men and women of genius who have suffered from this disease nothing is more striking than the fact that the creative powers of the mind have been at their highest at a time when the disease was active and progressive. With the exception of the functional neuroses there is perhaps no disease in which the susceptibility to suggestion is so high as in pulmonary tuberculosis, and in few diseases can this suggestibility be utilized so patently for good or evil. The cures claimed for a large variety of drugs used in the treatment of tuberculosis have their basis in suggestion. We no doubt have in psychotherapy a remedy for the alleviation at least of many of the distressing accompaniments of this disease which may react favorably on the purely physical side of the disease. When a patient is admitted to a sanatorium, in addition to the ordinary history of the case, the fullest details of the patient's family and mental history should be sought and such treatment as is found necessary after due observation, either in the form of mental exercise and relaxation, or more specifically as psychotherapy, and in certain cases psychoanalysis, should be duly instituted. In the larger institutions for the treatment of tuberculosis one at least of the medical staff, Dr. Munro contends, should possess the necessary qualifications for psychotherapeutic treatment.

New Orleans Medical and Surgical Journal.

August, 1921, lxxiv, 2.

1. Safety Factors in Suprapubic Prostatectomy. A. Nelken.
2. A Statistical Study of Three Thousand Cases of Mental Disease. Henry Daspit.
3. Epidemic Encephalitis. L. V. Lopez.
4. Some Observations as to Prognosis in Insanity. C. V. Unsworth.
5. The Use of Nitrous Oxide-Oxygen Analgesia and Anesthesia in Obstetrics. T. B. Sellers.
6. Child Welfare. Rena M. Crawford.
7. Hypertrophied Anal Papillæ. A. G. Heath.
8. Preventable Vocational Eye Injuries. William Beverly White.

2. A Statistical Study of Three Thousand Cases of Mental Disease.—Henry Daspit presents these data on three thousand cases of mental disease purely in the light of a preliminary report. He believes the figures presented offer a better demonstration of conditions as to mental health in the community than would be shown by similar data from the State Hospital, since the City Hospital for Mental Diseases, at which institution the data were collected, receives all doubtful cases apprehended by the police, cases transferred from the courts for observation, etc. The summary of the data presents types of mental disease, classified as to ages when coming under observation, sex, and color, and the tendency of the various types to marriage, and thus to add to our future burden. Among the 3,000 cases were 213 senile psychoses, including all forms, with the exception of frank involutional melancholia. They are equally distributed as to sex and about 50 per cent. are widowed. General paresis shows the largest number of any single group, 443. White males are in the proportion of about 4 to 1 as to white females. Colored males about 2 to 1 as to colored females. More than 50 per cent. were married, and at least 80 per cent. of these were married after having acquired syphilis. Under cerebral syphilis are 50 cases in which cerebral lues proved to be the essential factor in the psychosis. The majority of definite alcoholic psychoses occurred in early life in the unmarried, and totaled 140. Since national prohibition has come the admission of an alcoholic psychosis is an event. There were but 24 cases of pellagrous psychoses. Of 288 manic depressives, 163 were married. Quite a few had given birth to children after discharge from some hospital care necessitated by a previous episode. Ninety-two males and 192 females comprised the group. The cases of involutional melancholia, after eliminating manic depressive association, numbered 118, there being about 3 females to each male. Dementia precox stands second on the list with 325 cases, 213 males and 112 females. Only 58 were or had been married. The group of paranoic states totaled 131; that of epileptic psychoses 151, the males predominating. Among these it was noted that there was a greater proportionate tendency to marry. The constitutional psychopathic inferiors numbered 229, and mental deficiency 240. These offer an entirely different problem from the psychoses and call for concerted action which will lead to an institution to meet their special needs.

British Medical Journal.

September 10, 1921, No. 3167.

1. Acute Pleural Empyema. Henry Wade.
2. Intussusception: An Analysis of Thirty-six Cases. G. H. Edington.
3. The Best Method of Operative Approach in Acute Appendicitis. Hamilton Balance.
4. The Early Diagnosis and Treatment of Meningitis in Aural Cases. Charles Balance.
5. Otitis Media. W. Salisbury-Sharpe.
6. Zinc Ionization in Suppuration of the Maxillary, Frontal, and Sphenoidal Sinuses. A. R. Friel.
7. Hare-Lip and Cleft Palate: A War Influence. J. L. Aymard.

1. Acute Pleural Empyema.—Henry Wade expresses the opinion that results in the treatment of empyema have not been entirely satisfactory. He believes that many valuable lessons may be learned by comparing the pathology of suppuration within the pleural cavity, the abdominal cavity, and such a joint cavity as the knee-joint. As the result of such comparison he makes the following suggestions: (1) A combined cytological and bacteriological examination of the fluid withdrawn should be more widely employed, as offering the prospects of affording fuller and more accurate data on which to found our operative treatment. (2) Suppuration within the pleural cavity is especially suitable for treatment by methods which obviate the necessity for opening the chest, or by methods where an immediate or early closure after it has been opened are carried out. (3) The value of the treatment by aspiration alone should be again carefully reviewed. (4) The value of methods where, after aspirating the content, an antiseptic is introduced, such as Murphy's method, where 2 per cent. formalin in glycerin is introduced, should be further considered. (5) Where simple drainage is practised the ideal opening is not only one which allows free escape of the purulent content at the time, as when a rib is resected, but it should be such as will readily seal itself off when the tube is withdrawn, as when minor intercostal thoracotomy is performed. (6) The benefits to be derived from a free opening of the pleural cavity by major intercostal thoracotomy warrant its employment in cases which give promise of developing into chronic and persistent cases. (7) The value of disinfection and immediate closure in these cases should be more fully tested. (8) The Rutherford Morison technique is the best at present available for carrying out the same.

2. Intussusception: An Analysis of Thirty-six Cases.—G. H. Edington gives a summary of these thirty-six cases which leads to the following conclusions: (1) There was in this series a marked preponderance in males, the frequency being three and a half times as great as in females. (2) The majority (68 per cent.) of the cases occurred in the first year, and of these the average was 6.15 months. (3) More than one-third of the cases were of the ileocecal (including ceco-ileocecal) variety. (4) Visible proof of etiology was not found at operation. (5) The death rate of 40 per cent. depended largely on the length of interval before operation, and secondary to this, on gangrene; it was highest in ileocecal cases. (6) Resection gave invariably fatal results.

3. The Best Method of Operative Approach in Acute Appendicitis.—Hamilton Balance advocates the use of an oblique incision over the iliac fossa in preference to the midline or right semilunar line incision in cases of acute appendicitis operated upon during the first two or three days of illness. The incision is made in the same line in the external oblique, the internal oblique, and the transversalis muscles. There are certain conditions of fundamental importance which should be remembered when an operation on a case of acute appendicitis is undertaken. These are that the shortest route should be chosen to the infected area, and the fullest possible view obtained of it; that the intestines and other abdominal viscera around this area should be disturbed as little as is consistent with efficient treatment of the infection; that the operation should be performed as rapidly as possible, and that the appendix in all cases, with very few exceptions, should be removed. The oblique incision fulfills these conditions and admits of being extended at either end. The writer has used this incision for twelve to fifteen years and has never known it to cause a ventral hernia.

Southern Medical Journal.

August, 1921, xiv, 8

1. Chronic Myocarditis and Its Management. Henry A. Christian.
2. The Treatment of Neurosyphilis. Albert Keidel.
3. Some Remarks on Gastric Lavage and the Proper Medicaments Therein. George M. Niles.
4. Preventive Pediatrics in the South. W. L. Funkhouser.
5. Roentgen Ray Diagnosis of Gastric and Duodenal Lesions. Leon J. Menville.
6. Cancer of the Stomach. J. T. McKinney.
7. The Kondoleon Operation for Elephantiasis: A Report of End Results. W. E. Sistrunk.
8. Hernia: Traumatic and Strangulated. Samuel Orr Black.
9. Clinical Observations in Orthopedic Surgery. E. Walter Carruthers.
10. Internal Derangements of the Knee Joint. R. Wallace Billington.
11. Enucleation of the Eye with Glass Ball Implantation. J. B. Stanford.
12. The Searcy Tonsillectome. Harvey B. Searcy.
13. The Educational Preparation for Medicine. Robert Wilson, Jr.
14. The Value of the Laboratory to Medical Teaching. Henry Enos Tulev.
15. Graduate Medical Education in the South. James S. McLester.
16. Post-Graduate Teaching in the South, with Special Reference to Conditions at Tulane University.

1. Chronic Myocarditis and Its Management.—Henry A. Christian states that chronic myocarditis in his wards, into which children are not admitted, is a trifle more frequent than any other form of chronic cardiac disease. It is a condition frequently unrecognized, and often given other diagnostic names. Most often, perhaps, it is called mitral insufficiency. In reality mitral insufficiency in the sense of organically diseased mitral leaflets is very rare except in association with a deforming change which produces both stenosis and insufficiency of the valve, and this rarely develops after 40, the age after which chronic myocarditis is commonest. A great deal of confusion would be saved if the term mitral insufficiency were dropped altogether as a diagnostic term. When you make that diagnosis in the organic sense you are wrong in about 99 per cent. of the cases. When there are evidences of cardiac incompetence, usually the mitral valve leaks because the heart muscle is insufficient, and so the murmur one hears indicates myocardial disease. This should be diagnosed as chronic myocarditis. The systolic murmur is of very little diagnostic or prognostic significance. Chronic myocarditis is diagnosed mainly by the evidence of a weakened circulation apart from the heart as shown in various portions of the body by symptoms and physical signs. The symptoms are those you get when a normal heart is made to do too much work. In almost all patients of this group cardiac symptoms have developed after 40 and a history of true rheumatism is lacking. Except for a syphilitic aortitis causing aortic insufficiency practically all cardiac murmurs in those with cardiac symptoms developing after 40 arise from myocardial, not from valvular changes. Treatment in myocarditis as a rule is very satisfactory and rests on three main reliances: (1) Rest, digitalis, and diuretics. The practitioner is apt to err in his idea of rest. It must be complete and maintained. In attaining rest morphine frequently is of inestimable value. Rest means that exertion be reduced to the lowest possible minimum. Digitalis in this group of cases is capable of accomplishing wonders. There is but one essential in digitalis therapy: know what the results are that you should get and give sufficient of the drug to get these results. The essayist has never experienced a difficulty in obtaining satisfactory digitalis effects from untreated powdered leaves, made into pills, if the leaves are potent. If you get good results from a certain supply of digitalis leaves, ask your druggist to dispense that leaf to your patients until it gives out, and when he gets a new supply to send you a sample to test before you allow him to fill your digitalis prescriptions. Local cooperation in this matter between fellow practitioners would be of great value. As a diuretic theophyllin gives the best results, though theobromin sodiosalicylate gives results almost as good. The best way to use them is to give them after two days of digitalis therapy, in two doses, one early in the morning and the other at noon time; of theophyllin, 3 grains, or of theobromin sodiosalicylate, 7½ grains, and repeat this dosage on the third day if necessary. Vigorous catharsis should be omitted from the treatment of cardiac cases. Fluids should be moderately restricted. The course of treatment should not be ended until the patient is free from edema in his legs, over the sacrum, and at the bases of his lungs.

2. The Treatment of Neurosyphilis.—Albert Keidel urges the importance of recognizing this condition in its incipiency. It is now known that the central nervous system is invaded by the treponemas in from 25 to 35 per cent. of the cases. The organisms reach the vital center very early in the course of the disease, perhaps even before the development of the primary lesion, but at the latest during the period of general invasion. Lumbar puncture is the only means for the early diagnosis of asymptomatic neurosyphilis, and as its significance has been tragically overlooked by the major portion of the profession in dealing with syphilis, Keidel suggests its general employment by the profession at large as a means of cutting down the incidence of symptomatic neurosyphilis. From the standpoint of our present knowledge he thinks it a dereliction from duty for any physician to neglect this early investigation of the cerebrospinal fluid. It is not only valuable in that it affords an opportunity for aborting neurosyphilis, but subsequent punctures will indicate the progress made and determine those cases which fail to respond favorably. It must be remembered that a negative spinal fluid at one period of infection does not preclude the possibility of a subsequent invasion of the central nervous system, particularly when the early treatment has been inadequate. It is not an extravagance to say that syphilis is the most inadequately treated disease of our day. The responsibility for this lies largely with physicians, and cannot be terminated by the patient's inability to pay. The therapy of cerebrospinal syphilis is that of general syphilis reinforced by whatever special procedures best subserve the fundamental requirements. The writer's plan of treatment consists of courses of arsphenamin intravenously alternating with courses of mercury inunctions. Progress is estimated by studies of the blood at weekly and monthly intervals. The first lumbar puncture is made after treatment is begun, and if negative findings are obtained is not repeated until the end of treatment is reached. Treatment is continued for one year after the blood Wassermann becomes negative. If, under this routine management, abnormalities in the spinal fluid persist to the extent that no further progress results intraspinal therapy is made necessary by the inaccessibility of foci of infection to substances in the blood stream. Among the later cases treatment by the ordinary routes will often succeed in obliterating serologic abnormalities, with marked clinical improvement, but the possibility of isolated foci of infection remaining undisturbed in areas not involved in the clinical picture makes the addition of intraspinal therapy desirable.

7. Kondoleon Operation for Elephantiasis; a Report of End Results.—W. E. Sistrunk reports that this operation has been performed 32 times at the Mayo Clinic. He calls attention to the fact that, while on account of our earlier teachings, filariasis is often thought of in connection with elephantiasis the majority of patients in this country in whom the disease is seen are found to be free from filarial infection. The operation consists of a long modified eliptical incision on the inner and outer aspects of the extremities with wide excision of edematous subcutaneous fat and aponeurosis. It is a measure which seems definitely to control the progress of elephantiasis. The best results are obtained in patients treated by two or three weeks' rest in bed with elevation and firm bandaging of the limb preliminary to operation. A large amount of skin, fat and aponeurosis must be removed in order to obtain the best results. When patients are up and about after operation it is necessary to bandage the limb for an indefinite period, and oftentimes permanently. Before operation there should be a definite understanding between the surgeon and the patient with regard to the fact that the operation is to be done for the purpose of controlling a disease which if left alone usually grows progressively worse; that a perfectly normal limb is not to be expected as a result of the operation, and that it will be necessary for bandages to be worn following the operation. Second operations in which portions of the hypertrophied skin are removed may be performed on patients in whom considerable deformity remains after the first operation, with expectation of further improvement.

Annals of Surgery.

August, 1921, lxxiv, 2.

1. Malignant Tumors of the Thyroid. Louis B. Wilson.
2. Clinical Experience with Synergistic Analgesia. James T. Gwathmey and James Greenough.
3. Certain Fundamental Laws Underlying the Surgical Use of the Bone Graft. Fred H. Albee.
4. Results of Treatment of 115 Cases of Fracture of the Shaft of the Femur at the University of Pennsylvania Hospital. Eldridge Lyon Eliason.
5. Fracture of the Metatarsal Bones. Emory G. Alexander.
6. Chorioepithelioma Following Hydatiform Degeneration. R. L. Payne.
7. Perforated Gastric and Duodenal Ulcer without Previous Pain. George P. Muller and Isador S. Ravdin.
8. Polypoid Lipoma of the Intestinal Tract. Gaston A. Carlucci.

1. Malignant Tumors of the Thyroid.—Louis B. Wilson presents an analysis of the literature and the data of 290 patients with malignant tumors of the thyroid who have been examined in the Mayo Clinic up to December 31, 1920, which he summarizes as follows: (1) Malignant tumors of the thyroid are much more fre-

quent than is generally believed. Their correct clinical diagnosis is frequently missed (a) because they may have periods of development of from five to fifteen years, and patients are not followed up long enough after operation, and (b) because not infrequently the tumor in the thyroid itself is relatively small and the character of the metastasis is not determined, owing to the rarity of necropsies. (2) Pathologic diagnosis is difficult owing to the great variation in the histology of the tumor tissue and its resemblance to that of non-malignant processes. (3) There has been a marked failure of American surgeons to report in the literature their cases of malignant tumors of the thyroid; this should be corrected. (4) Insufficient observations are at hand for determining the geographic incidence. (5) The age incidence at the date of diagnosis is greatest in the fifth decade. (6) The distribution by sex is about one man to two women. (7) Patients usually seek medical advice on the occasion of recent rapid growth in a long-standing nodular tumor of the thyroid. Some give histories of slow, continuous growth. (8) Early thorough operations give a fair percentage of cures. Palliative operations in late cases with extensive local involvement are warranted. (9) Pathologic diagnosis must take into account the usual development of malignant tumors of the thyroid from proliferating adenomas. (10) A series of photographs of specimens, gross and microscopic, of 35 illustrative cases is presented with brief clinical and pathological notes to serve as an atlas in assisting the pathologist in diagnosis. (11) The pathologist must be thoroughly familiar with the characteristics of proliferating adenomas, as first described by Langhans in all their stages. (12) The pathologist must be on the lookout for the possible relationship of bizarre metastatic growth of tumors of the thyroid. (13) The pathologist in his diagnosis for the guidance of the surgeon must consider the relative preponderance of proliferative and degenerative processes in the tumor, but a proliferating adenoma in a patient of cancer age should not be considered benign unless the process of degeneration is very extensive and thoroughly overbalances that of proliferation.

4. Results of Treatment of 115 Cases of Fracture of the Shaft of the Femur at the University of Pennsylvania Hospital.—Eldridge Lyon Eliason summarizes his observations on this series of cases as follows: (1) In patients under eight years of age the Bryant or perpendicular treatment gave the best figures, 85 per cent. excellent, or 100 per cent. good results. In this group all results were reported as good. (2) In the 88 cases 10 years of age or over, the primary reduction and dressing was not satisfactory in a single case. (3) A small group of eight cases later set in plaster under traction, all showed shortening or nonunion. (4) The next group of 20 cases dressed in the flexed position with weight traction gave 25 per cent. good results with no deformity. (5) In operative cases infection occurred in none of the drained wounds. Every case, however, showed slight infection around the Steinmann nail. (6) Internal fixation failed to hold the fracture in 21 of 54 cases. Causes of this failure were in a greater number of cases due to the position in which the limb was splinted, 20 being dressed in the flat position, and to a much less to infection, only three cases. (7) Nonunion, or better, union delayed longer than seven weeks was most often due to faulty fixation of the fracture, and occurred in 22.2 per cent. of the operative, 0.86 per cent. of the nonoperative, and 10+ per cent. of the entire series. It is hardly fair to include these figures as other than undetermined, as they have not been heard from finally. (8) Operation gave 81.6 per cent. good results; nonoperative methods gave 73.9 per cent. good results in the entire series of 115 cases. It must be remembered, however, that this last figure is helped enormously by including the 24 youngsters with 100 per cent. good results. (9) Of the operative procedures, the use of plates and screws with wound drainage and the limb dressed in plaster, in flexed position, with postoperative traction maintained, gave 90 per cent. perfect results plus 10 per cent. good. All other operative methods gave but 33 1/3 per cent. perfect results, plus 33 1/3 good results. Plaster casings are not a good permanent dressing unless traction is used and the case kept under close observation until union is firm and especial care taken that as shrinkage of the limb occurs, a new cast be applied. This last is very important for if there is too much room in the cast at the fracture site each time the patients raise themselves in bed the psoas muscle acting against the fracture will loosen the internal fixation. If these precautions are taken, however, plaster makes an excellent dressing if cut out so as to permit knee and ankle motion. (10) From the above facts it may be seen that the best treatment was operation with plate fixation and drainage and the same amount of attention given to external fixation, flexed position and traction as would be given were the case treated by the closed or nonoperative method.

Indianapolis Medical Journal.

August, 1921, xxiv, 5.

1. Pituitrin in Obstetrics. A. M. Mendenhall.
2. Student Nurse Recruiting Movement. Annabelle Peterson
3. Cesarean Section for Hydrocephalus. Thomas J. Sullivan

1. Pituitrin in Obstetrics.—A. M. Mendenhall cites an impressive array of authority against the use of this drug, and examines the possible indications for its use. He says no one questions its safety and value under a great many conditions that may arise following the birth of the placenta. Two noted obstetricians are giving it routinely immediately upon the birth of the child; both have very large series of cases and as yet have had no unpleasant results, but until more has been done along this line definite conclusions had better be reserved. A number of operators are administering pituitrin just as the uterus is being incised in cesarean section, or very promptly after extraction of the child, and when sustained by ergot this procedure may be strongly indorsed. Some authorities report fairly successful results in the administration of pituitrin to aid in the emptying of the bladder during the puerperium. When the cervix is fully dilated, when it can be accurately determined that there is no disproportion between the passage and the passenger, when the presentation and position are normal, when there are no obstructing tumors, and when the pains are weak and declining we may be said to have indications justifying the cautious use of small doses of pituitrin—2 to 3 minims—remembering that episiotomy, or low forceps, or both, are usually better obstetrics. Contraindications to the use of this drug are undilated cervix; disproportion between passenger and passage; abnormal presentation or position; pressure of obstructing tumors; scar from previous cesarean section or myomectomy; heart disease in the mother; eclampsia; threatened asphyxia of the child *in utero*, and when contractions are already strong. If the above indications and contraindications are met it is obvious that the administration of pituitrin during labor at least will be exceedingly infrequent. In conclusion a warning is sounded that he who administers pituitrin to a patient in labor is using a very powerful and quick acting drug, whose strength is unknown and whose action upon the particular patient can by no means be predicted, whose use has resulted in the prompt death of a large number of women and a still larger number of children, and whose usefulness is limited to very narrow fields.

The Practitioner.

August, 1921, cvii, 2.

1. The Successful Treatment of Leprosy. Leonard Rogers.
2. The Protean Applications of Antigen Therapy in Practice. H. L. Lyon-Smith.
3. A "Course" of Vaccines. Archibald McKendrick.
4. Misuse of Autogenous Vaccines. C. E. Jenkins.
5. The Use of the Constant Electric Current in Treatment. A. R. Friel.
6. Instinct and Conflict. Ernest W. Jones.

1. The Successful Treatment of Leprosy.—Leonard Rogers reviews reports of the results of the treatment of leprosy with preparations of the fatty acids of chaulmoogra oil, and records further developments of his work along this line. A recent modification of practical importance is the intramuscular injection of ethyl ester compounds of the fatty acids of chaulmoogra oil, in place of the more troublesome intravenous injections of sodium salts, which allows of a larger number of patients being treated in the same

period of time. The fatty acids of linseed oil, cod-liver oil, soya bean oil, and Japanese sardine oil have also been tested. The preparation from soya bean oil proved to be very suitable for subcutaneous or intravenous injection, though it does not appear to be better than the former preparations from other oils. Satisfied that the gynocardate of soda, intravenously, could produce breaking up of the lepra bacilli in the tissues, the author thought of the possibility of obtaining a similar result in the still more important acid-fast bacilli of tuberculosis. Hesitating to use the new drug because of the danger of producing prolonged febrile reaction, he turned to the sodium salt of the fatty acids of cod-liver oil. He first used this preparation in leper patients whose veins no longer permitted the intravenous use of the more irritating gynocardate, and soon observed that patients, who had ceased to improve further on the latter drug, might once more progress, and eventually clear up completely, on sodium morrhuate. In tuberculosis it has been found that the treatment is at least harmless and the writer is hopeful that it will prove as useful as the tuberculin treatment and will be much safer in the hands of the profession at large. It would seem to promise better in chronic localized tuberculosis than in pulmonary tuberculosis.

Journal de Médecine de Paris.

August 30, 1921, xl, 24.

Lane's Disease.—Pauchet gives an extended account of chronic intestinal stasis. He relates that in 1900 he saw a case which was the first encountered by himself, long before he knew anything of Lane's account. It was an appendicitis in which the small intestine was adherent to the pelvis. He thought the adhesion of inflammatory origin, and omitted to divide it. The appendectomy failed to relieve, and there was a long period of invalidism, culminating in tuberculous peritonitis. In operating for the latter the intervention, including a short-circuiting of the intestine, he reached the conclusion that the iliac kink due to the pseudo-adhesion had been responsible for all the mischief. The appendectomy had been performed at the age of 13, the second laparotomy four years later, and at the age of 20 the young woman was in first-rate health. He had evidently cured a case of Lane's disease by major surgery and by accident. During the two-year period, 1904-6, he had done fifteen of these operations, and in the latter year reported the series to the French Congress of Surgery. He was at the time still ignorant of the writings of Lane, but soon after this time had read the latter. In 1908, now under the influence of the latter's teachings, he did an ileosigmoidostomy without benefit, but afterward performed total colectomy with remarkable restoration of health. Ever since 1904 he has made a study of Lane's kink in all abdominal operations, and in the French Congress of Surgery for 1912 he reported the results of 33 entero-anastomoses in which no less than seven distinct procedures were tried out. The total number of operations for Lane's disease performed by him in the past 18 years now runs into hundreds, and comprises colopexy, cololysis, coliplication, short circuits and colectomy, total and partial, etc., etc.

Schweizerische medizinische Wochenschrift.

August 18, 1921, li, 33.

Arterial Tension in Pulmonary Tuberculosis.—Betchov and Farbarge-Vail reach the following conclusions. There is no definite specific hypotension in this affection. It is, in fact, absent in the pretuberculous and initial phases, and as long as the general condition is not much impaired; and develops during the advanced stages and cachexia. When present it is often limited to the systolic pressure. Hypotension has a certain prognostic significance within certain limits, but much less than that possessed by hypertension, which invariably means a good prognosis, despite the frequent coincidence of hemoptysis. Normal tension is also a good prognostic. Even frequent hemoptyses in hypertensive subjects do not prejudice the diagnosis. Low blood pressure has not the evil significance of high temperatures and normal temperature nor the good significance of hypertension. Pulse finds are more significant than pressure finds, tachycardia giving a decidely sombre prognosis. A pulse of normal frequence ranks with hypertension in the opinion of the writers as a favorable prognostic sign.

Lo Sperimentale.

September 15, 1921, lxxv, 4-5.

Observations on Pellagra.—Lustig and Franchetti, after an extensive survey of the more recent outbreaks of the disease in Italy come to the following conclusions. All the observations in the paper agree in pointing to alimentation as the source of the disease, with especial emphasis on diets with a maize basis. Whether the diet is intoxicant or merely defective, or both, is still a problem. If perfectly healthy maize is defective in some substance, then the attempt to sustain life with it must lead to a deficiency disease, and a hypothesis of a maize toxin is unnecessary. This view makes it intelligible that the disease could occur in the absence of maize from the diet, provided that the latter was defective in the same vitamine. Certain Turkish prisoners in Egyptian prisons during the war were properly fed but arrived in the prison in a notable state of denutrition. They brought no microorganism with them as far as bacteriological tests were made, yet developed pellagra. The only explanation was inability to assimilate vitamin-containing aliment. Such facts, and they are not unique, argue for the presence of an initial failure of digestion and assimilation, due perhaps to local enteric lesions of unknown nature. In similar cases of pellagra developing in prisoners, as in the Boer war, the diet was chiefly decorticated maize. Experience in the United States, while often accusing maize, has as often, perhaps, exculpated it as the fixed cause of the disease. The authors maintain that in Rumania the postbellum outcropping of the disease was brought in close connection with the use of maize unfit for consumption, as contrasted with the use of wholesome maize.

Brazil-Medico.

August 20, 1921, xxxv, ii, 6.

Cancer in Brazil.—Oscar Clark states that owing to the great frequency of this affection in civilized countries it would be of interest to determine its incidence in Brazil. As far as the author's experience goes the latter is relatively low. During the past ten years of the Medical Clinic of the University of Rio—the section known as the Second Dispensary—nearly 7000 cases of disease have been diagnosticated, and among this number there were but 40 cases of cancer. Of these 26 were seated somewhere in the digestive tube. The stomach was the seat in 16, colon in 4, and esophagus in 6. There were two cases of cancer of the larynx and one of the prostate. The remainder were in the abdominal cavity, and scattered as to location; while in several cases the exact diagnosis seems to have been in doubt and a few may have been sarcomata. It must be borne in mind that this material belongs to the internist only, which must account for the absence of cancer in the genitals, skin, etc. In a recently published graduation thesis on cancer in Brazil the total number of deaths from cancer per annum in Rio is given as 450. As this city has nearly a million population the cancer death rate is less than half that of the average European or North American city. São Paulo, with about 450,000 inhabitants, has 300 annual cancer deaths and thus a higher mortality. In Pernambuco, with over 200,000 people, the annual death loss is but 50—the rate being about a fourth of the usual urban mortality. The author is by no means sure that these figures indicate a lower incidence than what may be termed normal for cities. Brazil is unhealthy and many die off before the cancer age; diagnostic refinements and more autopsies might show additional cases. The work of the Radiographic Institute shows that external cancer is of very common occurrence, while, in the private clinic of de Mendonca, neoplasms of all kinds, including those internally situated, are numerous.

Book Reviews.

EPIDEMIC RESPIRATORY DISEASE.—The Pneumonias and Other Infections of the Respiratory Tract Accompanying Influenza and Measles. By EUGENE L. OPIE, M.D., Colonel, M.R.C., U. S. Army; Professor of Pathology, Washington University School of Medicine; FRANCIS G. BLAKE, M.D., Major, M.R.C., U.S. Army; Associate Member of the Rockefeller Institute for Medical Research; JAMES C. SMALL, M.D., formerly First Lieutenant, M.C., U.S. Army; Bacteriologist, Philadelphia General Hospital; and THOMAS M. RIVERS, M.D., formerly First Lieutenant, M.C., U.S. Army; Associate in Bacteriology, Johns Hopkins University. Containing 398 pages. Illustrated. Price, $6.50. St. Louis: C. V. Mosby Company, 1921.

DOCTORS Opie, Blake, Small and Rivers present their combined army experiences with epidemic respiratory diseases with reference especially to lobar pneumonia, bronchial pneumonia and influenza. The study is presented in various chapters beginning first with the etiology of influenza, introducing next the clinical features and bacteriology of influenza and its associated purulent bronchitis pneumonia. This is followed by a study of secondary infection in the war treatment of influenza and pneumonia in which secondary infection with streptococcus hemolyticus is discussed; secondary infection with pneumococcus in pneumonia; secondary infection in influenza; and methods for the prevention of secondary contact infection in influenza and pneumonia.

The next chapter deals with the pathology and bacteriology of pneumonia following influenza. Then a discussion is presented of secondary infection in the war treatment of measles and experience gained for the most part at Camp Pike. The bronchial changes, lobar pneumonia, suppurative pneumonia and pneumonia associated with acute infectious diseases other than influenza and measles are next studied from the viewpoint of their pathology and bacteriology.

From the collected studies certain conclusions are reached that were not wholly representative of the sentiments prevailing among pathologists and bacteriologists during the height of the epidemic. Thus these investigators point out that there is "no reason for believing that the influenza which prevailed in this country differed in any essential feature from that of previous epidemics and particularly of the pandemic of 1889 to 1890. Our studies have shown that an organism with the morphological and cultural characteristics of *B. influenzæ* of Pfeiffer has been constantly found in association with the disease, and so frequently demonstrated in association with its pulmonary complications that there is little doubt of its constant presence." This would seem to be contrary to the inference reached by MacCallum, in his textbook on pathology, who fails to subscribe to the thought that the Pfeiffer bacillus is the cause of this disease. The investigators point out further that while the sputum contains *B. influenzæ* in all instances, this organism has been constantly associated with other microorganisms, namely, pneumococci, *S. hemolyticus, S. viridans, M. catarrhalis* and others.

Empyema was found to be almost invariably associated with suppurative pneumonia caused by hemolytic streptococci.

B. influenzæ was found constantly with influenza when cultures and animal inoculations were made from various parts of the respiratory tract within from one to five days after the onset of the disease at a time when acute symptoms were present. Difficult identification in the presence of other microorganisms may have been conducive to overlooking this organism when only a single culture was made. *B. influenzæ* was found to be frequently an inhabitant of the mouth and throat of normal individuals. Inoculated monkeys, with the organism obtained from the nasopharynx of individuals suffering from influenza, were found to give symptoms of no clear definition, though the newly introduced organism thrived in the throat of the animals. The experiences at Camp Funston and Camp Pike, in which pneumonia following measles was responsible for the considerable number of deaths occurring in the United States Army during the period of the war, were studied with the finding that influenza attacking patients with measles had a part in the production of the pneumonia; though it is elsewhere recorded in the summary of investigation by these authors that influenza bacillus alone showed no evidence of being capable of producing pneumonia.

The findings throughout are accompanied by autopsy protocols and by such illustrations as are necessary to portray the typical gross and histological changes discussed in the text.

DIAGNOSTISCHE UND THERAPEUTISCHE IRRTÜMER UND DEREN VERHÜTUNG. CHIRURGIE Zweites Heft., Chirurgie der Wirbelsäule, des Rückenmarks, der Bauchdecken und des Beckens. Von Geh. Med.—Rat. Prof. Dr. G. LEDDERHOSE. Price, 45 marks. Leipzig: George Thieme, 1921.

THIS volume comprises four sections devoted respectively to the subjects in the title. There are thirty-two separate chapters. In the great majority of these chapters diagnostic and therapeutic blunders are separately discussed under each title. In a few there are no therapeutic errors enumerated. The chapter on the umbilicus is much more voluminous than the average and comprises numerous subtitles. Since there are but 150 pages of text the average number of pages per chapter is less than five, which prevents much teaching by case histories. It would seem that with so interesting and important a subject as diagnostic and therapeutic errors it would be worth while to produce a much larger volume and cite numerous case histories, as in Cabot's "Differential Diagnosis" and similar works.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume XX, Fasciculus I. The Pathology of the Pneumonia in the United States Army Camps During the Winter of 1917-18. Volume XX, Fasciculus II. Pathological Anatomy of Pneumonia Associated with Influenza. By WILLIAM G. MACCALLUM, M.D., Baltimore: The Johns Hopkins Press, 1920 and 1921.

FASCICULUS I of this volume is apparently a reprint of the article which formed Monograph No. 10, issued by the Rockefeller Institute. It has been previously noted in these columns.

In Fasciculus II the former study has been somewhat extended and a number of new cases have been added. The author has found no reason to alter any of the conclusions which he expressed in the first article. He is convinced that the typical forms of pneumonia differ in their pathological anatomy depending upon the bacterial cause of the disease and is able to recognize streptococcus hemolyticus, influenza bacillus, staphylococcus and pneumococcus pneumonias by their lesions at least in typial instances. He holds to the rather general impression that epidemic influenza is caused by an as yet unrecognized organism, possibly related to those which cause the exanthemata. The cases have been very carefully and completely studied and the material is clearly presented.

A MANUAL OF PHYSICS, THEORETICAL AND PRACTICAL, FOR MEDICAL STUDENTS. By HUGH C. H. CANDY, B. A., B.Sc. Lond., F.I.C., Lecturer on Chemistry at the London Hospital Medical College, and Arnott, Professor of Natural Philosophy in Queen's College, London. Second edition, enlarged. With a color frontispiece and 280 figures in the text. Price, $2.75. New York: Paul B. Hoeber, 1920.

THIS work is written to meet the requirements of the first examination in physics and chemistry which English medical students have to meet. It is divided into six parts, dealing with general physics, heat, sound, light, electricity and magnetism and practical physics. The various subjects are handled clearly and adequately; and at the end of each chapter there are some examination questions which serve the double purpose of enabling the student to see if he has mastered the contents of that chapter, and of showing the nature of the test to which he will be submitted at the hands of his examiners. The volume is of very convenient size, is well printed and illustrated, and should prove serviceable to students in their pre-medical course, as well as to others.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Thirty-third Annual Meeting, Held in Swampscott, Mass., June 2, 3 and 4, 1921.

THE PRESIDENT, DR. JOHN HOWLAND OF BALTIMORE, IN THE CHAIR.

(*Concluded from page 570.*)

The Rôle of the Fat Soluble Vitamine in Rickets.—Dr. ALFRED F. HESS of New York made this presentation which was illustrated by lantern slides. He said that, as was well known, there were two main theories of the etiology of rickets, the hygienic and the dietetic. So far as he knew there had been no investigation of the hygienic theory. It had not been thought to be possible to investigate it. It had seemed to him that there was a way of approaching this, so during the winter they had fed a number of infants on dried milk prepared in the summer, and instead of using the milk from the pastures in the summer they had used dried winter milk. It had been found that if the cow was on a ration that contained little grass the milk was almost vitamine-free. Twelve children were fed on the summer milk in the winter and 8 children were fed on the winter milk in the summer. The same percentage of children developed rickets in both groups, so that apparently diet did not seem to make any difference. In order to continue the study, Dr. Hess made use of the ultra-violet ray and followed the course of the rickets with the *x*-ray. The cases treated with the ultra-violet light were very quickly cured as shown by the calcification of the epiphyses and this occurred in the winter time. In March and April they tried sunlight, exposing the children gradually to the sunlight and in a few weeks calcification began. Some of these children were getting dried milk, some protein milk and some condensed milk, and they had been on these diets at least six months. Active rickets reached its highest incidence in January and its minimum in July. The healing of rickets was lowest in January and reached its height in August or September. Rickets was most marked in the winter or spring and least marked in the summer time. The ultra-violet light was given three times a week for three months, the time being gradually increased until the exposures were for twenty minutes at a distance of 125 centimeters. The *x*-ray pictures showed the progress made in calcification of the epiphyses during this treatment. These observations seemed to point to the fact that there was a hygienic factor in the etiology of rickets and that the question of sunlight was of dominant importance. Someone might say that exercise as well as light played a rôle but these children did not exercise more after they were subjected to the sunlight and ultra-violet light treatment than before. The moral was evident; it pointed to the value of sunlight in the prevention of rickets and, furthermore, it showed the importance of sunlight in child-caring institutions and hospitals.

Dr. ROWLAND G. FREEMAN of New York said it had always seemed to him that all we knew about rickets pointed to the fact that it was a disease caused by darkness. Children got rickets in the winter and not in the summer. About all the rickets we saw occurred in races used to a tropical climate. There were some very striking instances. In one Italian family coming under his observation there were six children, three born in Italy and three in this country. Those born in Italy were apparently normal while those born in this country had marked rickets. He did not believe it was going to be possible to say that rickets was a food disease when we saw such remarkable examples associated with bad hygiene and change in climate.

Dr. E. C. FLEISCHNER of San Francisco said he had come to feel that the outside environment was a factor in the etiology of rickets and that the greater amount of sunlight and the outside environment explained in part at least why there was less rickets in California than in the East. Dr. Fleischner asked Dr. DeBuys with reference to the incidence of rickets among the colored children in the South.

Dr. L. R. DEBUYS of New Orleans replied that rickets in New Orleans was very frequent among the colored children, more frequent than among the white. Speaking offhand, he thought it was just as frequent in the rural districts as in the city. The negroes in the rural districts lived in about the same conditions as those in the city as regards overcrowding and diet.

Dr. HENRY HEIMAN of New York called attention to the fact that in their investigations of rickets they had considered only the osseous system, and no stress had been put on the other systems which were undoubtedly affected. He felt that there was an individual and a predisposing factor. He felt that rickets should be considered as involving the ligametous, muscular and nervous systems as well as the osseous.

Dr. ALFRED F. HESS of New York said that he did not mean to state that diet did not play a rôle in the etiology of rickets or that rickets was not a dietetic disease and could not be brought about by poor diet. When on the same milk 25 per cent. of the children would get rickets and the rest would not, which showed that there was some individual idiosyncrasy. The point he wished to bring out was not so much the incidence of rickets as its cure by the ultra-violet light and sunlight.

A Clinical and Roentgenological Study of Enlarged Thymus in Infants.—Drs. KENNETH D. BLACKFAN and KARL F. LITTLE of Cincinnati presented this study, which was illustrated by lantern slides. It consisted of a clinical and roentgenological examination of the thymus both in normal infants and those who had presented thymic symptoms. An extensive series of radiograms taken before and after *x*-ray treatment had been analyzed with reference to the diagnosis of enlarged thymus. The results indicated that an area of dullness in the region of the thymus, with a corresponding shadow in the roentgenogram, occurred in a relatively large number of normal infants. That this was due to the thymus was shown by the fact that the shadow became smaller after exposure to the *x*-rays. A thymus large enough to be demonstrated by percussion and to show in the plate did not necessarily cause symptoms. The observation of previous workers that an enlargement of the thymus could be demonstrated by percussion and by roentgenograms was confirmed.

Dr. OSCAR M. SCHLOSS of New York stated that they had been collecting data on this subject. One hundred infants were taken at or immediately after birth and *x*-rays were made of their chests, and pictures were then taken monthly. In 70 of the 100 newborn infants there was a distinct upper mediastinal shadow. Fifty babies were followed throughout the year, and at the last examination 25 still showed a large upper mediastinal shadow. In none of the infants were there any symptoms that could with accuracy be attributed to the upper mediastinal shadow which was due in part at least to the thymus. In regard to percussion, they felt that when they found a distinct dullness they could be reasonably certain of an upper mediastinal shadow, though there were exceptions to this. In a few cases in which there was no dullness there was a large shadow. They were not satisfied with the results in this series and were running another series. During the course of the study they had verified the observation of Dr. Gerstenberger that the thymic shadow varied with inspiration and expiration. At postmortem they had checked up their technique in a number of instances to be sure that the shadow they had obtained was an enlarged thymus. When the postmortem showed a small thymus they never got a large shadow except in one case in which the thymus was fairly large and the *x*-ray had shown nothing.

Dr. ALFRED FRIEDLANDER of Cincinnati called attention to the fact that the *x*-ray gave no idea of the anteroposterior dimensions of the thymus. One might have a large flat thymus that gave no symptoms though it gave a large shadow, whereas a thymus might be thick anteroposteriorly and produce symptoms and yet give a small shadow. The mere fact of a large upper mediastinal shadow associated with enlargement of the thymus did not necessarily mean that symptoms were produced. It might be that as many as 46 per

cent. of children would be found to show an enlargement of the thymus and a large percentage of these showed no symptoms. If symptoms of thymic asthma were present, even though the *x*-ray showed no shadow, radiation should still be given. In a study of 300 cases they had found it worth while to employ radiation. Dr. Friedlander said he was in accord with the previous speakers that what an enlarged thymus meant was still to be determined.

Dr. MAYNARD LADD of Boston cited the case of a child with a negative history who was seized with convulsions, high fever, and cyanosis, and died suddenly. At postmortem the thymus was found to weigh 62 grams. It was difficult to understand how a gland of that size could exist without causing symptoms. It seemed that the symptoms might be due to an internal secretion rather than to pressure.

Dr. CHARLES GILMORE KERLEY of New York cited a case in which there were typical classical asthmatic attacks which he diagnosed as being due to enlargement of the thymus. The *x*-ray showed no evidence of enlarged thymus. The child was given four *x*-ray treatments and had had no attacks since.

Dr. JOSEPH BRENNEMANN of Chicago cited a case in which the *x*-ray showed a broad shadow, so broad that it approached the heart and yet there were no symptoms. If the child had had symptoms they would have been attributed to the thymus. It was important that more than one *x*-ray picture be taken. He had seen instances in which the thymus was apparently enlarged and when a second picture was taken it was not so apparent, due to the fact that one picture was taken at the end of inspiration and the other at the end of expiration. There was an idea that symptoms were aggravated for some hours after *x*-ray treatment. He would like to know whether others had found this to be true, and if it was true whether it should lead one not to give the *x*-ray treatments at a time when there was more or less aggravation of symptoms.

Dr. FRITZ B. TALBOT related that a short time ago his resident, Dr. Parsons, was making a study of rabbits. One of the rabbits died suddenly, and the postmortem showed an enlargement of the thymus. This was the first time at the Massachusetts General Hospital that a rabbit was found with an enlarged thymus.

Dr. LANGLEY PORTER of San Francisco said that he had noticed a thymus might be enlarged and yet produce no symptoms. At the Stanford Hospital they had had a Mongolian idiot who died at about four years of age of pneumonia. He had never shown symptoms of thymic asthma, but at autopsy a thymus was removed which weighed over 55 grams.

Dr. HENRY HEIMAN of New York said that thymic asthma was a very rare disease. Cases of real thymic asthma were not hospital cases and the deaths occurred at home. Thymic asthma must not be confused with laryngismus stridulus, diphtheritic infection, and those cases in which death occurring suddenly one found a deformity of the glottis and epiglottis. Again thymic asthma must not be confused with latent spasmophilia.

Dr. ROWLAND G. FREEMAN of New York thought that thymic asthma was sometimes taken to be simply convulsions such as occurred with slight infections. In some of these cases the convulsions ceased after treatment with the *x*-ray. He cited a case of thymic asthma in which the symptoms were relieved by *x*-ray treatment though the shadow on the *x*-ray plate was apparently larger than before the treatment. He had had two other cases treated without reduction in the size of the thymus. Dr. Gerstenberger's sign was very valuable. If one was dealing with a tumor in the upper mediastinum that got larger and smaller with inspiration and expiration he might be pretty sure it was the thymus and nothing else.

Abdominal Pain and Throat Infection.—Dr. JOSEPH BRENNEMANN of Chicago read this paper, in which he directed attention to a symptom which in his experience and that of his associates was of very frequent occurrence and, so far as he knew, had received little or no mention in the literature. This symptom was that of abdominal pain occurring often to the exclusion of all other subjective symptoms in the course of throat infections in children, including the whole series of upper respiratory infections. The nature and location of this pain were fairly constant; the degree and time of occurrence varied much in different individuals. It might occur early or late and often persisted throughout the illness, sometimes lasting for weeks and even months after all other symptoms had disappeared. The child quite regularly indicated that the region of the umbilicus was the site of the pain. In seeking the cause of this pain one must direct his attention to the mesenteric and retroperitoneal glands. Several cases were cited in which operation was performed in the presence of a severe pain of this kind and such enlarged mesenteric and retroperitoneal glands were found. Two routes of infection were of course possible, by blood stream and by direct transmission. The former seemed improbable, for a marked general adenopathy was not especially characteristic of these infections. The true cause of the pain might be, at least in part, a localized enteritis or colitis, rather than lymphadenitis itself, and possibly some specific or selective localization might account for the fairly constant pain in the umbilical region. That the glands might, however, become involved secondarily, even to the point of abscess formation or might continue to be enlarged for a time after the intestinal lesion was healed, was probable enough and exactly analogous to what happened in secondary adenitis of the cervical and retropharyngeal lymph glands following a throat or postnasal infection. This might explain the recurrent pain in the abdomen. It was of practical value to know that there was such pain and to be familiar with its clinical setting; but one must not allow this type of pain to cause him to overlook appendicitis.

Severe Infantile Malnutrition—The Energy Metabolism with the Report of a New Series of Cases.—Dr. FRITZ B. TALBOT of Boston said that in this series the children were all underweight and represented malnutrition due to a variety of causes. A table giving a comparison of the heat production of infants of like body weight and height but of different ages, showed a higher metabolism for older infants than for younger infants of the same size. This was significant because the older infants had a greater degree of malnutrition than the younger infants with which they were compared. A chart also showed what had been recognized for some time, namely that the heat production per kilogram of body weight was higher in the malnourished or marasmic infant than in the normal infant. Children with the greatest degree of malnutrition had apparently the most abnormal metabolism. This was rather difficult to account for but allowed of two explanations: (1) Because of the malnutrition there was a diminished amount of active protoplasmic tissue to make heat, or (2) there was a normal amount of protoplasmic tissue but because of malnutrition or some concomitant factor the heat-forming tissues were incapable of making the same amount of heat as during health. The composition of the body showed little or no difference between the percentage of nitrogen in well-nourished fat infants, thin infants, or markedly malnourished infants, and it might be assumed that the proportion of protein tissue in malnutrition was not abnormal. Before this could be accepted, however, further investigation was necessary. The second possibility conformed with clinical experience and might be taken as the more plausible explanation. It was conceivable that when the metabolism became so depressed that the normal temperature could not be maintained except by the external application of heat, these infants had entered into the same category as cold-blooded animals, the level of whose metabolism was determined in general by the surrounding temperature. There was no appreciable change in the metabolism of children with severe malnutrition until there was a loss of 20 per cent. in the body weight. Beyond this point there was presumably a loss of subcutaneous fat and a relative increase of body surface. With the increasing malnutrition the divergence from the normal became greater and body heat was lost more easily because of the lack of the insulating layer of subcutaneous fat and of the greater radiation of heat due to the relative increase in body surface as compared to the weight.

Dr. THOMAS S. SOUTHWORTH of New York said Dr. Talbot had given a very valuable demonstration. In looking over some old reports he came across the work of an investigator which showed that an atrophic in-

fant used two ounces more milk if its head was exposed. From this it was deduced that smaller children wearing a cap in the cooler weather conserved the body heat. The same thing was applicable to older children. In thin and anemic children the nutrition could be helped markedly by using flannels as the extra protection favored the nutritional and metabolic processes. Fashion was very irrational when it decreed that children should go with their legs exposed in cool weather.

A Febrile Exanthem Occurring in Childhood.—Drs. BORDEN S. VEEDER and T. C. HEMPLEMANN of St. Louis presented this contribution in which they described conditions met with in a group of cases characterized by high fever lasting three or four days, followed by the development of an eruption coincident with the fall of fever. The eruption faded within twenty-four to forty-eight hours. During the febrile period there was an entire absence of all physical signs or symptoms. There was no coryza, tonsillitis, cough, bronchitis, lymphatic enlargement, splenic enlargement, diarrhea, or constipation. The most striking thing was the complete absence of symptoms accompanying the high fever. One patiently waited for the development of a concealed pneumonia or some such cause of an obscure fever, when suddenly the rash appeared and the temperature dropped. They had seen in all twenty of these cases during the past winter: in eight of these a blood count had been made, and the only striking sign they had noted was a distinct leucopenia with relative lymphocytosis. The blood count was the only diagnostic clue. The leucopenia dropped as low as 3,200 cells in two cases. In all but one of the eight cases there was a relative lymphocytosis present, amounting to from 80 to 90 per cent. With the exception of a relative increase in lymphocytes and a relative decrease in the polymorphonuclears, the other cells stood in normal relation to each other. Most of the cases occurred in the second year. In none of the reported cases nor in any of the other cases observed had a second case been seen in the same family. The disease, therefore, seemingly did not belong to the ordinary group of exanthemata in childhood transmitted by direct contact. The eruption was morbilliform and consisted of small red macules of maculopapules from 1/16 to 3/16 of an inch in diameter. They pressed out easily, similar to a rose spot. The lesions were usually profuse and fairly well-distributed over the body, lower part of the face, neck, and extremities. It was their belief that the symptom complex was a specific entity which was not described in the textbooks. Dr. Zahorsky had described this symptom complex, in 1910, as "roseola infantilis" and again, in 1913, as "roseola infantum." His description agreed with the picture they had been observing. They did not consider that roseola infantum was the proper name to apply to this symptom complex as it formerly pertained to a large indefinite group.

Dr. ROWLAND G. FREEMAN of New York said he thought they all had seen such cases. They were very common. The children ran an elevated temperature for three or four days and after the fall in temperature they developed a rash. He would not be sure they did not have catarrhal symptoms.

Dr. THOMAS B. COOLEY of Detroit said they had had the identical thing in Detroit. The blood picture was the same and the exanthem the same. It had occurred at a time when there was an outbreak of paratyphoid B fever from which it was extremely difficult to differentiate it.

Dr. JOHN RUHRÄH of Baltimore said he had seen sixteen cases of this entity, but would reserve his description for some other time.

Dr. HENRY F. HELMHOLZ of Rochester, Minn., said they had had a small epidemic of this entity. The cases he had seen corresponded with Dr. Veeder's description. In a group of three cases in one family the eruption was of the urticarial type and the symptoms more severe. The urticaria subsided only after the administration of adrenalin.

Dr. HENRY HEIMAN of New York said he supposed all had seen such cases and the clinical diagnosis was usually intestinal toxemia accompanied by urticaria or erythema. It would be interesting to study the milk supply.

Dr. JOSEPH BRENNEMANN of Chicago asked whether Dr. Veeder had any drug which he used as a routine, such as aspirin.

Dr. VEEDER of St. Louis said that none of these children were receiving any drugs. He had eliminated the possibility of a drug rash. There were no toxic symptoms. These children came from all sections of the city and mostly from the better classes. They were not getting milk from the same dairy.

Indications for the Removal of the Spleen in Infants and Children.—Dr. FREDERIC H. BARTLETT of New York reviewed the most recent studies of the function of the spleen and cited the reported splenectomies in children under twelve years of age and their subsequent histories. He said that hemolytic jaundice, Gaucher's disease, Banti's disease, and von Jaksch's anemia were four names given to pathological processes for the relief and cure of which removal of the spleen might be the only treatment. Banti's disease and Gaucher's disease had no distinguishing symptoms and physical signs by which they could be clearly diagnosed in their early stages, and it was just in the early stages that splenectomy was of the greatest value. Von Jaksch's disease was still *sub judice*, being regarded by some as not a distinct entity. In view of the difficulty of giving a name to certain symptom complexes in which anemia and a large spleen were the prominent manifestations, and for which splenectomy might be the only proper treatment, it was necessary to have certain criteria for the removal of the spleen. These criteria were brought out in the analysis of three cases reported in the paper, two cases of Banti's disease and one of Gaucher's disease, all treated by splenectomy. In the 41 cases collected from the literature no instance of leucemia appeared. This disease above all others must be excluded in a decision to remove the spleen. Removal of the spleen was contraindicted in leucemia. The first case presented the anomalous situation of a spleen which recorded the changes belonging to Banti's disease and the blood picture belonging to von Jaksch's disease. If the two diseases were distinct, the logic of the situation forced one to accept the proposition that the causative agent of von Jaksch's disease had elaborated its effect on the hemopoietic system; the causative effect of Banti's disease had elaborated its effect in the spleen. Emphasis was laid on the statement that a distinctly enlarged spleen might be a part of a pathological condition the relief or cure of which depended upon the removal of the organ; and secondly, that such an enlargement might be present in the first year of life. A study of the charts of repeated blood examinations in the two cases of Banti's disease showed in each instance a diminution in the number of erythrocytes, a hemoglobin percentage below normal, and leucopenia. The erythrocytes showed poikilocytosis, polychromatophilia, and marked pallor. These blood findings defined secondary anemia, which was characteristic of Banti's disease. The combination of a persistent blood destruction and of an enlarged spleen in spite of repeated transfusions and failure of radium to reduce the size of the spleen, furnished a good starting point for serious consideration of splenectomy. It was desirable, however, that a thorough search for evidence of blood regeneration as well as of blood destruction be made when one was confronted with the problem of splenectomy. Studies of the blood after splenectomy furnished a good index of the degree of improvement in the condition for the relief or cure of which the spleen was removed.

The Diagnosis of Tuberculosis in Childhood.—Dr. CHARLES HENDEE SMITH of New York said there was a widespread misconception in the minds of the medical profession concerning the prevalence of tuberculosis in childhood, the methods by which the diagnosis must be made, and the significance of the skin reaction. Tuberculosis was not a universal disease in childhood, in this country at least. The universal findings in Europe did not hold in America. The diagnosis of the presence of tuberculous infection rested largely upon the skin reaction which did not determine whether any given lesion was tuberculous, but did tell whether a child had been infected or not. The technique of the various skin tests was important. The value of the reaction was commonly lost by careless methods. The activity of tuberculosis must be judged by the

temperature curve and by the other signs of toxemia (malnutrition, anemia, etc.) The site of the lesion was often difficult to find. The bronchial nodes were most commonly involved, yet gave out few signs. D'Espine's sign was the best of these; its value was not widely appreciated. The manner in which it was elicited and recorded had not been standardized. The present report was concerned with an analysis of 550 cases with reference to this sign. The *x*-ray should show tracheobronchial enlargement, but was often disappointing. D'Espine's sign below the third, and especially below the fourth, dorsal vertebra was very suggestive of tuberculosis.

Dr. FRITZ B. TALBOT of Boston asked Dr. Smith whether he had any records in this group as to whether the children had had whooping cough. He had made a series of observations during and after whooping cough which showed marked enlargement of the bronchial lymph nodes by the *x*-ray.

Dr. JOSEPH BRENNEMANN of Chicago called attention to one precaution that should be taken when one got a series of negative von Pirquet reactions, where before he had been getting positive reactions. When that happened one should make control tests with a different tuberculin.

Dr. W. PALMER LUCAS mentioned that another condition might also give the D'Espine sign, namely, a low grade influenzal infection. In quite a series of cases of that kind they had found the same picture Dr. Smith had described, namely, the D'Espine sign positive below the fourth and extending down to the seventh or eighth dorsal vertebra; in these cases the von Pirquet was negative yet there was a positive clinical picture.

Dr. LANGLEY PORTER of San Francisco said he believed D'Espine's sign was a very valuable and much neglected addition to our clinical methods. He had never found D'Espine's sign below the fifth and rarely below the fourth dorsal vertebra where there was not some definite change. The position of the patient was important in determining the point at which the sign was heard. Dr. Smith said he made the examination with the patient in the erect position. The speaker seated his patients with the back flexed and the head bent forward; then he usually heard the sign at about the fifth dorsal vertebra. It would be an advantage to have a standard position.

Dr. J. CLAXTON GIDDINGS of Philadelphia said the number of positive von Pirquet reactions was high. He felt that the von Pirquet reaction represented the number of infections, but he felt strongly that the clinical fact that we saw so little tuberculosis between the ages of four and fourteen probably depended upon the dose of infection and the resistance of the subject. He believed that many cases of malnutrition and undernutrition were dependent upon neoplasms in the glands that could not be definitely proven.

Dr. SAMUEL MCC. HAMILL of Philadelphia referred to a series of cases in which he had applied the Calmette, the Moro, and the von Pirquet tests, which indicated that the von Pirquet test had the same measure of accuracy as the Calmette, and also that the Calmette test was a failure as an indication of the incidence of tuberculosis. Dr. Hamil emphasized the importance of careful technique in the application of the von Pirquet test.

Dr. CHARLES HENDEE SMITH stated that whooping cough, influenza, or any affection that gave an inflammatory reaction in the lung, might give D'Espine's sign. One must rule out other lung conditions before making a diagnosis on the D'Espine's sign. The tuberculin used in making the tests should be tested out frequently on known cases. A great deal of value should be attached to percussion and it often gave positive findings, but it was not easy to teach a young man to percuss lightly and to elicit the more delicate signs, while it was comparatively easy to learn to elicit D'Espine's sign.

Certain Aspects of School Medical Inspection.—Dr. FRANK SPOONER CHURCHILL of Milton, Mass., presented this contribution, in which he said he had just completed two years' work as medical director of the public schools in a suburban town in Massachusetts with a total population of 9,000 and a school population of approximately 1,600. For this work there were available at first only two physicians, one school nurse, the grade teachers, two teachers of physical training, and certain community organizations. The work of general examination had been divided between teachers, school nurses, and school physicians. Weighing and measuring and the testing of sight and hearing had been done by the grade teachers; the examination of the head, scalp, teeth, spine, posture, and feet, by the school nurse. After that the school physicians, Dr. Augusta Williams for the girls and the writer for the boys, had examined nose, throat, teeth, glands, heart, lungs, spine, and feet. All data of each pupil were recorded on a tabular card of such size and arrangement that one card would suffice for the examinations made year by year. In addition to the complete examinations all the pupils in the grade schools were weighed once a month, the records being kept for inspection by the children themselves. Provision was made for the correction of defects. The chief interest in this work centered in the nutrition of the pupils and in certain local anatomical defects. The total number of children examined was 1,552 in 1919, of which 39 per cent. were under weight, and 16 per cent. were 10 per cent. or more under weight; in 1920, 1,569 were examined and 56 per cent. found under weight; and 23 per cent. were 10 per cent. or more under weight. The explanation offered for this increase in underweight was that about one-fifth of the children of this community entered school handicapped by a severe state of malnutrition. The effect of school life upon the malnutrition appeared to be *nil*, but in the school course there was an increase in numbers showing malnutrition, and this took place in the storm and stress period of early puberty, subsiding with the complete establishment of puberty. The report on anatomical defects confirmed well known figures. There was a satisfactory absence of tuberculosis.

Respiratory Infections in School Children.—Dr. RICHARD M. SMITH of Boston presented this paper, in which he stated that the present study was undertaken in the hope that some suggestions might result as to a more definite means of combating respiratory infections. No definite line of attack could be suggested from the evidence at hand. It had demonstrated clearly several things, the most striking of which was our lack of real knowledge with reference to these infections and the necessity for further study. The figures in this connection were taken from Mr. River's Open Air School for Boys in Brookline. During the years 1917 to 1921, out of a possible 100 per cent. attendance, illness caused absence of 11.62 per cent. in 1917-1918; 9.76 per cent. in 1918-1919; and 12.77 per cent. in 1919-1920. This was two or three times the percentage of absences not connected with illness. Of the absences due to illness, respiratory infections caused about 54 per cent.; contagious diseases and quarantine, 24 per cent. Respiratory infections were twice as great as those from contagious diseases except in one instance when a mumps epidemic made a large number of absences from contagious disease. A detailed study was made of the respiratory infections during the period of greatest prevalence to determine, so far as possible, the facts with reference to the distribution of the infections. From these facts an attempt was made to detect any possible channels of infection in the school. Respiratory infections were most numerous during the months of January, February, and March. In general they were a little more prevalent and of longer duration in the lower grades. Other schools also showed greater prevalence of illness in these grades. A study was made of all pupils absent because of respiratory infections during the month of January to determine, if possible, any connection between their proximity in the schoolroom during rest periods, at meals, during classes, or during transportation. Definite contact infection could not be proved. It was striking, however, that the distribution of respiratory infections at any one time was in general among boys who were near together, particularly those who were near together at rest period or in music. This would seem to indicate the desirability of particular precautions during times of close contact or when using the voice.

The Management of a Diphtheria Outbreak in a Private School.—Dr. E. C. FLEISCHNER stated that Schick had placed diphtheria from the hygienic standpoint upon an entirely new basis. Formerly in some places

an outbreak of diphtheria was handled by sending the students home and leaving them to the very uncertain management of the family doctor. In others more properly supervised cultures were taken in the school, carriers sent home with instructions as to isolation and prophylactic doses of antitoxin, given either in school or by a medical adviser at home. The school was invariably closed for a considerable period of time and often numerous fantastic procedures employed to disinfect rooms or correct errors in plumbing hoping thereby to prevent a recurrence of the disease by methods absolutely futile. An outbreak of three cases of diphtheria in a boarding school having 150 students was promptly and successfully controlled without disorganization of the school, though there was a certain human element bound up in a problem of this kind that taxed the ingenuity and patience of those who had it in charge. An interesting fact learned from the records of this outbreak was that the percentage of positive Schick tests was 65. It suggested the possibility, considering that these boys came from a stratum of society where diphtheria was not prevalent, that repeated exposures to the disease played a rôle in the development of a natural active immunity. In summarizing Dr. Fleischner emphasized the following facts as a means of controlling a diphtheria outbreak in a boarding school: (1) Immediate isolation and treatment of the sick children. (2) Immediate, carefully supervised nose and throat cultures on all members of the school. In the taking of cultures the swabs should be introduced far back into the posterior portion of the nares, and from the crypts of the tonsils, if the tonsils were present, and when removed the cultures should be taken from the tonsillar fossæ and as high up on the posterior pharyngeal wall as possible. (3) Schick tests with proper controls on all members of the school within twenty-four hours. (4) Administration of 1,000 units of antitoxin subcutaneously to all children having positive Schick reaction at the end of forty-eight hours. (5) Reculture of smears from noses and throats and all contacts two days after the primary culture. (6) Any ill child should be isolated from the healthy children and from true diphtheritics until a positive diagnosis was established. (7) All of the carriers should be immediately isolated and where it was possible, toxicity tests should be employed to avoid the exposure of those children having virulent diphtheroids to those with true virulent organisms. (8) When the outbreak was controlled, active immunity should be conferred upon all children with positive Schick reactions by the proper injection of toxin-antitoxin mixtures.

Left Handedness as an Educational Problem.—Dr. A. Caillé of New York presented this paper, in which he stated that left-handedness could be traced back to antiquity and that we had Biblical evidence of the efficiency of the left-handed. The study of the problem of sinistrality naturally led up to the question: "What can be done to bring about a more adequate adjustment of a left-handed child to a right-handed environment or, as Beeley expressed it: "If left-handedness was hereditary to what extent was it expedient to force a sinistral to become right handed?" In view of the probability that left-handedness had a structural atavistic basis and was not merely an acquired faulty habit, the disciplinary attitude of parent and teacher toward left-handedness should be adjusted to the degree and character of its manifestations. *Mild Types* in which the stimulus for preferential action was weak were readily overcome by educational efforts. Also it was not difficult to train the left hand when the use of the right hand was lost through injury or disease. *Mirror writing* with sinistrality could be overcome in some instances by giving simple exercises which would make the child appreciate the discrepancy between his reproduction and the copy. Results would depend upon the degree of anatomical disturbance. In persistent sinistrality, particularly when combined with speech defects, right-handedness should be encouraged but never forced. Unreasonable discipline created an unbalanced condition akin to mental chaos. One might with more confidence rely more upon an internal or self-imposed discipline which inevitably came sooner or later, even though the preferential instinct might remain to a certain extent throughout life. According to G. D. Robbins, Director of the Boston Stammerers' Institute, sinistrals with speech defects might overcome cerebral congestion and encourage normal speech by slow and moderately deep breathing exercises. The correction of eye strain and of nasopharyngeal obstruction must not be overlooked and hygienic living in its broadest sense was of importance. Finally, we must avoid forming an exaggerated estimate of the difficulties experienced by left-handed persons in the ordinary actions of life. Such individuals became ambidextrous which in many ways was an advantage. The condition of brain and cord would improve if all their motor and sensitive elements were fully exercised therefore parents and teachers should encourage and train the free use of the right hand without suppressing the innate dexterity of the left.

A Study of Breast Feeding Possibilities in a Small Industrial Community.—Drs. Thomas B. Cooley and Wyman C. Cole presented this paper, which embodied the results so far obtained in a trial made under the auspices of the Babies' Milk Fund of Detroit of systematic propaganda for breast feeding conducted along lines almost identical with those described last year by Dr. Sedgwick to whom they acknowledged their indebtedness. Their design in making this trial on a small scale had been to form some judgment as to how far and in what form it might be desirable to apply this particular method of infant welfare work to larger communities; and at the same time to develop their method and to have a training ground for nurses. The locality selected was a small suburb of Detroit, comparatively isolated and peopled mostly by the laboring class. The birth rate in 1920 was 37.1 and the infant death rate for the same year was 8. An analysis of the statistics presented permitted of the following conclusions: (1) It was possible by propaganda of this type considerably to increase the number of breast fed babies, even in a community where the tradition of nursing the baby was evidently as strong as in River Rouge where this experiment was carried out. (2) The more brilliant results were obtained with women nursing their first babies, and special attention to this class would probably best repay one's efforts. Mothers of more experience were, however, often susceptible to instruction which enabled them to succeed after previous failure. (3) The work had extended over too short a time to show any effect on infant mortality. They believed from their brief experience that this special propaganda was a valuable adjunct to more common types of infant welfare work. It would, however, be of little use without the service of the special nurse, really well trained in breast feeding methods, and especially in ways of stimulating breasts whose production was inadequate. The statistics showed a remarkably high percentage of successful breast feeding from 96 plus per cent. at the end of one month to 83 plus per cent. at the end of six months. Their efforts had enabled some mothers to successfully nurse their babies after previous failures.

Myocardial Degeneration in Congenital Syphilis.—Dr. Alfred Friedlander of Cincinnati read this paper. He said that myocardial degeneration in infancy and in early childhood in very many instances rested upon a basis of congenital lues. We were accustomed to attribute myocardial degeneration in early life to certain of the acute specific diseases notably diphtheria, typhoid, pneumonia, and influenza, but we had not paid sufficient attention to the rôle of congenital lues in the production of myocardial degeneration. There was no typical form of myocarditis that might be recognized as luetic. The signs and symptoms varied in intensity in individual cases and were the ordinary ones—enlargement of the heart, feebleness of the first sound, and at times a systolic murmur at the apex. Arrhythmia was common. Typical auricular fibrillation was almost never seen in childhood. The Wassermann test was not always positive evidence even in well marked cases. It was interesting to note the rapid improvement of the cardiac condition in these cases under simple intensive antiluetic treatment alone. In many cases syphilitic myocardial degeneration might be the only manifestation of congenital lues. Warthin considered syphilitic myocarditis an important cause of death in early life, occurring often in apparently healthy children in whom syphilis may never have been

suspected clinically. Antiluetic treatment was suggested in myocarditis in young children irrespective of a positive Wassermann test and regardless of the fact that other definite signs of congenital lues were lacking.

Dr. BORDEN S. VEEDER of St. Louis said he was interested in this paper because of his experience in seeing several hundred syphilitic children in a few years. In about 500 cases he had seen only one aneurysm and hence he felt very doubtful about the syphilitic heart. He had not confirmed the findings of Warthin; he found that simply finding of the spirochete in heart disease did not necessarily mean that the condition was due to syphilis.

Community Health Centers.—Dr. J. H. MASON KNOX, Jr., of Baltimore presented this contribution, in which he said that Americans were a life-wasting people. The unnecessary high death rate was not appreciated by the average citizen largely because he had not had the effect of living under good sanitary conditions concretely proved. This was the idea of the health center. It was the application of approved methods of public and personal hygiene to all the people of a given community. It was the establishment on a small scale of an ideal health department for the purpose of demonstrating results. Such a center secured community service in health. Few of the many health centers already established were complete. The immediate problems must vary in different places. Where there were no public health activities, these were started *de novo*. In older communities the health center sought to coordinate and strengthen existing organizations and clinics, public and private. It was believed that when the results in improved health and happiness in a given area had been actually demonstrated the cause of public health in America would be furthered as was possible in no other way.

The Clinical Value of Intraperitoneal Injections of Salt Solution.—Drs. J. CLAXTON GIDDINGS and JOHN D. DONNELLY of Philadelphia made this presentation, in which they stated that in the dehydration seen so frequently in children suffering from gastrointestinal disorders with diarrhea during the summer months the most efficacious method of introducing fluid was by the use of the nasal tube or by intraperitoneal injections. The other methods were either too painful or allowed the introduction of insufficient amounts of water. The intravenous route possessed certain dangers and might well be reserved for the introduction of solutions of glucose or glucose acacia. The nasal tube was preferable to the stomach tube as being less likely to cause vomiting. It needed only to be introduced well below the epiglottis, but not through the cardia. This also seemed to be less apt to cause regurgitation. From 150 to 250 c.c. of water could be introduced two or three times in twenty-four hours, from three to three and one-half hours after the last feeding. Intraperitoneal injections seemed to be safe provided the bladder was empty the abdomen was not distended, and the fluid was introduced slowly. The amounts to be used varied usually from 150 to 300 c.c., the optimum to be judged by the subjective and objective symptoms. Disturbance of respiration and pulse and increasing distension indicated withdrawal of the needle. One hundred and sixteen patients received 352 intraperitoneal injections of saline solution. The oldest patients and those having the highest weight on admission showed the greatest proportion of recoveries. The mortality increased *pari passu* with the number of injections, being the highest in those who received ten or more. Dehydration was determined by the degree of loss of resiliency in the skin and subcutaneous tissues when pinched into a fold. According to this criterion those with the least resiliency showed the highest mortality, and *vice versa*, although in some cases the dehydration was entirely relieved without preventing the fatal issue. Autopsy upon nine of the patients showed that no injury had been done to the peritoneum or any of the abdominal structures. The authors concluded that the forced ingestion of water by nasal tube deserved a more extensive trial, that 300 c.c. probably represented a maximum for intraperitoneal injection in any infant under one year of age and that smaller amounts administered more frequently were safer for infants weighing less than 4000 grams.

Modes of Infection in Pyelitis.—Dr. HENRY F. HELMHOLZ of Rochester, Minn., called attention to the fact that as yet a correlation of the clinical, pathological, and bacteriological findings in pyelitis had not been established. It must be granted that examination of the urine in most instances would indicate a pathological process somewhere in the urinary tract, but that was all; it could not localize the lesion. It was impossible to differentiate the different forms involving the kidney cortex, pelvis, ureter, and bladder, singly or together. The pathological anatomy of these various forms of pyelitis was not well established and did not at the present time allow us to determine the mode of infection, except in those cases marked by cortical abscesses of the kidney. In a former series of experiments by Dr. Beeler and the writer the urine was found to be sterile in about 50 per cent. of normal patients and in 30 per cent. of patients with parenteral infection. In the study herein reported in which liquid media were used, cultures were sterile in 59 of 108 instances, and in solid media in 75 of 108 instances. To demonstrate the importance of bacteriological studies, Dr. Helmholz cited some of the pathological studies of kidneys that were sent by members of this society. These tissues were used to make serial sections of the pelvis of the kidney. No cultures of the different portions of the urinary tract were taken at necropsy, a matter which was of much importance. Clinically, the cases were definite examples of pyelitis; grossly and histologically they showed in serial sections an entirely normal pelvis. The pathological report in so many cases of pyelitis was negative that it seemed essential that bacteriological studies of the renal pelvis and bladder should be made in all cases of pyelitis that came to autopsy. In all of the writer's experiments in which he found peripelvic inflammation there was also found an infection of the urinary tract as evidenced by the presence of bacteria and pus within the lumen of the pelvis. The fact that in two-thirds of the infections of the pelvis, after intracystic injections, no periureteral infiltration was found, but only peripelvic inflammation and pus in the pelvis, showed that here, too, was a histological differentiation of the mode by which infection might travel from the bladder to the kidney. In the experimental production of pyelitism there was good evidence for the production of inflammatory conditions of the pelvis of the kidney, both of the hematogenous and ascending routes. The hematogenous method was very frequently associated with abscesses in the cortex of the kidney, but also in numerous instances by a simple inflammatory condition of the pelvis. There could be no question that cortical lesions of the kidney and pyelitis could be produced in the animal by the hematogenous route, by organisms of the coccus as well as of the colon group. The demonstration of the possibility of the hematogenous route of infection did not exclude any other route of infection. With regard to the direct passage of organisms from the intestinal canal to the kidney by way of the lymphatics it did not appear that sufficient evidence had been brought forward to warrant a discussion at this time. In view of the way in which the lymphatic system developed there was a possibility of a direct connection persisting in some cases.

Calcification of the Skin in a Child.—Dr. JOHN LOVETT MORSE of Boston reported this case, which occurred in a female child, born of poor and ignorant parents, who was normal at birth, and who walked at the age of 13 months. At 22 months she was sick for a week with what was called influenza. A month later she fell from a chair and soon ceased to walk. When a little more than two years old she was admitted to the Children's Hospital. At this time she was slightly rachitic; her nutrition was fair; she had eczema in both axillæ and behind the ears, and her tonsils were enlarged. Her hemoglobin was 59 per cent., white count 8400, and tuberculin test negative. She was treated for several months for lesions diagnosed as absorbing cutaneous abscesses. The Wassermann test was negative. The child was then lost sight of for a year. When 3½ years of age she was readmitted to the Children's Hospital, having been sick with a respiratory condition for about a week. She had a dermatitis of the scalp, the teeth were bad, the tonsillar fossæ showed necrotic tissue left from the tonsillectomy, and

there was a rachitic rosary. There were areas of induration at the borders of both axillæ, at the left elbow, in the upper thigh, buttocks, and in smaller areas in the popliteal spaces and on the calves of the legs. In some places there were numerous hard nodules scattered through the indurated areas. X-ray pictures of these areas looked as though they were filled with fine shot. Tissue from these areas was examined microscopically. The process was interpreted as primary degeneration of fat followed by calcification and repair by nonvascular organization without giant cell formation. An unusual feature was the absence of evidence of the formation of fatty acid crystals usually to be seen in fat necrosis. The product of the degenerated fat seemed to be a homogeneous hyaline material in which the lime deposited. The diagnosis was necrosis of subcutaneous fat with a typical sequence and calcification. The etiology was unknown. The microscopical appearances resembled the fat necrosis found in the abdominal cavity in acute pancreatitis, there the lesion of course being due to lipolytic ferment. In spite of the difficulty in accounting for the presence of such a ferment in the subcutaneous tissue, such a possibility must be considered in this instance.

Anomaly of the Kidney in a Child, with Sudden Uremia and Death.—Dr. HERBERT B. WILCOX of New York reported this case and presented the specimen. The child was a male infant of ten months, weighing 20 pounds, who had been well up to the onset of his present illness. He was admitted to the hospital suffering from an acute infection of the pharynx with cervical adenitis, otitis, and a temperature of 105° F.; the white blood count was 20,000. During his sixteen days in the ward he ran the usual course of such conditions and seemed to be slowly improving. He then developed sudden abdominal distention. An indefinite mass, hitherto unnoticed, was palpated in the lower right quadrant of the abdomen. Edema of the lower extremities developed, with vomiting and a rise in blood pressure, and death occurred twenty-four hours later. Autopsy demonstrated moderate edema of the feet and ankles, a distended abdomen containing 500 c.c. of clear straw-colored fluid. The findings were otherwise negative except for the kidneys, which were represented by an irregular nodular mass located in the midline at the level of the brim of the pelvis. This mass consisted of three kidney elements fused together, each with a clear line of demarkation between. There were numerous cysts throughout the kidney substance and sacculations of the pelves. The cortex, ½ inch in diameter, and the medulla, deeply congested were fairly well differentiated. The capsule stripped easily. A separate pelvis was found in each kidney element, these fusing into one dilated common pelvis, from which ran one large dilated ureter entering the bladder at the site normal to the right ureter. The left ureter was patent, and dilated for about one-third of the distance from the kidney to the bladder, and from this point extended to the bladder as a fibrous cord. The presence of three kidneys was a rare anomaly, but when occurring represented about 4 per cent. of the anomalies in these organs. There were a few recorded cases of supernumerary kidneys. The third kidney then usually was fused with the left and occupied the position normal to the left kidney. Fusion of the kidneys of all types occurred in about one in 10,000 autopsies. Nowhere in the literature since 1900 was any report found on the occurrence of the fusion of three kidneys. A kidney anomaly reported by Monquiot as lying transversely across the vertebra, having four ureters and four sets of vessels, was considered as possibly an instance of the fusion of four kidneys. Abnormalities of renal arteries were met with in about 25 per cent. of autopsies, and were frequently associated with developmental defects of the kidneys and ureters. Such abnormalities as these were thought to represent a throwback or reversion to the earlier types of kidney.

A Case of Dwarfism Associated with Congenital Heart Disease.—Dr. CHARLES HERRMAN of New York reported this case. He stated that cases of congenital heart disease associated with marked dwarfism were comparatively rare. In a series of 62 cases of congenital heart disease reported by Weber, only one was associated with marked dwarfism. The patient, 13 years of age, was the youngest of seven children, all but one of whom were healthy and of normal physical and mental development. The one child was not as strong as she should have been. The family history was negative. The patient was born at full term; the delivery was noninstrumental. The patient was small but not cyanotic. She was breast fed for eight months and began to walk at two years of age. She had always been small for her age, and not quite as strong as the other children. At five years of age she was taken to a physician on account of a cough, and the congenital heart lesion was recognized at that time. The child's mental development was normal. She had had none of the infectious diseases of childhood save an occasional cold. She was able to walk long distances without tiring, and to go upstairs slowly without becoming short of breath or cyanotic. Her appetite was fair, bowels regular. She had not begun to menstruate. The patient was markedly under size. Her weight was 49.5 pounds, corresponding to that of a child of seven years, the normal for her age being 91 pounds. Her height was 48.5 inches, corresponding to that of a child of eight years. The patient was not cyanotic, the fingers were not clubbed, but the hands were somewhat cool. The lungs were normal. The apex beat was felt in the fifth intercostal space, just outside of the nipple line. There was no thrill. The heart was enlarged to the right and there was an increased area of dullness in the second intercostal space to the left of the sternum. A loud systolic murmur was heard over the entire cardiac area, loudest at the third intercostal space to the left of the sternum; it was very well transmitted to the vessels of the neck on the left side, but poorly transmitted to the side. The roentgenographic examination showed enlargement of the heart, especially to the right. The ossification centers were apparently normal. The examination of the blood showed 90 per cent. hemoglobin and 5 136,000 red blood cells. The diagnosis of the exact nature of the lesions present in the congenital heart was extremely difficult. Defect in the ventricular septum with an open ductus arteriosus was the probable diagnosis. Almost all cases of congenital heart disease showed some retardation in growth, but usually it was not marked. The weight averaged from 10 to 15 per cent. below the normal for the age. A reduction of nearly 50 per cent., as in this case, was rare. As would be expected, the patients with marked cyanosis usually showed more retardation. It was therefore all the more surprising that the dwarfism should be so pronounced in this child, notwithstanding there was so little disturbance in the circulation. Although the physical examination showed no lesions in other organs, it was not unlikely that some other factor, possibly some other congenital anomaly, was responsible for the marked retardation in growth.

A Case of Meningitis Due to the Streptococcus Hemolyticus.—Dr. GEORGE N. ACKER of Washington reported this case, which occurred in a white boy, 12 years of age. He was sick for ten months on account of lack of breast milk and the fact that different foods given did not agree with him. During the second winter he had an attack of bronchopneumonia, after which he was nervous and in a state of malnutrition, but was somewhat improved after the removal of the tonsils and adenoids. During the third year he had severe inflammation of the bowels. Between the fourth and fifth years he had measles and chickenpox; at seven years a double mastoiditis, and three winters ago a slight attack of influenza. Two winters ago he had a more severe attack with earache and temperature for three weeks. His present illness began January 14, 1921, with pains in the right ear. For four days he had a remittent temperature and several hemorrhages from the ear. On January 22, in the evening, he had severe headache, vomiting, and pains at the end of the spine. His temperature went to 104° F.; in the morning of January 23 the temperature was 101° F., going to 105° in the evening. Hyperesthesia, photophobia, retracted head, and Kernig sign were present. On January 29, lumbar puncture. The fluid flowed by drops, but rapidly, 30 c.c. being removed. It was distinctly turbid on macroscopic examination. Microscopically it was found to contain an abundance of pus cells and fibrin, and a streptococcus. Culture showed a pure culture of *Streptococcus hemolyticus*. The lumbar puncture appeared to relieve the patient and was repeated several times. Until February 8 the

temperature continued to be high at night and lower in the morning; it was difficult to take the pulse, temperature, and respiration on account of the movement of the body, and the fact that the patient resisted any restraint. He was delirious at times and drowsy all the time. The head had been retracted, and pains in the head, back and legs were marked. There had been bleeding from the nose. He had taken large amounts of water and passed from five to six pints of urine daily. For several days he had nausea vomiting, and loss of appetite. Aspirin had had a good effect on the pains and bromide had been given several times daily for the nervousness. The pains gradually became less and disappeared. The boy grew stronger and at the present time was in good condition. Dr. Acker said that when he first saw the case he thought that the meningitis was secondary to the ear disease, but from the germ found he regarded it as a result of the influenza, as there were many cases of the disease at that time in the city.

Streptococcus Meningitis Treated by Repeated Lumbar Punctures, with Recovery.—Dr. HENRY L. K. SHAW of Albany reported this case, a virulent meningitis due to the *Streptococcus hemolyticus* Lumbar puncture was performed under anesthetic as often as was necessary. This was the only therapeutic agent employed. A complete recovery took place in eight weeks.

A Milking Machine.—Dr. ISAAC A. ABT of Chicago presented this apparatus, which had been constructed to secure an action which resembled the sucking action of the baby as nearly as possible. The machine was designed in such a way as to permit a variation in the intensity of the sucks and a variation in the number of sucks per minute. The machine consisted of a pump driven by an electric motor, with a coupling which could be adjusted so as to vary the number of pump strokes between 30 and 80. From the pump the suction was transmitted to a small milk-receiving chamber, which had a valve at the bottom. On the suction stroke of the pump the valve was closed and the milk drawn from the breast into the chamber. On the compression stroke of the pump the valve was opened and the milk discharged into any desired receptacle. The intensity of the suction was adjusted by a valve located at the pump and the amount of suction exerted on each stroke could be read from the vacuum gauge which was connected with the pump.

A Case of Encephalitis in the Newborn.—Dr. B. RAYMOND HOOBLER of Detroit reported this case, a baby first coming under his observation when three weeks old, with the history that though apparently normal it slept for periods of twenty-four to thirty-six hours, and could hardly be aroused for its food. The baby did not cry like other babies, and the mother's keen eye noted that there was an exceedingly placid expression about the baby's face. Ptosis of the left eyelid was noticed from the first day, but this was thought to be a family inheritance, as some relative had a fallen lid. Shortly afterward there was considerable difficulty in swallowing. At the end of the third week convulsions, general in character, started. These were at first very severe, ending with an agonizing cry. When first seen by the writer there was typical myoclonus. A tentative diagnosis of encephalitis was made having also in mind the possibility of a birth injury. Various laboratory observations were conducted: an *x*-ray of the skull, spinal puncture, blood and urine analyses, cultures from washings of the nasal cavities, all of which were negative. The spinal fluid was not under pressure. The Wassermann was negative. The eye grounds showed a slight haziness of outline, but no choked disc. The case had been under observation nine weeks. During this time the convulsions had become much less frequent and very mild in character. Nystagmus had been present for a few days in the seventh week. Strabismus, both convergent and divergent, was present during the first three weeks of the convulsive period. The ptosis which at first was marked was now slightly noticeable. There was no longer difficulty in swallowing. The extremities had at no time shown paralysis. The knee jerks were active. During the seventh week there developed fibrillary twitchings of the eyelids, cheek muscles and over the abdominal wall. The amount of lethargy present had varied greatly. In the ninth week of the disease the child had seemingly recovered from its lethargy and now awakened for its feedings, and often lay awake for periods as a normal infant should. All the functions had been normal and the child had gained steadily in weight and now had all the appearance of a healthy child. The mother related that during the time she was pregnant, at least during the latter half of pregnancy, she was at times so overcome with the desire to sleep that she would drop on a couch after her husband would leave in the morning and would sleep the greater part of the day. This was ascribed to biliousness, and nothing was thought of it. So far as he could ascertain, Dr. Hoobler said the mother showed none of the typical symptoms of lethargic encephalitis, and only when the baby developed the symptoms was anything thought of the drowsiness of the mother during pregnancy.

Lymphatic Leucemia in a Child.—Dr. L. E. LA FETRA of New York presented this report. He said that the report was presented because although enlargement of the lymph nodes and spleen were very common in childhood, involvement of other organs was, in his experience, very unusual. The laboratory findings corresponded to those found in lymphatic leucemia. The important findings were enlargement of the thymus, enormous spleen and involvement of the liver, kidneys, retroperitoneal glands, adrenals, and practically all the viscera. The organs showed an enormous general infiltration with lymphocytosis.

A Case of Rumination.—Dr. PERCIVAL C. EATON of Pittsburgh reported this case, which was admitted to St. Margaret's Memorial Hospital, May 4, 1921, at the age of six months. The child appeared perfectly normal at birth and weighed 8 pounds. It was then given a feeding of cow's milk and water, equal parts plus the breast. At two months of age the breast was discontinued. Then for a while cow's milk, water, and lime water, and then barley water and milk equal parts, the top of a quart of milk after standing being used. The baby then began spitting and regurgitating regularly and with increasing frequency. The child was then put on condensed milk, and two days before coming to the hospital, on Horlick's milk. There was constant sucking of the fingers and fists noticed on arrival at the hospital. For the first two days the child regurgitated all food. The bowels were constipated and the stools offensive. The child was cleaned out and put on a proper milk formula. It was found that if he lay on his side he lost all his food, but if kept on his back he did not lose nearly so much. To prevent him keeping his fingers and fists in his mouth all the time his arms were put up in splints. He still regurgitates, but not so much. Upon careful observation it was noticed that he would bring food up into his mouth, sometimes spitting out a little and sometimes retaining all of it in his mouth, chew it, and then swallow it. As an experiment his hands were allowed to go free and he seemed to use them to facilitate the bringing up of his food. Thereafter his hands were kept away from his mouth and he ruminated less and less, and at the time of leaving the hospital was losing little of his food. His color had improved and on May 30 he weighed 9 pounds 10 ounces. Dr. Eaton said he had never seen a case of this kind. In looking up the literature he found in the February number of the *American Journal of Diseases of Children* an article on "Rumination," by August Strauch, which was very complete, and in the May issue of the *Archives of Pediatrics* he had found the report of a similar report by Dr. Kerley.

Report of Female Infant with Double Inguinal Hernia.—Dr. H. M. McClanahan of Omaha reported this case. He said the mother first noticed a swelling in the right groin when the child was five weeks old. The following day a similar swelling was noted in the left groin. These swellings were diagnosed as double inguinal hernia. About four weeks later a small round mass appeared in the left groin that could not be reduced. At operation this sac was found to contain the fallopian tube and left ovary. The ovary was almost purple, but not strangulated. It was returned to the abdominal cavity. The hernial sac was removed and the canal closed in the usual manner. The infant rallied well after the operation and made a good recovery. The hernia on the right side was retained by means of a truss.

Miscellany.

Death of Zuckerkandl.—This distinguished Vienna urologist died on July 1 from the effects of an apoplectic stroke before the completion of his sixtieth year. Having graduated in medicine in 1884, his earliest professional years were devoted to surgery as assistant first to Albert and then to Dittel. It was not until 1902 when he became surgeon-in-chief to a newly erected Israelitish hospital that he changed from general surgery to surgical urology. Two years later he became ordinary professor of this branch in the University. His bent to urology was, however, doubtless the result of his early association with Dittel, whose perineal prostatectomy he adopted. The Dittel incision is said to have originated from the joint labors of the older and younger man. At this juncture Freyer began to publish his work on the suprapubic approach and Zuckerkandl, instead of adhering to his own operation, as usually happens in such cases, immediately set about to test the other. The result was that he became a convert to the suprapubic route. This sort of attitude toward a rival is as rare as it is praiseworthy. The deceased added several undescribed urological diseases to our nosology, as closed tuberculous pyonephrosis and fibrosclerotic paranephritis. With Frisch he published the large handbook of urology which marked an epoch in the evolution of our knowledge. During the great war he was in charge of a great military hospital in Galicia (Lemberg), but upon the suspension of hostilities he returned to his lifework of elevating urology to a full surgical specialty, and in 1919 was elected first president of the new Vienna Urological Society. He was equally at home in the major surgical interventions and the most subtle endovesical work, and leaves many former pupils who are now eminent urologists throughout the world.—*Wiener klinische Wochenschrift.*

Female Circumcision Among the Nubians.—Frohlich contributes an article on this subject in the *Schweizerische medizinische Wochenschrift* for August 25, 1921, li, 34. He begins with a résumé of the writings of others and passes to the results of his own nine years' observations as a medical missionary in Upper Egypt and Nubia. He believes that he has acquired a much more intimate knowledge of the Nubian than has any European predecessor. Naturally it is not enough to observe from the outside, for one must have gained the full confidence of the natives. He writes principally of the operation of circumcision and infibulation in females, basing his account on the results of examining many girls and women. He states that as a religious rite of the Mohammedan religion practically every female child is subjected at the age of 4 or 5 to complete circumcision—total ablation of the external genitals. The child is held tightly by several women during this ordeal, as she lies crosswise on the bed with lower limbs abducted. The village barber or midwife officiates, and with two powerful sweeps of the razor the majora, minora, clitoris, and at times the tip of the urethra are slashed off, leaving a wedge-shaped loss of substance. Hemorrhage is severe and at times fatal. Ashes are applied to the defect, or of late years iodoform. A goosequill or wooden tube is then inserted in the lower angle of the wound and the latter is closed with an ordinary sewing needle of large size and thread, while the lower extremities are bound together. Forty days are allowed for healing, the urine finding its way into the drain. The bandages are then removed and the child resumes active life. At the end of 10 or 12 days she is allowed to get about as well as she can with bandaged limbs.

After this operation the vulva is seen to be occupied by an ugly scar with an orifice large enough to admit the little finger. This is the introitus vulvæ. Of the meatus urethræ nothing may be visible. A photograph is given of a 12-year-old girl but it is on too small a scale to be illustrative. This patient had bilharziasis of the rectum, which enabled the author to study the vulva. The girls are usually married off at the age period 12-14. The defloration following marriage is one of the most cruel tortures devised by man. Six powerful women hold the bride if she is strong, three or four may suffice if weak. The husband, coached by the midwife, begins by introducing the index finger anointed with beef tallow. Gradually the other index is inserted alongside of the first. The groom perspires from his exertions as the bride bleeds, sometimes to death. Rupture of the perineum in the second or third degree is common. The bride screams in agony and may be in collapse from pain, with the bed soaked in blood. The women who officiate give a sort of dance of jubilation after the success of the operation. Coitus is not attempted until after 4 to 7 days. There is no privacy even here. Women crowd into the bridal chamber and perch on top of the walls. Those not officially present are chased away, and the groom shies brickbats at the peeping heads. The women, despite the mutilation, show the same sexual craving and pleasure as the intact black female.

The rationale of total circumcision goes back to antiquity, and no one can fully explain it. In all probability it is the same as for circumcising boys —to preserve against the consequences of irritation and inflammation which in turn are the natural consequences of habitual uncleanliness. Women who escape this ordeal are unmercifully mocked and scoffed at. If the child die of the operation it means some special privileges in the Mohammedan heaven.

In Honor of General Gorgas.—In the Cuban official sanitary periodical *Sanidad y Beneficencia* for April-June, 1921, xxv, 4-6, is an account by Dr. Lopez del Valle of the honors paid by Cuba to the late General Gorgas. This homage took the form of changing the name of Virtudes Street in Havana, one of the principal and most popular thoroughfares of the Cuban metropolis, to Gorgas Street—*Calle General Gorgas.* The formal ceremony took place last March and consisted of publicly replacing the former street signs with new plates which announced the change of name. The substitution was really made in advance in private and then veiled so that the public ceremony consisted in unveiling the new name plates. This was done on a Sunday morning in the presence of the local authorities and diplomatic corps. An oration was then delivered by Dr. Lopez del Valle, the executive health officer of the city and an old personal friend of Gorgas, whose successor he became.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 17.
Whole No. 2659.

NEW YORK, OCTOBER 22, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

SHOCK AND FATIGUE WITH ACUTE AND CHRONIC (CYTOST-ANTICYTOST) REACTION.*

BY FENTON B. TURCK, M.D.,

NEW YORK.

THE topic with which we are dealing in this paper is largely of a biological character. Although the deduction derived from experimental work and certain hypotheses is applied to theoretical and practical medicine it is easily understood that any fundamental changes in the theory and practice of medicine require work which refers back to action and reaction on single cell bodies (protozoa), because the higher animal life is in many regards only a multiplication of phenomena exhibited in the monad organisms. Practically all the changes produced by the substances to be described later are of a physicochemical character. Like most biological products the exact chemical nature of the causative agent is unknown, but this does not curtail the very plain biological effects which one can determine even quantitatively in a manner so ofter used in toxin and antitoxin work.

The work on shock and fatigue phenomena, and on acute and chronic conditions caused by certain biological products originating from tissue breakdown and autolysis, dates back twenty-five years (1896), and certain fundamental experiments leading to the hypotheses mentioned later on were made a few years prior to this date. Although a large number of publications on various clinical and experimental items referring to various branches of medicine were published in the course of years, it is, nevertheless, plain that the entire series of observations show a logical course and a continuous upbuilding on a basis which underlies most phenomena of acute and chronic injury to the animal body. British and French writers have taken exception to the theories explaining shock or fatigue as exhaustion symptoms of the central nervous system, but no clear-cut experimental and clinical evidence has been produced to show that these pathological changes are solely due to toxic effects caused by cell destruction and the liberation of a toxin. Besides, only reactions of an acute type were studied, while our work deals also with the chronic effects of cell destruction and with the stimulant character of the substance created by tissue breakdown through mechanical and chemical injuries and also through cell autolysis. As is to be expected most theories dealing with toxic action and reaction are principally based on protein action. We shall show however that this is a misunderstanding regarding the nature of the causative agents since we produced the entire variety of phenomena, excluding the proteins by incineration of the products derived from the injury. The dissolved water-soluble remnants show plainly that reaction can be measured not only by physical means, but seem to be of a physico-electrical nature. The toxic products require a specific but always uniform mode of preparation, their application, however, varies with the effect to be produced.

If the toxin is applied to the animal (or protozoal body) in very small doses and at long intervals of time it will produce stimulant effects which will be explained later in this paper, while large doses, introduced into the animal body once or several times at short intervals, would produce acute shock or death. The products derived from the broken-down cell body in cases of mechanical or chemical shock we denominated "shock toxin" or with reference to the symptoms produced "fatigue toxin" (in 1897). Various names have been applied to this substance (metabolites and others). Since the product is exclusively derived from the cells *i.e.* from protoplasm as well as from the nucleus, I have named it "cytost" and the antagonistic agent produced by immunization with cytost I called "anticytost" (*cytos*, cell). It is not feasible to include all references and the various studies on this subject at every part of the following discussion on the matter so we have to refer to the literature which is added to this article.

Goltz in 1857 advanced the theory that changes of a central nervous system caused the symptoms of shock, which on the other hand was accompanied by splanchic stasis and death. He referred largely to mechanical injuries producing shock, while later on, Crile in America vigorously championed this theory since his Cartwright Lectures in 1898 up to the present time. All experimental work and the tragic clinical lesson of the war had proven that the theories of "nerve cell exhaustion" as the origin of shock are absolutely untenable. We must conclude with Kocher's (1916) statement that "the Crile theory of shock is an assumption based on insufficiently controlled experiments." (R. C. Kocher, "The effect of activity on the histological structure of Nerve Cells," *Jour. Compar. Neurology*, xxvi, 3, 1916.)

Our early research work on shock extending from 1893 to 1918 proved that no shock was produced except by the passage of the tissue toxin, or, as I called it in 1897, "shock toxin," to the splanchic zone which causes stasis in this area and death. The fundamental experiment which I have since

*Read before the Canadian Medical Association (Pathological Exhibit), Halifax, N. S., July, 1921.

repeated many times demonstrates this fact in a very simple way. If we make a flesh wound and extract the injured tissue product (cytost) by water or the above-mentioned incineration method and injected into a vessel of an animal of the same species, the animal dies within three seconds. Sections taken from the splanchic area of this animal show blood stasis in the splanchic zone with effusion into the surrounding tissue. The same effect with the production of the shock syndrome, as well as the pathological changes, we have found in animals which were injected with liberated tissue fluid caused by the injection of ether, chloroform, and alcohol. If, therefore, we injected animals intramuscularly with the afore-mentioned chemicals, the tissue extract from these muscles injected into animals of the same type produced typical shock symptoms. Alcohol seems to differ from ether and chloroform so far as the duration of action is concerned, since the removal of the latter two chemicals stopped the shock effect, while in the case of alcohol, the effect kept on for some time later. French and English writers have alluded to our work in various treatises on shock and toxemia, and I wish to mention only a few of their statements. G. Jeanneny of the University of Bordeaux who has particularly devoted himself to the subjects of the toxic products of cell necrosis has summarized his work as follows: "The Americans seemed to have surpassed us in this field. F. B. Turck of New York, who, since 1896, has devoted himself to the subject of the toxic products of cell necrosis (autolysis) and practices a prophylactic treatment of shock and even of numerous infections of a similar nature":—(Acad. de Méd., May 20, 1919).

The serum of horses immunized against the "autolysat" is antitoxic in shock as is proven by experimental and clinical facts. (Proc. Soc. d' Anatomie Clinique de Bordeaux, Feb. 9, 1920, also Mar. 8, 1920; *Gaz. Hebdomad. des Sciences, Méd. de Bordeaux,* 1920). We must conclude with Halliburton to quote direct (Halliburton, 1921, *Lancet* Mar. 26, 1921, "The Importance of the Infinitely Little") that it is inevitable to accept the view that shock is a condition of toxemia. The poison is produced by tissue breakdown. The blood becomes stagnant and is sidetracked in the capillaries." This is the conclusion of Prof. J. J. R. MacLeod of Toronto (MacLeod, Physiol. & Biochemistry in Modern Med. 3d edition, Page 310, 1920). After a review of all literature with clinical and experimental facts he states that "surgical shock is essentially due to intoxication by materials derived from damaged tissue. All clinical facts conform admirably with the experimental findings. The above conclusions are more or less confirmatory of those drawn several years ago by Turck (1897-1902) to whom credit is due for being the first to suggest the toxic element as the causative factor in shock."

Quenu wrote as follows: "Opinion is growing that shock is due to poison resulting from wounds rather than from nervous affection. As Turck has shown in a medical review on "The Primary Cause of Shock," the toxic albumins are formed very rapidly by auto digestion of traumatic tissue. This opinion of Turck coincides with our own opinion."

During the Napoleonic war Larry, a French surgeon, was the first one to recognize the importance of débridement as a means of reducing wound shock and this measure has greatly improved mortality statistics, but it was not until the recent world war that this procedure has found general recognition among the surgeons of the allied armies. Thanks to the wide use of débridement the mortality from shock dropped from 75 per cent. to 9 per cent. Although the extensive literature which I published on this subject since 1896 appeared in English, German, and French medical journals the toxic origin of shock was rediscovered by a number of authors. Cannon (*Jour. A. M. A.,* Mar. 2, 1918) stated "Primary wound shock, dusky pallor, rapid thready pulse, sweating, thirst and restlessness, may come on so soon after injury as to be accounted for only as the result of nervous action." The organization of the individual for example he states (a highstrung temperament) fear, and fatigue probably provide favorable conditions for the nervous response." Cannon later modified this idea and admitted that apparently victims of shock are poisoned which may, he added, "cause death by rapid action on the nervous system or other organs" (Soc. Biol, Paris, *J. A.M.A.,* Dec. 28, 1918, p. 2166).

The work of the writers on shock, however, must remain unsatisfactory so long as the actual toxin is not produced and no proof is given for these substances causing the typical symptoms. Our experiments which have been made repeatedly on numerous types of animals, prove conclusively that the product of the devitalized tissue (cytost) is toxic to animals of the same species. If the amount of cytost liberated through the injury is not sufficient to cause acute symptoms, a chronic type of shock or extreme fatigue and debility may follow. If we immunize animals with a certain amount of cytost (ash remnants of autolyzed or devitalized tissue) we are able to produce a serum which will counteract the effect of cytost. This substance we call anticytost. We titrate the anticytost by its capacity to balance the action of cytost. The strength of the latter is measured by its electrical conductivity. To express these terms in words generally used in biological pathology, it is an antigen-antibody reaction. The antigen is the cytost delivered by broken-down cells in which it was held in balance by anticytost and liberated through any sort of trauma (mechanical, chemical, or by ferments). The antibody is anticytost which cannot be liberated by the cell unless we stimulate it by the antigen. An excess of cytost in the animal body causes acute or chronic diseases according to the amount liberated and the disposition of the animal body. In certain cases, the slower action of cytost will produce senescence, and a summary of experiments on protozoa (*Paramecium*) might give an illustration of the action of cytost on these single cell organisms which was, in other experiments proved on multicelled animals (metazoa).

When cultures of protozoa, as *Paramecium,* grow luxuriantly and multiply too rapidly in a single colony, they begin to agglutinate into a compact body and finally die. The cause for this agglutination and death seemed to be due to the degradation products of the overcrowded cultures. This was proved by preparing the extract of dried paramecium (cytost) and adding this concentrated ex-

tract of paramecium cytost to the ordinary culture. All the paramecium cells died in a few hours. The control, by adding extract from other animal cells, was negative. Low concentrations of paramecium cytost added to cultures, stimulated activity and growth, but excessive accumulation of homologous cytost caused death of the colonies. On the addition of paramecium extract (cytost) in excess, to the fresh cultures of paramecium the protozoa, instead of darting from one end of the field to the other, begin to move in a circle more and more confined, and finally rotate on their own axis. They become more spherical in form, come to a standstill, and the whole colony dies. The addition of food does not prevent the order of events. Therefore this is not a starvation phenomenon nor do the protozoa die from diet deficiency or want of oxygen. This phenomenon was produced by the addition of cytost in excess and was made to occur early in the culture before it had assumed such prodigious growth to form a large colony. The same result was accomplished by adding physiological concentrations of cytost but at more frequent periods. This resulted in the agglutination, "spinning" of each individual protozoan, and finally spheroidicity, encystment, and death. This was not influenced by bacteria for protozoa depend on bacteria for digestion of food. What occurs in colonies of the protozoa takes place in tissue cultures of metazoa—chick or human culture. The condition which is produced in paramecium cultures which could properly be termed senescence is a symptom of "old age" and can be similarly demonstrated in metazoa. I shall give in the following lines certain examples taken out of the protocols comprising numerous experiments. They show stimulant effects on small doses of cytost given in long intervals, senescence and death upon rapid injections with large doses.

Three young normal kittens of the same litter were selected. Cat "A" was injected with physiological concentrations of cat cytost—once a week or one in ten days—the biological interval. It grew rapidly in size and weight and increased in metabolic activity over the control.

Cat "B" was injected with the same physiological concentration of cat cytost, but with this difference, the injections were repeated every other day or every day instead of once a week or ten days. Results: Progressive decline in weight and general metabolism, finally rapid senile changes and the young kitten became as an old decrepit animal and died of "old age" with arterial sclerosis, fibrosis of the kidney, liver, and lungs. There was also general atrophy, arthritis, and neuritis, although the animal was only seven months old. From this experiment, as well as from similar ones, the deduction is at hand that senescence is not a normal status, but depends on the accumulation of cytost. We have also shown that by experimental injection of anticytost the senescent effects might be prevented or delayed.

In making a brief survey of the condition caused by excess of cytost in the animal body, we find that they are grouped as follows: (1) Shock (mechanical, chemical); (2) Chronic disease (paralysis, neurotic and toxemic conditions, pneumonia, and arthritis); (3) Prenatal condition (hereditary debility, caused by toxic condition of the mother). Stimulating action by overproduction of anti-cytost, increased vitality, overgrowth in general.

As was explained before, anticytost in excess of the cytost present in the cells of the body can be created by cautious immunization with homologous cytost (cytost specific to species). The injurious action of cytost shows three degrees according to the quantity used, and the latter is determined by electrical measurements. In order to abbreviate expressions of quantity we proposed the following letters substituting amounts of toxin: L. C., Low concentration; M. C., Medium concentration; H. C., High concentration.

The anatomical findings in autopsy cases of acute or chronic conditions caused by excess of cytost show a rather uniform picture. The most significant changes are the dilatation of the blood vessels in the splanchic area with subsequent stasis, effusion into the adjoining tissue, extensive mitotic changes in these areas, and conglutination of the blood.

The application of cytost to the animal body (metazoa) can be made hypodermically, intravenously, or by insufflation into the respiratory tract. In the latter case cytost should be directly applied to the mucous membrance without injury of the mucosa in order to exclude any objections to this method which in case of an application to the submucous tissue would not deserve the name applied to this method.

According to the situation of cytost we distinguish: (1) Endogenous cytost. (2) Exogenous cytost.

Endogenous cytost is present within the cell body, exogenous cytost is extracellular, produced either by an irritant or by direct application to the animal body which liberates cytost.

The presence of an excess of endogenous cystost manifests itself in: Adolescence in the male: climacterium in the female; menstruation in the female.

Excess of endogenous cytost is also exhibited in toxemia of pregnancy which effects mother and fetus causing: (1) Prenatal death; (2) Death of the newborn; (3) Congenital diseases.

These afflictions are all due to a lowered resistance caused by a deficiency of anticytost.

General activity of endogenous cytost:

Over-activity—"Fatigue toxin," Under-activity—Production of metabolites, "waste products."

Local activity which also produces changes due to over-activity and under-activity.

Exogenous cytost can effect the animal body by direct contact with other individuals since epithelial "dust" as well as all excreta and secreta contain liberated cytost.

The hands, clothes, and utensils which come in contact with human bodies may contain free cytost, also vitiated air produced by expiration which is particularly noticeable in cage experiments made in animals. The same source of liberated cytost is noticeable in cantonments, barracks, and other closed localities.

Contact with human cytost is also responsible for the spreading of the influenza and of pneumonia.

Shock is produced together with the liberation of cytost in: Physical trauma; high air pressure mechanical trauma.

It is assumed that caisson disease and pneumonia are due to rapid production of cytost.

Liberation of cytost by perturbed alimentation: Total starvation—toxemia with cell autolysis;

Partial starvation—deficiencies of the diet, particularly lack of vitamines, salts, and caloric values in general; Excess pabulum interrupts digestion, absorption, and assimilation which is potentially partial starvation. The waste products are not burned up by the anticytost in the body.

Conclusions.—Injuries to the animal cell body, in protozoa as well as in metasoa, liberate a substance which we call cytost. This substance is specific to the species and therefore shows its activity only in homologous cells or cell complexes.

This substance can be set free from the cells in which it is normally balanced by a counteracting substance named anticytost. The experimental production of cytost can be caused by mechanical or chemical means.

The phenomena created by cytost are of a physicochemical character. The quantity is determined by physical (electrical) means only. Protein activity is excluded because the cell product is incinerated in order to produce the dry substance containing cytost.

Cytost is a biological product, since immunization with this substance produces anti-cytost which is then present in the serum of the animal. It is therefore strictly an antigen-antibody reaction which produces symptoms of a definite nature.

The pathological changes caused by excess of cytost in the animal or protozoan body are of a toxic nature and the phenomena produced show no injury to the central nervous system which could be accused of being the origin of the pathological change.

The principles advanced in this article explain: (1) Acute pathological conditions—shock, eclampsia, gravidarium, toxemia of pregnancy; (2) Chronic diseases, as arthritis, neuritis, metabolic disease, chronic toxicity, ulcers of the stomach, hereditary afflictions caused by toxic conditions of the mother; (3) "Infectious diseases," pneumonia, influenza; (4) Symptoms of total or partial starvation through over- or under-activity of cytost, constitutional diseases, rickets, and general debility.

Summary.—1. The typical experiments here described are a part of the experimental and clinical research work of the last twenty-five years which are embodied in the system of biological pathology. The appended literature contains the matter indicated by titles on the various topics.

2. The principles of this work have been generally adopted by other writers. Although not always accompanied by the experimental evidence.

3. Cytost is the final court of appeals for the determination of cell division and metabolism of time and order, of growth and decay, of rejuvenescence and senescence, and correlations of widely separated phenomena in the change of the biological system. This is the basis on which rests Dynamical Biology. The experimental data on cytost-anticytost reactions with résumé of previous experiments, may be more completely followed by reference to the writer's recent article in the MEDICAL RECORD, July 2, 1921.

AUTHOR'S LITERATURE.

"The Biological Cause of Metabolism and Metabolic Diseases," MEDICAL RECORD, July 2, 1921, pp. 1-7.

"The Dietetics of Atonic Dilatation of the Stomach," Symposium, Chicago Med. Soc., January 20, 1904.

"The Primary Cause of Shock—Additional Experiments Induced by the War," MEDICAL RECORD, June 1, 1918.

"The Etiology of Pneumonia and Its Serum Treatment," MEDICAL RECORD, May 3, 1919.

"Wound and Shell Shock and Their Care," *New York Medical Journal*, November 23, 1918.

"The Rôle of Cell Necrosis and Bacterial Invasion in Surgery," MEDICAL RECORD, March 22, 1919.

"Surgical Shock," *Journal A. M. A*, 1897, p. 1160.

"The Care of Patients During Surgical Operations with Some Methods of Preventing Shock and Infection," Int. Med. Cong., Paris, 1900, MEDICAL RECORD, August 11, 1900.

"Shock Produced in General Anesthesia," *Jour. A. M. A.*, May 2, 1903.

"Eine Neue Methode der Diagnose und Therapie gewisser Magenkrankeiten und bakterlologische Studien bei denselben," *Wiener med. Wochenschrift*, Nos. 1 and 2, 1895.

"Improved Methods of Details in the Care of Patients During Surgical Operations," *Chicago Medical Recorder*, 1903, xxv, pp. 222-227.

"A Study of Fatigue in Gastric Muscle," *Med. Standard*, December, 1903.

"The Diagnosis and Treatment of Diseases of the Duodenum by Direct Method," *Jour. A. M. A*, 1898, xxxi, pp. 223-225.

"Intestinal Venous Stasis," *Boston Med. and Surgical Jour.*, May 10, 1917, vol. clxxvi, No. 19, pp. 663-669.

Proc. Chicago Path. Soc., 1908, *Ill. State Med Jour.*, xiii, No. 6, 908, pp. 631-634 and 684.

"Experiments and Clinical Observations of Erosions of the Stomach," *Fort Wayne Med. Jour. Mag.*, January, 1897.

"Experimental Study of the Splanchnic Circulation and Its Relation to the Stomach and Intestines," Trans. Amer. Gastroenterological Assn., May, 1900; *Amer. Therapist*, 1900.

"A study of Fatigue in Gastric Muscle," Trans. Amer. Gastroenterological Assn., Washington, May, 1903; *Medical Standard*, Chicago, December, 1903, p. 627.

"New Double Tube with Stomach Bag; Methods of Internal Treatment with Hot Water Bag Introduced Into Stomach, Use of Same with Cold Water and Electric Light (High Candle Power), *Jour. A. M. A.*, January 11, 1898.

"Alimentary Dilatation, with Special Regard to Dilatation and Atony; Experimental Data; Tissue Changes Involved," Medical and Surgical Faculty of Maryland, December, 1916, No. 6.

"The Effect of the Injection of Gastric Contents Into Animals; Effects Shown in Periportal Circulation; Comparisons Made with Diphtheria Toxins," Trans. Chicago Path. Soc., 1903, pp. 263-264.

"Ulcer of the Stomach, Pathogenesis and Pathology. Experiments in Producing Artificial Gastric Ulcer, and Genuine Induced Peptic Ulcer," Trans. Inter. Med. Cong., Lisbon, 1906, Sec. 5, 2me Fasc. 428, p. 461; *Zeit. f. exp. Path. u. Therap*, Ed. 7, 1910; *International Clinics*, vol. II, Series 21.

"Etiology and Pathology of Gastric and Duodenal Round Ulcer," Sec. 3, Internat. Med. Cong., 1909.

Proceedings Chicago Academy of Medicine, *Med. Recorder*, xxv, 1903, p. 222.

"Effect on Longevity of High Living," *Medical Exam. and Pract.*, August, 1907, pp. 240—246; Trans. Oregon State Med. Assn., July, 1907; *North Am. Pract.*, May, 1893, pp. 227-230; Trans. Tenn. State Med. Assn., Nashville, Tenn., 1905, p. 150.

"Experimental Gastritis," *N. Y. Med. Jour.*, October 25, 1902.

"Toxins of the Stomach," *N. Y. Med. Jour.*, February 22, 1896.

"Immediate and Remote Causes of Death in Operations on the Stomach. Treatment Before, During, and After Operations," *Chicago Medical Recorder*, May. 1902, pp. 450-451.

14 EAST FIFTY-THIRD STREET.

Bismuth as an Antisyphilitic.—Sazerac and Levaditi made use of the tartro-bismuthate of sodium and potassium in very recent syphilis and saw the treponemas disappear in a few days with recession of adenopathy. The Wassermann became negative and remained so. Bismuth, like mercury, can cause stomatitis.—*La Presse Médicale.*

OBSERVATIONS REGARDING THE SURGICAL TREATMENT OF SELECTED CASES OF PURULENT MENINGITIS.

By WILLIAM SHARPE.
NEW YORK.

THE field of neurologic surgery is constantly being enlarged as a result of the earlier and more accurate diagnosis of intracranial conditions, thus permitting a more favorable prognosis than is possible when the operation is postponed and then finally advised as a "last resort"—"the patient is going to die without an operation and possibly an operation will give him a chance." It has been this delay of weeks and even months in conditions of brain tumor, and of hours and even days in conditions of intracranial infections, such as brain abscess and purulent meningitis secondary to a cranial infection, that has permitted these patients to become not only permanently impaired mentally and physically in the event of recovery of life, but to reach a moribund condition where it is most unusual for a recovery of life to be obtained—whatever the treatment; to advise a cranial operation at this late stage merely tends to discredit neurologic surgery, on account not only of the resulting high mortality, but of the slight improvement possible in intracranial conditions which have been permitted to continue to a degree that the patients have in reality become derelicts. These latter conditions are chiefly those of brain tumor with its frequently associated blindness, and of brain injuries, particularly intracranial hemorrhage of the new-born in whom the resulting increase of the intracranial pressure, if not relieved, prevents a normal mental and physical development, even to a degree that a large percentage of these children become imbeciles. It is, however, in the acute conditions of purulent meningitis and especially those secondary to a cranial infection, such as mastoid and sinus disease and infected fracture of the vault and of the base of the skull, that it is obligatory for the appropriate treatment to be instituted at the earliest possible moment. This paper will be limited to the surgical treatment of selected cases of purulent meningitis secondary to a cranial source of infection, and is the result of observations in a series of 31 patients.

Let it be definitely stated for fear of any misunderstanding, that patients who have developed a diffuse and general purulent meningitis from a cranial focus of infection are, in my opinion, beyond the surgical relief of drainage and it is only in the rarest of cases that a recovery of life is possible, operation or no operation. To advise a cranial operation to remove the primary infective focus in the mastoid, accessory sinus, et cetera, or to drain the purulent cerebrospinal fluid in the hope that the patient may then "take care of" the infective process at this late date and after the condition has become one of diffuse meningitis and involving both the brain but also the spinal cord, not only gives the patient no real chance to recover, but even lessens his resistance to the infection and thus hastens the exitus. No doubt, case-histories have been reported in which the exceptional patient has recovered with life even after the development of a diffuse purulent meningitis, with and without operation, but they are most rare and particularly when it is remembered that the differential diagnosis of a profuse purulent meningitis has been accurately determined only within the past few years; that is, conditions of meningeal irritation, meningismus, and localized meningitis have frequently been confused with the true condition of diffuse purulent meningitis merely because the cerebrospinal fluid at lumbar puncture was turbid and cloudy from an increased number of cells, together with the clinical signs of stiffness of the neck and a positive Kernig test. Unless the pathogenic bacteria of the cranial infection are found in the cerebrospinal fluid at lumbar puncture, then the diagnosis of a diffuse purulent meningitis cannot be made—no matter how turbid with cells the cerebrospinal fluid may be, nor how rigid the neck, nor how positive the Kernig test. These latter signs indicate a meningeal irritation of varying degree, but if no bacteria are present in the cerebrospinal fluid at lumbar puncture, then the infective process can still be considered as a localized one, and it is these patients who can be offered a definite chance of recovery by means of a nearly cranial decompression and drainage of the purulent exudate. To permit patients, however, to enter this critical condition of meningeal involvement without the most careful examinations, and particularly the use of repeated lumbar punctures, in order to ascertain as early as possible the actual intracranial condition—this attitude of apparent helplessness is most probably due to the current belief that if a purulent meningitis does develop, there is no means of preventing it from becoming a diffuse process and therefore a fatal one, and that the treatment is purely of an expectant palliative character. If the condition is one of diffuse purulent meningitis due to the extension of a cranial infection, then this attitude is only too true, but the patient should not be considered as being beyond help unless the cerebrospinal fluid at lumbar puncture discloses bacteria. It is this differentiation of patients that I wish to discuss in this paper.

In the civil industrial life of peace-times, the most frequent cranial focus of infection producing by its extension intracranially a diffuse purulent meningitis is, first, in the mastoid, and, secondly, in the accessory nasal sinnses; compound fractures of the vault and of the base of the skull occasionally permit the entrance subdurally of pothogenic bacteria with a resulting purulent meningitis, but these latter cases are rare compared with the great frequency of purulent meningitis following mastoid and sinus disease. In the operative treatment of the local condition, and in the absence of any intra cranial complication, it is naturally essential to remove the local infective process and to establish free drainage externally, and in the vast majority of these patients, this local treatment suffices to obtain an excellent recovery. It is only, however, when the patient "does not seem to be doing so well as he should," and especially in the presence of severe headache and a quickly rising temperature, that the most careful examinations should be made. If examinations of the local operative area are negative and there is no cellulitis of the adjacent tissues, the greatest care must be used to expose the underlying dura and thus eliminate the possibility of an

extradural abscess being present. If these local examinations are all negative and no other systemic conditions can be found to account for the rising temperature, headache, malaise, etc., then the probability that the infective process has extended intradurally must be considered. Now is the time, at this early date, that a lumbar puncture should be performed—not for the purpose of removing a large quantity of cerebrospinal fluid, but merely to obtain a small amount (not over 2 c.c.) so that the pressure may be noted and the cell count made, and thus disclosing the meningeal involvement, if present. To postpone the examination of the cerebrospinal fluid until the neck becomes rigid and a positive Kernig test is obtained, and the ophthalmoscope discloses an edematous blurring of the optic discs from a marginal edema to a measurable papilledema and even to a degree above 2 diopters ("choked disks"), and the temperature reaches a height of 104° plus—all the signs of a serious meningeal infection—cannot be condemned too strongly; to wait until the diagnosis of "meningitis" can be certified by the above clinical signs is permitting the patient to reach a most dangerous condition, from which only a small percentage recover, even with operation and only those in whom the cerebrospinal fluid at lumbar puncture is still free from bacteria.

Naturally, a negative report of a stained specimen of centrifugal cerebrospinal fluid is not so reliable and accurate as a negative culture, and yet if a delay of 24 to 48 hours is permitted for the report of the culture, it is frequently too late to advise an operative drainage, because the cerebrospinal fluid at lumbar puncture has become positive during this waiting period of hours. Once bacteria are found in the cerebrospinal fluid at lumbar puncture, then the treatment matters little, as these patients, with the rarest exceptions, all die. If bacteria should be found in the cerebrospinal fluid at lumbar puncture, then no operative drainage is indicated, and any operation, cranial or spinal, merely tends to discredit neurologic surgery.

The test of lumbar puncture, as now performed, no longer entails a greater risk than that necessary to obtain blood from the arm; naturally, absolute asepsis is obligatory and the quantity of cerebrospinal fluid to be removed should not exceed 2 c.c.—an amount sufficient for all of the tests, including that of the Wassermann reaction. In this manner, the danger of precipitating a medullary (bulbar) compression in patients having a high intracranial pressure or of facilitating the extension of the cranial meningeal infection into the spinal canal by the removal of a large quantity of the spinal cerebrospinal fluid, is thereby avoided. A lumbar puncture properly performed is not only without risk, but under local anesthesia, it is usually without severe pain, and therefore the former objections to its extensive use are no longer valid. In these most serious conditions of possible meningitis, with its high mortality, the slight risk and possible momentary pain and discomfort from the lumbar punctures cannot be offered as rational objections to the early use of this most important test. The importance of the early diagnostic use of lumbar punctures is true not only of meningeal infections but also of suspected intracranial hemorrhage in new-born babies following difficult labor and in those patients having severe cranial injuries with or without a fracture of the skull. If a lumbar puncture reveals bloody cerebrospinal fluid under only a moderately increased pressure—not over 16 mm. as measured by the spinal mercurial manometer, then the repeated lumbar punctures of spinal drainage will frequently be a sufficient aid to the natural means of absorption under the expectant palliative treatment to permit an excellent recovery, both of life and of future normality. No cranial operation of decompression and drainage will be necessary unless the pressure is above 20 mm., and the operative method is then always the safer procedure. In a series of over 1,000 patients, the expectant palliative treatment was thus indicated and eminently satisfactory in two-thirds of the patients, and in only the remaining one-third was a cranial decompression and drainage found necessary.

In the operative treatment of patients having these acute conditions of localized purulent meningitis in whom the cerebrospinal fluid at lumbar puncture is free from bacteria, although it may be turbid from an increased number of cells due to the meningeal irritation, it is most essential that free drainage be afforded. Not only does the vertical subtemporal incision permit a more profuse discharge of the purulent exudate and of the infected cerebrospinal fluid, but this incision is through a clean aseptic area of the skull, and if no purulent exudate of a localized meningitis is found, there is little danger that a purulent meningitis will result from the exploratory opening into the subdural spaces. If, however, the dura is opened through the "dirty" infected field of the mastoid or of the nasal sinuses, even if no purulent meningitis is found, the operation in itself will most probably permit the extension intradurally of the infected process—with the greatest risk to the patient. Besides, if the infective process has extended into the subdural spaces slowly, as it usually does in the course of mastoid and nasal sinus disease, then there is frequently sufficient tissue reaction to permit the surrounding meningitis to "wall off" the infective process and therefore, if an attempt is made to drain the subdural spaces through the infected mastoid or nasal sinuses, the amount of drainage is very much lessened and at times practically nil. If, however, the dura has been torn at the time of the injury or of the preceding operative procedure, then the infective meningeal symptoms will be of a fulminating character and the entire clinical syndrome will be presented within two to four days on account of the absence of this natural barrier of tissue reaction. In these cases, efficient drainage of the purulent exudate may be obtained through the mastoid or nasal sinuses, but there will still be the risk of opening the dura through these infected areas and of not finding a subdural infective process—which would later develop as the result of the operation. In view of these considerations, it is always better surgical judgment in conditions of localized meningitis presenting the signs of becoming diffuse, to drain the subdural spaces through the "clean" subtemporal incision rather than to attempt drainage through the infected mastoid or nasal sinuses; if

a purulent meningitis is revealed by the subtemporal incision, then combined drainage may safely be obtained through both the decompression and the mastoid or nasal sinuses; besides, the possibility of a latent brain abscess in the adjacent temporosphenoidal and frontal lobe can also be excluded through the subtemporal incision, either by exploratory subcortical punctures in the absence of a purulent supracortical exudate associated with a tense protruding cortex, or merely by observing that the brain recedes and pulsates normally following the escape of the cerebrospinal fluid, and in these latter cases it is very improbable that an adjacent cerebral abscess is present.

The following case-histories are reported in outline and very briefly—merely to indicate the character of the intracranial infection and the operative treatment instituted:

CASE I.—Acute purulent meningitis following mastoidectomy. Subtemporal decompression and drainage. Excellent recovery. No. 14—Hillman. 13 years. White. School. U. S. Admitted—September 26, 1015, Polyclinic Hospital. Referred by Doctors Keller and Zeiner. Operation—September 26, 1915. Right subtemporal decompression and drainage. Discharged—November 13, 1915, 46 days after operation.

Family history, negative. Past history: Three weeks ago, after a period of swimming daily in a lake at a Y. M. C. A. camp, patient complained of severe pain in the right ear; pain gradually became worse until two weeks ago, when a profuse purulent discharge from the right ear gave immediate relief. The purulent discharge continued for several days, the mother irrigating the right auditory canal and inserting cotton to prevent the continuous discharge.

Eight days ago, the patient again complained of severe pain not only in the right ear but over the right mastoid area; an examination revealed localized tenderness and a boggy edema over this area; the temperature was 101.8° and the blood count of 12,000 white cells contained 82 per cent. polynuclears. An immediate right mastoidectomy was performed; no extensive involvement of the cells ascertained and a radical operation was not considered advisable. Condition of the patient did not improve markedly following the operation—the temperature remained above 101°, the amount of purulent discharge was slight, and on the fourth day post-operative (4 days ago), the temperature ascended to 103.2° pulse 90, respiration 28, and the patient complained of excruciating headache; extreme restlessness.

Present illness: Three days ago, at two o'clock in the morning, patient suddenly had a convulsive seizure beginning on the left side of the face and then involving the left arm and the left leg and finally the entire body in a typical epileptiform attack. A second similar convulsion occurred within thirty minutes to be followed by a third one in about twenty minutes. These epileptiform spells continued at intervals of only minutes for eight hours, when they ceased for several hours only to return, but less frequently. During the past two days the spells have continued at varying intervals and the patient has become much weaker and mildly delirious.

Examination upon admission, 8 days after mastoidectomy. T. 105°, P. 94, R. 30. Rather stuporous and drowsy. Definite rigidity of the neck almost to a degree of slight opisthotonos. Positive bilateral Kernig test. Pupils: right slightly smaller than left; otherwise negative. Reflexes: patellar very active, but apparently equal; tendency to left Babinski, but very inconstant; abdominal both depressed, left more than right. Fundi-retinal veins enlarged but no edematous obscuration of either optic disk. Lumbar puncture: not over 2 c.c. of turbid and cloudy cerebospinal fluid removed under a definitely increased pressure; bacteriologic report (Doctor Jeffries)—"large number of cells (over 160 per c.mm.), but no bacteria observed in the stained specimen." The culture was later reported to be negative. *Treatment.* The absence of bacteria in the cerebrospinal fluid at lumbar puncture made possible the diagnosis of a localized meningitis or at least a severe meningeal irritation and meningismus, and therefore an immediate subtemporal decompression and drainage was advised and performed. The localizing Jacksonian character of the convulsions was very significant—three spells occurring while the patient was being prepared for the operation. *Operation,* 8 days after mastoidectomy. Right subtemporal decompression and drainage; usual vertical incision, bone removed and no complications. Dura was under definite tension and upon incising it, cloudy cerebrospinal fluid spurted to a height of almost 2 inches. The dural opening was enlarged, exposing a "wet" edematous cortex and in the sulci about the supracortical vessels was a purulent exudate in the arachnoid spaces. A stained specimen and a culture of the exudate were later reported "streptococci." From the lower angle of the incision and apparently coming from the middle fossa beneath the right temporosphenoidal lobe were extruded several drops of frank pus (streptococci). The cerebral cortex protruded, but the rapid escape of cerebrospinal fluid quickly permitted normal pulsation to occur. Two drains of rubber tissue were inserted beneath the dura at the upper and lower angles of the incision. Usual closure with catgut. Duration, 40 minutes. The mastoid dressing was later removed by Doctor Keller and the area was carefully inspected for a purulent extradural focus but with negative results; the usual mastoid dressing was reapplied. *Post operative notes.* Within four hours the temperature dropped 2.5 degrees, the general condition of the patient improved, and 12 hours later the restless delirium had disappeared together with a lessening of the rigidity of the neck. Only three slight convulsive seizures occurred after the operation and within the first 24 hours, but none since. Profuse purulent discharge from the lower angle of the decompression incision continued for 48 hours, when it gradually lessened to a discharge of not more than one drahm for over one month—the temperature remaining around 100° and the respiration 86. The drains were finally removed on the 33rd day post-operative and the incision healed completely. The mastoid area granulated without complication so that the patient was discharged from the hospital on the 46th day post-operative; the decompression area was slightly depressed and the only impairment to be elicited by the tests was an impairment of hearing of the right ear. The patient made an uneventful recovery of his former normal health; no convulsions and no mental, emotional, or physical sequelæ with the exception of the deafness of the right ear resulting from the otitic infection. Last examination, April 27, 1921, 5½ years after operation. No complaints except the right auditory impairment. Patient has become a strong, husky youth of 19 years, a member of the state militia and is studying engineering. Not a single convulsion since the day of the drainage operation in 1915. Pupils, negative. Reflexes negative. Fundi, negative. No mental or physical impairment other than the deafness of the right ear.

Remarks.—The period of time elapsing since the occurrence of the acute purulent meningitis makes the danger of brain abscess formation most remote in this patient, and I am of the opinion that this patient can be considered as "cured."

If the operation of subtemporal drainage in this patient had been delayed until bacteria were found in the cerebrospinal fluid at lumbar puncture, then the positive diagnosis of a diffuse purulent cerebrospinal meningitis would havs been possible and naturally the patient would have been considered beyond all hope and any drainage operation entirely futile. But as in this case, although the cerebrospinal fluid was turbid and cloudy and the clinical signs of rigidity of the neck, bilateral Kernig, and high temperature formed a syndrome frequently indicative of a diffuse cerebrospinal meningitis, the absence of demonstrable bacteria in the cerebrospinal fluid at lumbar puncture permitted the condition to be considered as one of localized meningitis

with the signs of diffuse meningeal irritation, and therefore the operation of subtemporal decompression and drainage was immediately indicated. In these cases, to wait until bacteria present themselves in the cerebrospinal fluid at lumbar puncture, merely makes possible a high mortality and any surgical procedure at this late date becomes discredited and properly so, being similar to cranial operations performed upon patients having brain injuries with high intracranial pressure after the stage of medullary (bulbar) edema has developed. These patients all die, operation or no operation; these terminal conditions fortunately can usually be anticipated in the treatment and thus the patient be afforded a chance of recovery.

Even should the patient recover with life following an acute diffuse purulent cerebrospinal meningitis—and it rarely occurs—then it is very doubtful that the recovery of the former normality is possible owing to the great probability of a permanent destruction of some of the cellular nerve structures. From this standpoint alone, therefore, it is imperative that the infective process be rationally treated and drained early before the localized condition becomes one of diffuse character and practically hopeless.

Just as the attempt of operative drainage of suspected brain abscess is always an exploratory procedure, the dural opening for the drainage of a suspected purulent meningitis should be through the "clean" subtemporal area and not through the "dirty" infected field of the mastoid, sinus, or compound fracture of the skull; for if the purulent process is not present or at least is not located, then there is little or no danger of introducing subdurally infective organisms and thus producing a purulent meningitis or abscess formation—as would most probably occur following an attempted drainage through the infected mastoid, sinus, or fracture area.

The ipsolateral constriction of the right pupil was indicative of an irritative lesion of the right cerebral cortex and together with the depressed left abdominal reflexes, the inconstant left Babinski and the convulsive seizures beginning on the left side—these clinical signs facilitated the intracranial localization.

It is important not to remove more than 1 or 2 c.c. of cerebrospinal fluid at lumbar puncture in these patients, as a more profuse spinal drainage might hasten the extension intraspinally of the infection into a diffuse process. One c.c. of cerebrospinal fluid is sufficient for all of the bacteriologic tests and if an estimate of the pressure is also desired, as in conditions of suspected intracranial tumor, hemorrhage, or hydrocephalus, then the spinal manometer may be safely used, and not even 1 c.c. of the cerebrospinal fluid be permitted to escape. Lumbar puncture, when properly performed, is without risk to the patient.

CASE II.—Acute purulent meningitis (streptococci) following mastoidectomy. Subtemporal decompression and drainage. Excellent recovery. No. 31.—John. 48 years. White. Married. Merchant. U. S. Admitted—November 5, 1920. Nilsen Sanitarium. Referred by Doctors Jarecky and Kellogg. Operation—December 1, 1920. Right subtemporal decompression and drainage. Discharged—December 20, 1920, 19 days after operation.

Family history, negative. Past history, negative.

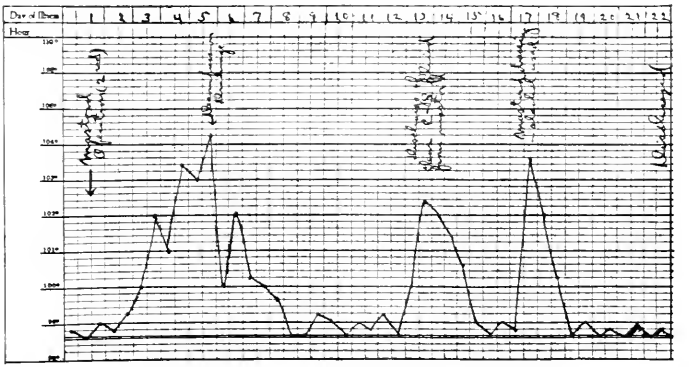
Present illness. During the first week of September, 1920 (almost three months before the present admission to the hospital), patient complained of severe pain over the right parietal area and in the right ear. A brief summary of the case-history follows: September 7, 1920—Incision of right tympnic membrane. Pus escaped. October 22, 1920—Opening in right tympanic membrane enlarged for drainage. November 6, 1920—First mastoid operation; extensive bony necrosis; pus. November 27, 1920—Second mastoid operation; small area of dura exposed. Upon the day following this operation, the temperature began to ascend from 99° to 102°, and on the third day the temperature reached 104.2°. A lumbar puncture at three P. M. revealed turbid cerebrospinal fluid, but no bacteria were found in the stained specimens. Consultation with Doctors Jarecky, Stephens, and Kellogg on November 30, 1920, at 8 P. M. T. 104.2°, P. 100, R. 22. Conscious; very restless and with anxious facies; complains of severe pain over right parietal area. Definite rigidity of the neck; positive bilateral Kernig test. Pupils—equal and react to light normally; no nystagmus. No ocular paralyses. Left lower facial muscles possibly weaker than right; left corner of mouth droops and left labio-nasal fold is less marked. No paralyses nor sensory impairments of the extremities ascertained. Reflexes: patellar, active but equal; no Babinski nor ankle clonus; abdominal reflexes, diminished, especially the left. Fundi, retinal veins slightly enlarged but no edematous obscuration of either optic disk. Lumbar puncture: 2 c.c. of cloudy and turbid cerebrospinal fluid carefully removed; cell count, 200 cells per c.mm., but no bacteria observed in the stained specimens; cultures made. Mastoid dressing changed and no local complication ascertained.

Treatment: The diagnosis of meningeal irritation could at least be made with a most probable localized meningitis as being the underlying cause following the right mastoid infection. The danger of the localized meningitis becoming a diffuse one was so imminent that a delay of even hours would be a most serious mistake of judgment, so that an immediate right subtemporal decompression and drainage was advised in the hope that efficient drainage being afforded to the localized meningitis would prevent its extension into a diffuse process. *Operation,* December 1, 1920 (2 A. M.). Right subtemporal decompression and drainage: usual vertical incision, bone removed, and no complications. Dura tense; upon excising it, turbid cerebrospinal fluid freely escaped, exposing a swollen edematous cortex; in the sulci about the supracortical veins was a purulent exudate extending upward over the right temporosphenoidal lobe of the mastoid area and beyond the Sylvian fissure. Cultures were later reported "streptococci." A large quantity of cloudy cerebrospinal fluid escaped, permitting the bulging cortex to recede and to pulsate normally at the end of the operation. No exploratory punctures, in search of a possible brain abscess, were made. Usual closure with two drains of rubber tissue inserted within the dura and beneath the temporosphenoidal lobe at the base. Duration, 45 minutes. The mastoid area was now thoroughly examined by Doctor Jarecky in search of a purulent focus for the meningeal involvement, but no complication was ascertained.

Postoperative notes. Within six hours, the temperature had fallen four degrees to 99.2°, the pulse to 90, and the respiration to 20; twelve hours later, the temperature had risen to 102.4°, but the pulse did not exceed 92; the rigidity of the neck could not be elicited at this time and the Kernig tests were negative. A dressing of the subtemporal drainage incision now revealed a profuse purulent discharge ("streptococci") and this free escape of the purulent exudate continued for two days when it gradually lessened as the temperature fell, so that on the third day after the operation the temperature reached the normal of 98.6 (Vide clinical chart). The decompression incision closed on the fifth day and all sutures were removed on the seventh day post-operative. The hospital residence of nineteen days was uneventful with the exception that on the ninth day, the temperature rose to 102.4° associated with a slight discharge of clear cerebrospinal fluid through the exposed dura of the mastoid area; twelve hours after another mastoid dressing, however,

the temperature fell to 101.2°. On the following day, the temperature again became normal and remained so until the thirteenth day, when a second sudden rise temperature followed a mastoid dressing in which alcohol was used to cleanse the granulating tissues. At the dressing, several drops of clear cerebrospinal fluid could be observed trickling from the apex of the mastoid area; there was an associated stiffness of the neck and a questionable positive Kernig test. The temperature, however, quickly fell within twenty-four hours to 100° and became normal upon the following day. At discharge from the hospital on the nineteenth day after operation, the patient was in excellent condition and the mastoid area was being filled with healthy granulating tissues. The decompression incision was entirely healed and the operative area was slightly depressed; normal pulsation. Neurologic examination, negative. After several weeks at home, the patient had no complaints and the mastoid area was completely healed.

Last examination. June 6, 1921—six months after operation. Patient has just returned from a vacation of several weeks and is now back at work—"as well as ever"; no complaints; mastoid area entirely healed. Decompression area depressed and pulsates normally.



Neurological examination, negative; reflexes active but equal. Fundi negative.

Remarks.—The almost immediate improvement following the efficient drainage afforded by the subtemporal incision is clearly illustrated by the clinical chart of this patient; as the profuse purulent exudate escaped, the temperature and pulse fell to normal within three days, while the rigidity of the neck, the positive Kernig, and the other signs of acute meningeal irritation entirely disappeared. The general improvement of the patient was correspondingly marked, so that at the time of his discharge from the hospital on the nineteenth day after operation, he could be considered a well man.

The two complications during the hospital convalescence were undoubtedly due to a mild localized meningeal irritation resulting from a dural erosion permitting cerebrospinal fluid to escape; fortunately, no intradural infection occurred. The immediate return, however, of the rigidity of the neck and of the positive Kernig indicated the irritability of the meninges and their sentiveness to stimuli; and thus they are early and most delicate signs of meningeal involvement.

If the operation of drainage had been delayed for some hours in order to obtain the report of a culture of the cerebrospinal fluid and thus be doubly certain that no bacteria were present, then the opportunity of affording this patient a definite chance of recovery might have been lost, for once a diffuse purulent meningitis is demonstrated by the presence of bacteria in the cerebrospinal fluid at lumbar puncture, then it is too late, operation or no operation.

No attempt was made during the operation to ascertain the presence of a possible brain abscess for the following reasons: not only was the supracortical purulent exudate sufficient to account for all of the symptoms and signs, but to pass an exploratory puncture needle through this infective process into the cerebral tissues would, in the absence of a subcortical abscess, certainly have produced at least one brain abscess; then again, no abscess formation was considered probable in this patient because the cortex receded and pulsated normally following the escape of the turbid cerebrospinal fluid. It would have been most unusual for a true brain abscess to have also been present, as in such cases the cortex remains tense and bulging and is frequently of the "dry" type. Another advantage, therefore, of the subtemporal exposure over the comparatively "blind" method of approach through the mastoid or nasal sinuses is well illustrated in this method of operative treatment of these most serious conditions.

20 WEST EIGHTIETH STREET

SPEECH.

BY EDWARD D. FISHER, M.D.,

NEW YORK,

PROFESSOR OF MENTAL AND NERVOUS DISEASES, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE.

SPEECH *per se* is entirely a mental process. It must necessarily be acquired by the sense of hearing especially, and later sight and touch, as for a full understanding of language, the thing thought of must be fully known. All language comes through the senses. In order to make this useful to ourselves and to express it to others, there must be evolved some symbols, and this represents speech.

Speech is therefore internal; articulation is not necessary to its existence, as seen in the deaf and dumb. Articulation, however, is the external manifestation of speech and has its motor center, *i.e.* the left third frontal lobe, just as the hand has its center.

Speech is the register of thought, the index of its quality; words themselves are no true index or estimates of the quality of language (speech) or thought. It is not in the number of words in the

vocabulary that the true value of speech or thought can be weighed. The child, before it has acquired language, is incapable of thought. The animals do not think. This training for special work is accomplished by repeated impressions, hardly perceptions, carried to the brain, leading to a reflex response which finally becomes automatic. Articulation is, therefore, simply the mechanical manifestation in outward form of the true internal speech or thought —for, in other words, speech is thought.

It is hard to conceive of a special center of speech. It is easy, however, to conceive of special centers for the perception of the elements which make up the various elements of speech, as for instance, the center for the spoken word, that for the written word, and that for gesture. The correlation of these by association, together with many other centers which receive the knowledge of things to be spoken of and its relation to other things, is probably lodged in some so-called higher center which has not as yet been localized, as it has been for the various elements which make up speech and which must remain intact if there is to be any outward manifestation of speech.

To deny the existence of centers of the various components of speech seems erroneous. Constant examples of lessons of the left hemisphere, in given areas showing themselves with rare exception in definite clinical failure of certain elements of speech, as word deafness and blindness and motor failure of expression, cannot be set aside; lesions in other parts of the brain of serious character produce no such disturbance nor do even lesions of any kind of the opposite side of the brain, corresponding to what we call sensory or motor centers of speech.

Marie, it seems to me, confuses internal and external speech—the latter not truly representing speech but merely its manifestation to others, that is not to the individual. We can thus comprehend the possibility of the retention of full intelligence and thought in an individual who is speechless as far as outward expression is concerned. The fact that the deaf, dumb, and even the blind, when all these avenues for the acquisition of speech are absent from birth, can in the truest sense acquire speech through touch is convincing to me of the wholly internal nature of speech.

The mechanism of speech soon becomes automatic; though even appropriate combination of action of the lips and tongue in uttering a word is lost sight of, thought or internal speech goes on, regardless of the mechanism. This is indeed no different from the artist at the piano, especially of the improvisor, the mechanism of the execution must be forgotten. It has indeed taken years of study and repetition for its acquisition, but it must be relegated to the subconscious if the higher elements which make of the master in execution, *i.e.*, feeling and emotion and thought, are to be manifested. No telegrapher, if he thinks of his motor expression, can be rapid, for as soon as that obtrudes itself on his consciousness he becomes conscious of the mechanical execution and places himself on the same plane as the beginner trying to acquire the art. All great orators follow out unconsciously the same process; thoughts come quickly, intelligence tries to make itself manifest in speech, but if the consciousness of the mechanism comes too prominently to the individual consciousness, failure of expression results. Some are born with centers that need very little stimulation for development.

Speech is really thought; without the former it is difficult to understand the existence of the latter. Thought could indeed be manifested by acts, such as, for instance, the building of a bridge, a house, etc., but in human experience such a thing has not occurred.

Speech is, however, in its entity, purely internal, *i.e.* it can and does exist primarily in the brain as thought; its expression in speech or words is only the outward sign, that is the mechanism by which it shows itself to others; but after all it must be internal in its true essence, and if this internal speech remains, the intelligence of the individual may be unimpaired although he does not possess the means to manifest it.

6 East Fifty-second Street

THE TREATMENT OF EPILEPSY.

BASED ON RECORDS OF FIFTY-EIGHT CASES.*

By I. S. WECHSLER, M.D.,

NEW YORK

ASSOCIATE IN NEUROLOGY, COLUMBIA UNIVERSITY, NEW YORK; ASSOCIATE ATTENDING NEUROLOGIST, MONTEFIORE HOSPITAL; ADJUNCT ATTENDING NEUROLOGIST, MT. SINAI HOSPITAL, NEW YORK.

From time to time various reports on the treatment of epilepsy emanate from different sources, some observers extrolling the virtues of one drug, others rhapsodizing over the merits of another. At times specific methods receive their acclaim for a while, at others, praise is bestowed on a special form of treatment to bear out some pet theory. Occasionally an iconoclast pillories all methods to prove that there is no treatment. The opinions, no doubt, are put forth in all sincerity and frequently bear the stamp of conviction; but the very divergence of opinion testifies rather significantly to our want of understanding of the nature and causes of epilepsy and points even more significantly perhaps to the absence of any real, not to say specific, treatment.

The causes of this divergence of opinion are perhaps not difficult to find and may rest on the want of uniformity in the conception of the symptom-complex and the choice of patients. It probably makes some difference whether one treats hospital and institutional patients or those who come to the clinic; or whether one can influence the environment and control the diets and general hygiene of his patients. The type of epilepsy, whether it be grand or petit mal or whether it represents a psychic equivalent, undoubtedly influences the result of the treatment. The severity and duration of the disease, the sex, the age of onset, the occupation, and other possible contributory factors very likely affect the ultimate result. In view of the great variety of circumstances attending an apparently uniform condition it is not strange that so many different results are obtained by various observers employing different drugs or methods, or that the results vary at different times.

A more fundamental cause for the difference in results lies in the fact that we do not always bear in

*From the Department of Neurology, Vanderbilt Clinic, New York.

mind that epilepsy, that is, so-called essential, idiopathic epilepsy, probably has a number of causes and that it is not a disease. We do not even begin to understand the fundamental metabolic processes probably underlying the condition. It may be presumptuous to repeat so elementary a statement but the trite fact is that epilepsy is a symptom, a symptom-complex perhaps, but only a symptom of an underlying condition which is ill-understood or possibly not understood at all. The convulsion may be a sign of cortical irritability, and probably is, but this statement does not even begin to answer the question of causation, possibly begs the whole of it and certainly does not make of epilepsy more than a symptom. Emphasis on this point is necessary not to impress a fact which is so wellknown to everybody, but to explain the difference in the results of treatment. If essential epilepsy is a symptom-complex then the treatment, any treatment, is more or less symptomatic and must remain such until we know more about its etiology and pathology.

It is not the object of this paper to enter into a discussion of the very wide subject of epilepsy, to define the symptom-complex, to investigate its etiology, or even to venture positive views on the merits of some forms of treatment to the exclusion of others. It is merely an attempt to give the results of the treatment of fifty-eight patients who have been observed for varying lengths of time at the Vanderbilt Clinic. A few suggestions may be put forth here and there and possibly some conclusions drawn afterward.

Some of the patients have been under observation for several months, a great many of them for a year or more, and a few have been regular visitors to the clinic for a decade or two. In the past year and a half or longer I have personally observed all the patients coming to the first division of the Vanderbilt Clinic, making it a point to see those suffering from epilepsy regularly once in two weeks. Those who did not respond to treatment were asked to report once a week, while others who did well were seen only once a month.

The number of cases of epilepsy herein reported represents but a portion of those who are treated at the clinic. Only so-called true, idiopathic cases are included in this study. Every attempt, of course, was made in each instance to exclude possible appreciable causes such as lues, trauma (resulting either in general or focal manifestations), sequelæ of recent encephalitis, etc., and even though in many instances the ultimate pictures, that is the convulsive phenomena, might be regarded as true epilepsy they were not included in this study. Record of the treatment of each patient, as well as record of the number of attacks was kept throughout the period of attendance at the clinic.

In most cases attempt was made to regulate the diet or even eliminate articles of food commonly held objectionable in epilepsy, to correct disturbances of the gastrointestinal tract, to outline general hygienic measures, and even to suggest occupational changes. It may be pointed out that the clinic or office patient cannot be controlled as well as the institutional one so that many orders given by the therapist frequently are either poorly carried out or not at all. This is particularly true, for instance, in cases where one outlines a salt-free diet. The inability or unwillingness on the part of the patient to cooperate in the management very likely vitiates the results of treatment to some extent, but this is something which every therapist has to reckon with in the treatment of home patients. It is perhaps worth mentioning that although epileptic attacks usually tend to increase in frequency if the patient remains untreated, not infrequently they cease spontaneously—a fact which has been observed by every neurologist. In such cases one may attribute to a drug an efficacy which it does not possess; prolonged observation, however, usually serves to eliminate this possible source of error.

Luminal.—In recent years luminal has attained a preeminent place in the treatment of epilepsy and has practically crowded out all other drugs and methods. The glowing reports one reads from time to time lead one to think that a specific has at last been discovered. At the risk of becoming a heretic I may say that my experience does not (in a great measure) anywhere near bear out the reports of the wonderful results claimed for it. That the drug does reduce the number of convulsions and at times even stops them the records of some of my cases will show, but that it is the only drug or even the best drug in all cases is not borne out by my experience. Claims have been made that it is a dangerous drug, this I do not know; but that it has disadvantages one may safely say. That it fails in very many cases one may also assert. I have even seen it change grand into petit mal attacks.

Of the fifty-eight patients, all of whom received luminal for varying lengths of time, in doses of $\frac{3}{4}$ to $1\frac{1}{2}$ grains one to three times a day, eighteen may be said to have had their attacks stopped by the drug. A few case records will illustrate its effects.

Case I.—W. T., male, age 35, came to the clinic March 12, 1920, having had epileptic attacks for two years. They had gradually increased in frequency—one per month—until just before coming to the clinic he had had six in one week. Bromides stopped them for three months. Luminal, gr. $\frac{3}{4}$ was then given three times daily, and he has had no attacks to date.

Case II.—C. S., male, age 30, came to the clinic in February, 1920. He had had regularly one attack a month since the age of fourteen. He was put on luminal and he has had no attacks to this day.

Case III.—C. S., female, age 18, came to the clinic in August, 1919. She had had almost daily attacks since 1916. She was given bromides and the attacks were reduced to one in two weeks. Luminal was given and they stopped for six months. Owing to the fact that we could not get luminal she was given dial ciba; the attacks returned. Luminal was then tried again in $\frac{3}{4}$ grain doses with no effect. The dose was increased to $1\frac{1}{2}$ grains and the attacks have stopped entirely.

Case IV.—J. V., male, age 29, came to the clinic February, 1919. He had attacks every month or two for the preceding year and a half. Luminal stopped them.

Case V.—A. K., female, age 15, came to the clinic February, 1920. She used to have one attack in three or four weeks since 1916. She received one grain of luminal twice daily and has had no attacks since.

Without reporting the rest of the cases it may be seen that luminal can keep convulsions in abeyance so long as its administration is kept up. No sooner, however, is the drug stopped than the attacks return. Many patients claim that they feel "dopey"

while taking luminal. The drug has little or no effect on petit mal attacks. In many cases it has no effect at all. A few records will illustrate this point.

CASE VI.—F. S., male, age 7, came to the clinic July, 1919. Has had daily attacks since February, 1919. He received luminal in increasingly large doses, but it had no effect.

CASE VII.—H. B., male, came to the clinic in April, 1920, with the history of seizures once a week or oftener. Luminal reduced the attacks to one a month or one in two months up to December, 1920; then, despite treatment, they returned at the rate of one a week. (This patient was subsequently given bromides and the attacks have ceased to date.)

CASE VIII.—G. B., female, age 21, came to the clinic in December, 1920. Has had attacks since 1916; they gradually became more frequent so that they came on every few weeks, usually at night, and occasionally up to a dozen at a time. Luminal in doses up to a grain and a half had no effect.

In one or two instances I have seen luminal aggravate the condition. Although it has been repeatedly asserted, and my experience partly bears this out, that luminal does not effect petit mal attacks, the following case may be cited to show that it sometimes does; but it apparently did this at the expense of the grand mal attacks.

CASE IX.—M. L., male, age 19, came to the clinic in August, 1920. He had had grand mal attacks at the rate of one a month since 1916, and petit mals several times daily during the intervals. Upon receiving luminal the grand mals increased in frequency while the petit mals were reduced to an occasional one every few days. (This patient subsequently received bromides and both the grand and petit mals were reduced in frequency, though not stopped altogether.)

It may be seen, therefore, that while luminal is a very valuable drug it is not a specific, and, while it should be tried in all cases, one should not hesitate to discard it for some other method of treatment, particularly for the well-tried bromides.

The Bromides.—It is perhaps a little too late in the day to hold a brief for the bromides, all the more as they have fallen into such disrepute among the neurologists. But despite their disadvantages, such as general inefficacy in many cases, objectionable rashes, possible mental deterioration from prolonged use, gastric upsets, etc., the bromides are at times the only drugs that have any effect on epilepsy. It is not necessary to quote too many cases which showed good results nor the instances which showed failures, but a few reports may be given to remind us that the bromides still have a place in epilepsy.

CASE X.—J. O., male, age 46, came to the clinic in October, 1919. He had had attacks every two weeks since 1913. Bromides stopped them, cessation of treatment resulted in their return and resumption again stopped them. Continued use of the bromides has caused their cessation to date.

CASE XI.—J. R., male, age 30, came to the clinic in July, 1920. He had had attacks at the rate of one a week up to four or five a day since 1908. He received bromides and the attacks ceased. Treatment was changed to luminal just to see its effect, and, while he did not have any attacks, he became cross and "ugly" in temper so that the bromides have again been resumed and continued to date.

CASE XII.—G. S., male, age 53, has been coming to the clinic, more or less irregularly for twenty-five years. The attacks began when he was twenty-eight years old and would come on at times as often as three a day. They stop whenever he takes bromides. He refuses to try any other treatment. The last attack was in 1916 when he did not take his salty medicine; since then he has not failed to take it daily.

In many cases I have tried both bromides and luminal with good results where neither alone seemed to have any effect. In other cases neither the one nor the other drug nor both in combination had the slightest effect—which illustrates once more that failure is often the reward of the treatment of symptoms whose etiology is unknown. Curiously enough a special drug may sometimes help where well-tried remedies do not. In the following instance we just stumbled over the remedy.

CASE XIII.—A. K., male, age 55, came to the clinic early in 1918. He had had severe attacks, two or three a week, since 1913. He was treated with bromides, dial ciba and luminal with very little improvement. He was put on sulfonal, gr. v, t. i. d. and he has had no attack to date. Very rarely he has mild petit mal seizures.

A drug which we have frequently used at the Vanderbilt Clinic during the war days when luminal could not be obtained was dial ciba. This often had an effect similar to luminal, though it was less steady. We still use it occasionally when we run short of the more efficacious drug, but in general we have discarded it for its rival. I merely mention it because it has shown some results and is worth trying on occasion.

The Endocrines.—Perhaps in no branch of medicine (psychoanalysis alone excepted) is the battle so bloody as that waged on the field of the internal secretions. Spectacular successes are claimed by combatants in one camp only to be met by shafts of ridicule from the ranks of their opponents. Results are frequently proclaimed by some men, which honest observers cannot substantiate, and the accusation is then made that the imagination and not the fact is responsible for the vaunted cures. There has even been a little acrimony injected in the uncomplimentary debate. Possibly one need not wonder at these contradictory statements, particularly in the case of epilepsy, when one considers how few are the facts we can as yet bring to bear both on the study of endocrines and the epilepsies.

While it may safely be said that the successes claimed in the treatment of epilepsy with the endocrines are somewhat exaggerated, it is shutting one's eyes to facts to say that no good results have followed their use. Indeed I have personally seen on one or two occasions such remarkable results that I was tempted to use the various products of the glands of internal secretions in many cases of epilepsy. Unfortunately I could not duplicate the results. This may be due to lack of appreciation of certain indications or to some uncontrollable factors. That some of the epilepsies have something to do with the glands of internal secretion may be inferred if we but reflect on how frequently the disease begins at puberty. In young women it is not uncommonly accompanied by anomalies of menstruation. It may be worth while to cite a few cases merely to illustrate the use of the endocrines. I shall not cite the numerous instances in which I obtained no results at all.

CASE XIV.—G. S., male, age 36, was first seen in March, 1919. Attacks began in 1913, were rare at first, one in six months to a year, latterly they became more frequent, about one a month. The patient had a somewhat acromegalic facies. *X*-ray of the sella

showed it to be very large. He had no symptoms of either hypo- or hyperpituitarism. He received whole gland pituitary for several months, but no other medication, and he had no attack to date, covering a period of more than two years.

CASE XV.—S. R., female, age 25, has had attacks regularly twice a month since childhood. She had never menstruated. She was given thyroid extract and told to return in a week. Strange to say she brought the happy news that she had menstruated for the first time in her life. For the next few months she had mild attacks only once a month, at the time of menstruation. Luminal and pituitary extract were then given but the attacks returned and now occur at the rate of one a week to one a month. The menses have continued to come on regularly.

CASE XVI.—P. M., male, age 13, came to the clinic December, 1920. He had psychic euivalents at the rate of about one a week. He looked dyspituitary and *x*-ray of the sella showed it to be very small. He was given whole gland pituitary. For two and a half months, up to the time he was lost track of, he had no attacks whatsoever.

General Remarks.—It may be hazardous to put forth certain inferences, particularly when one has only impressions and no facts to substantiate his remarks, but one may be allowed to venture them if only to stimulate thought or investigation. From the treatment of many cases I have gained the impression, which almost amounts to a conviction, although I can not prove it, that certain foodstuffs bear a special relation to some of the epilepsies. It has, of course, been known all along that various foods apparently have a deleterious influence in epilepsy, but it seems to me that there is something akin to a sensitization, to a reaction (anaphylactic?) of the organism to certain proteins or possibly endotoxins, which result in convulsive phenomena. The periodicity of some of the epilepsies may point in that direction. In a few instances I have been told by patients that certain diets are apt to bring on attacks. One patient definitely attributed his improvement to the fact that he had given up eating eggs and on one occasion when he did eat them (he used to be very fond of them and ate many at a time), he paid for his heedlessness with a convulsion. In this connection we may refer to the partial, though in some instances very significant success recently reported by Dr. Geyelin in the treatment of epilepsy by means of starvation, although his results pointed to some correlation between the number of convulsions and the height of the induced acidosis.

I was also impressed with the comparative absence of mental deterioration in the great majority of the patients. This is particularly noteworthy because many of them had had the disease for years and years and had been taking both bromides and luminal, which are said to accelerate the deterioration. Many patients, too, had very severe and very frequent convulsions and yet showed comparatively little deterioration. One explanation, of course, may lie in the fact that the more severely mentally affected find their way into institutions. Not a few of the patients coming to the clinic are able to continue at their occupations and many who do not fail not so much because of their inability but because they are not tolerated by the people around them. While there is undoubtedly an epileptic mentality which reacts in a special way to the environment, it is a question of how much society and the environment contribute to the shaping of that special mental attitude. So also the irritability of the patients may be aggravated by outside causes, although it is a well known fact that both the bromides and luminal frequently increase it when they stop the convulsions and that the irritability ceases with the explosion.

Conclusions.—Although few of the above observations and the conclusions drawn from them are altogether novel they may serve to reemphasize the common knowledge that, whereas there are treatments for epilepsy, there is no real treatment. Further, that no drug can be said to be specific if for no other reason than that essential epilepsy is not a disease, but a symptom-complex of possibly numerous unknown underlying conditions. So too, it may be observed that any one of the wellknown methods of treatment, however empiric, may at first help to reduce the number of seizures. Sometimes a drug will act beneficially for a time, then cease to have an effect; the substitution of another drug may then bring about renewed amelioration. Success in treatment frequently results only from persistent effort, and if one drug after another does not help it may be wise to combine several of them to obtain desired results. In some cases at times, gradually increasing doses of the same drug may control the seizures when the smaller doses do not. This is particularly true of luminal, which frequently fails if administered in small quantities and succeeds in larger ones. Finally, there are numerous patients who do not respond to any treatment or combination of treatments even if fortified by rigid dietetic and hygienic regulations. It is an extremely humiliating confession to make that many epileptics tax the patience and try the ingenuity of the most persistent therapist, but it is worth making if it will but serve to remind that all the knowledge as yet learned of epilepsy lies in its clinical manifestations.

1291 MADISON AVENUE.

SPECIFIC TREATMENT OF DERMATITIS VENENATA (RHUS TOXICODENDRON).

PRELIMINARY REPORT.

BY ARTHUR SAYER, B.S., M.D.

NEW YORK.

CHIEF OF CLINIC IN DERMATOLOGY AND SYPHILIS, MT. SINAI DISPENSARY.

THE poison oak plant (poison ivy)* is widely distributed throughout North America. It is an uncultivated trailing plant, which grows in our parks, woods, and along the highways. Every summer many persons are inadvertently exposed to this plant, with a resulting cutaneous inflammatory reaction of the parts which have come in contact with it. Some people are quite immune to poison ivy, and even intimate contact with it will not produce any inflammation of their skin. Most people, however, are susceptible, and the merest chance contacts cause an intensely itching local cutaneous inflammation.

The cause of the dermatitis is a non-volatile oily

*According to the U. S. Pharmacopia, poison oak is synonymous with poison ivy (Rhus toxicodendron), except on the western coast where the poison oak plant is of a somewhat different species (Rhus diversiloba).

substance[1] derived from the leaves and berries of the plant. This oily substance is irritating to the skin, and produces locally an erythema and edema with numerous small aggregated vesicles which tend to exudation. Many of the vesicles tend to linear formation, due to the fact that the contact was a scratch from the plant. The lesions are extremely itching and burning—most patients seek relief solely on account of the severity of these subjective symptoms. The self-scratchings of the patient often result in secondary infection of the vesicles, due to the pyogenic organisms thereby introduced into them. Also, the irritating substance being non-volatile, it may be spread by the patient's hands from one part of the body to another. We therefore often see a typical rhus dermatitis on parts (external genitals, face) which have not been in actual contact with the plant.

Many remedies have been suggested for the relief of the condition. Recently McNair has published an excellent article in which an extensive historical bibliography is given.[2] Physicians and even the laity employ various measures for which they claim good results. The diversity of the suggested remedies, however, is sufficient evidence of the non-efficacy of many of them. It is not surprising, therefore, that further studies are being made for the discovery of a remedy which will promise uniformly good results.

Of all various local measures advocated, the following has proven its merit in numerous instances, and is employed by most dermatologists of my acquaintance: (1) Brisk use of soap and warm water with a brush on the affected parts at the onset of the treatment—to break up the vesicles as much as possible. (2) Follow with applying a 1-1000 potassium permanganate solution for about five minutes—this will oxidize the poison and prevent its further spread. (3) Then apply Calamine and Zinc lotion locally every two or three hours—this will relieve the itching and tend to dry up the vesicles. Under these measures the patient will usually get complete relief from his itching in about five to seven days, and the lesions will dry up and disappear in about fifteen days. Although this treatment is effective, it is nevertheless somewhat prolonged and requires frequent topical applications (which inconvenience the patient and are also messy) in order to keep the annoying itching and burning under control.

We have recently become interested in the specific treatment of rhus poisoning, on account of the highly complimentary published reports of several physicians who have employed it. These men report highly beneficial effects from the intramuscular injection of the tincture of the offending rhus plant. Strickler[3] reported a series of cases so treated, and recently Alderson and Pruett[4] have reported a series of cases similarly treated with marked benefit to the patients. The writer has tried the treatment on a series of patients suffering from rhus dermatitis, and wishes to submit his opinion of the value of this treatment, based on his experience with this group of cases.

In all of our cases we employed a tincture of *Rhus radicans* (same as *Rhus toxicodendron*) which was prepared from the fluid extract as follows: Fluid extract, two parts; alcohol (95 per cent.), nine parts; water, five parts. The average dose given was 12 minims—some cases receiving 15 minims and others 8 minims, depending on the age of the patient and the severity of the eruption. All of the injections were given into the gluteal muscles, using a needle about 1¾ inches long. The injection is quite painless and can be readily administered even to children. Our patients received no local treatment whatsoever—the effects noted were therefore attributed solely to the injected drug.

There have been no ill effects noted from the employment of the drug per se, other than slight pain at the site of injection for eight to twelve hours. We have given one or more intramuscular injections to seven persons, used as controls, who did not suffer from rhus dermatitis (cases of acne, pediculosis capitis, dermatophytosis, etc.). We have noted no local or general reactions in these controls, following an injection of 12 minims of the drug. These patients complained of no headaches, chills, fever, pruritus, etc., nor was there any evidence of a cutaneous eruption seen in any of them. We therefore feel convinced that a dosage of 12 minims is not excessive and is well within safe limits.

We have noted, however, in some of our rhus cases, the appearance of a blotchy erythematous itching eruption on remote parts of the body within twenty-four to thirty-six hours after the injection. This eruption has somewhat the same characteristics as the primary eruption, and is often difficult to differentiate from it. Alderson and Pruett also noted this eruption in several of their cases, and considered it as due to overdosage. In our opinion this phenomenon is not so much a matter of overdosage as it is of interaction of the antibodies formed from the injection with the rhus toxin which may be lying inert on the skin. We know that the intramuscular injection of the tincture Rhus toxicodendron will have no effect on the normal skin—none of our control patients showed any skin eruption nor had any itching as a result of their injection. It is therefore logical to ascribe this sequela as an immunity reaction rather than as a reaction of toxicity.

The following are protocols of our cases:

Case I.—J. S., age 11, presented himself on August 11, 1921, with an eruption of rhus dermatitis on the extremities and chest, of four days duration. He was given an injection of eight minims of the tincture of rhus radicans intragluteally. The patient returned in two days showing marked improvement—the lesions were drying up and the patient had no itching since the injection.

Case II.—H. S., age 60, presented himself on August 6, 1921, with an eruption of rhus dermatitis on the right buttock and left upper extremity of three days duration. Patient complained severely of itching, and was given an injection of fifteen minims of our tincture intragluteally. Patient returned two days later very much relieved. He informed us that the itching became less soon after the injection, and disappeared entirely the next day. The vesicles are drying up rapidly.

Case III.—F. G., age 20, presented himself on July 30, 1921, with an eruption of rhus dermatitis of four days duration on the forearms, abdomen, and back. He was given an injection of eight minims of our tincture. Patient returned one week later feeling entirely well. He informed us that the itching was relieved within twenty-four hours following the injection, and the lesion began to dry up rapidly. About three days after

the injection, the patient noted an erythematous itching eruption on the thigh, which lasted for about one day and disappeared. He is now entirely well of his trouble.

CASE IV.—M. G., age 15, presented himself on July 21, 1921, with an eruption of rhus dermatitis of six days duration, on the hands and trunk. He was given an injection of fifteen minims of our tincture. Patient returned in five days feeling entirely well. He informed us that about eighteen hours after the injection itching stopped entirely, and the lesions began to dry up.

CASE V.—N. K., age 37, presented himself on July 16, 1921, with a rhus dermatitis of three days duration on the legs and thighs. He was given an injection of fifteen minims of our tincture. He returned in three days feeling somewhat relieved. The lesions were seen to be drying up. He was given another injection of fifteen minims. On returning two days later the patient stated that he was all better—the itching left him entirely several hours after the second injection, and the lesions were rapidly drying up. The patient returned on August 16, 1921, with a new eruption of rhus dermatitis of a few days duration on the buttocks. He had again been exposed to poison ivy. He was given an injection of twelve minims of our tincture. On returning two days later, he informed us that he was much better—the itching having disappeared within six hours after the injection.

CASE VI.—G. H., age 24, presented himself on July 19, 1921, with a rhus dermatitis of five days duration on both legs and feet. He was given an injection of twelve minims of our tincture. On returning two days later he informed us that the itching stopped about ten hours after the injection, and that he was feeling well for about twenty-four hours. At the end of that time the itching returned moderately. He was given an injection of six minims of our tincture. He returned two days later and stated that he was feeling entirely well—the itching left him ten hours after the injection and has not returned since. The lesions are rapidly drying up.

CASE VII.—L. S., age 15, presented himself with a rhus dermatitis of one week's duration on the hands and forearms. He was given an injection of ten minims of our tincture. He returned two days later and informed us that he was considerably improved—the itching was slight and the vesicles are drying up. He was given another injection of ten minims of our tincture which relieved him entirely in a few hours.

CASE VIII.—A. C., age 12, presented herself on July 28, 1921, with a rhus dermatitis of one week duration on her upper and lower extremities. She was given an injection of ten minims of our tincture. She returned two days later and informed us that the itching left her within ten hours after the injection and that she feels entirely well. The lesions are drying up.

CASE IX.—J. S., age 50, presented herself on August 2, 1921, with a rhus dermatitis of one week duration on the right elbow and shoulder. She was given an injection of twelve minims of our tincture. She returned four days later somewhat improved—the itching being less and the lesions drying. She was given another injection of eight minims of our tincture which relieved her itching entirely in a few hours.

CASE X.—C. B., age 5, presented herself on July 12, 1921, with a rhus dermatitis on her hands, forearms, and right knee. She was given an injection of twelve minims of our tincture. She returned two days later and informed us that the itching left her two hours after the injection and has not returned since then.

CASE XI.—P. T., age 7, presented himself on August 9, 1921, with a rhus dermatitis on the face, neck, abdomen, and extremities of two days duration. He was given an injection of eight minims of our tincture. He returned in two days feeling entirely relieved of the itching and the lesions drying up.

CASE XII.—A. U., age 7, presented herself on July 9, 1921, with a rhus dermatitis on the face, chest and upper extremities of one week duration. She was given an injection of twelve minims of our tincture. She returned three days later and informed us that the itching stopped the same day of the injection and the lesions were drying up. About two days later a new erythematous itching eruption appeared on the buttocks. The patient was given a second injection of twelve minims of our tincture. She returned two days later entirely well—no itching and the lesions drying up rapidly.

CASE XIII.—M. C., age 33, presented herself on July 7, 1921, with a rhus dermatitis of three days duration. She was given an injection of fifteen minims of our tincture. She returned in three days and informed us that two hours after the injection her itching left her and that she was free of itching for thirty-six hours. At the end of that time an erythematous eruption began to appear on the chest and forearms which itched her considerably. She was given another injection of fifteen minims of our tincture. She returned two days later feeling no better. There was a new eruption on her chest. She was given another injection of eight minims of our tincture. She returned on August 16 when it was noted that the lesions were drying up and not itching, but new lesions are coming out which itched considerably. She was given another injection of twelve minims. She returned three days later feeling much better. She informed us that following the last injection the itching left her for forty-eight hours, but that the itching is commencing again on her legs. She was given another injection of eight minims. She returned in four days feeling very much better and showing no visible lesions. She complains of occasional pruritis.

CASE XIV.—J. B., age 37, presented herself July 19, 1921, with a rhus dermatitis of one week duration on the trunk and extremities. She was given an injection of fifteen minims of our tincture. She returned two days later and informed us that except for a period of a few hours the itching was unimproved. The lesions were noticed to be drying up. She was given another injection of fifteen minims intragluteally. She returned two days later still complaining of the itching. It was noted that her primary eruption was drying up and not itching, but that there was a secondary eruption erythematovesicular in character on the trunk and thighs which itched considerably. The patient was of a nervous type and it was decided to discontinue the injections. She was given some bromides internally, and a calamine and zinc lotion for external application. She returned in three days very much improved.

CASE XV.—R. F., age 44, presented herself on August 9, 1921, with a rhus dermatitis of four days duration. She was given an injection of ten minims of our tincture. She returned in two days and informed us that she was not any better—the itching was said to be very severe. She was given another injection of twelve minims. She returned two days later still unimproved. She claims that the itching is still severe and that she was unable to sleep. There was no secondary eruption seen. The patient was unwilling to continue further treatment with the injections. She was given a calamine and zinc lotion for local application. The patient returned in three days feeling very much better.

CASE XVI.—T. R., age 46, presented herself on July 14, 1921, with a rhus dermatitis on the lower extremities of ten days duration. She was given an injection of fifteen minims of our tincture. The patient returned in two days. The lesions were drying up, but were still itching. She was given another injection of fifteen minims which relieved her itching in a few hours.

CASE XVII.—D. J., age 18, presented herself on July 14, 1921, with a rhus dermatitis of two days duration, on the face, chest and arms. She was given an injection of fifteen minims of our tincture. She returned in two days and informed us that her itching left her within six hours after the injection and has not returned. The lesions are drying up.

CASE XVIII.—F. R., age 24, presented herself on July 5, 1921, with a rhus dermatitis on the extremities, of one week duration. She was given an injection of fifteen minims of our tincture. She returned five days later feeling somewhat better. She informed us that there was no improvement in the itching for thirty-six hours after the injection and the itching became less after that time. There were a few erythematous itching lesions seen on the right arm and right buttock. She was given another injection of fifteen minims. Patient returned four days later feeling entirely well. The itching left her ten hours after the injection. The lesions are drying up rapidly.

After considerable deliberation, we have arrived at the following conclusions relative to the merits of the specific treatment. We have tried not to be oversanguine, and endeavored to evaluate this treatment on the basis of our clinical experiences. We believe that the results obtained in the majority of our cases warrant the acceptance of this form of treatment as a valuable therapeutic measure in all cases of rhus dermatitis. The simplicity of the required technique, and the marked benefit observed in many of the cases, warrant its routine employment. In some cases (about 25 per cent.) the beneficial results are striking and immediate, the itching being relieved within six hours after the injection. In another 25 per cent. of cases the first injection results in partial relief and a second injection causes total relief from the itching. We may conservatively state that there will be material benefit offered to the patient in about 75 per cent. of cases treated solely by this method. Only occasionally will the dermatitis be apparently uninfluenced by the intramuscular injection of the tincture of the offending rhus plant. We are absolutely certain that there is no harm done in any case by the employment of this form of treatment.

We believe, however, that in all cases this specific treatment should be given in conjunction with the local treatment outlined at the beginning of this article. The combination of the two methods will no doubt result in quicker relief in all cases. In those cases where the itching stops soon after the injection of our tincture, the local treatment can soon be discontinued. In other cases in which the itching takes longer to disappear the Calamine lotion can be used a correspondingly longer time. In the few cases in which the injections are apparently of little benefit, the local treatment itself will give relief.

Further studies should be made on the subject. The question of most effective dosage should be determined. Also the cutaneous reactions noted in some cases should be further investigated. I hope to have the opportunity to investigate these phases of the subject and report them at a later date.*

REFERENCES.

1. Von Adelung: *Arch. Int. Med.*, 1913. xi, 148.
2. McNair: Remedies of Rhus Dermatitis, *Arch. Derm. and Syph.*, Aug. 1921.
3. Strickler: *Jour. Cutan. Diseases*, June, 1918.
4. Alderson and Pruett: *Cal. State Jour. Med.*, May, 1921.

*The writer wishes to express his thanks to Dr. C. F. Lehman of San Antonio, Texas, for his kind assistance at the clinic.

937 SIMPSON STREET

Kala-Azar in Paris.—Carnot and Libert report the case of a man of thirty with a pseudomalaria—intermittent fever with splenomegaly—in whom splenic puncture revealed the presence of *Leishmania*. The blood was free from the malaria parasite and quinine was inert. The man was cachectic and intravenous emetine did not improve him, the case ending fatally. The patient had fought in the Macedonian campaign and until recently had been in good health, so that the *Leishmania* can evidently remain indefinitely in the body before rousing to activity. This is the first case of the sort to be recorded in France and carries the lesson to puncture the spleen in all obscure conditions in which that organ is enlarged.—*Gazette des Hôpitaux.*

ADENOIDECTOMY IN THE ACUTE EAR CONDITIONS OF CHILDREN.

BY JOHN A. GLASSBURG, M.D.,

NEW YORK.

ASSISTANT ATTENDING LARYNGOLOGIST AND OTOLOGIST, NEW YORK CHILDREN'S CITY HOSPITAL, R. I.; SURGEON, EAR, NOSE AND THROAT, STUYVESANT POLYCLINIC.

THE treatment of inflammatory ear conditions is a problem of drainage. There are three ways in which this drainage can be obtained—one created by nature and two devised by the otologist. Nature's method is the physiological route through the Eustachian tube into the rhinopharynx. The otologist's methods are the improvised routes, either through the tympanic membrane by myringotomy or through the bone by mastoidectomy when paracentesis of the drum proves insufficient. Both of these artificial measures, *i.e.* paracentesis and mastoidectomy, result in external drainage with its sequelæ—running ears, weeks of irrigation with the syringing seances of struggling, crying, and exhaustion, possible furunculosis, eczema, and membrane destruction. In addition paracentesis and mastoidectomy remove only the end results of the suppurative process, leaving the cause untouched, because the etiology of the inflammation is not reached through these measures. The cause of the disease is not in the middle ear or in the mastoid cells, but in the rhinopharynx where the "cold" started. Removal of the source will abort or shorten the infection already present and prevent recurrence. Nature's method on the other hand drains the area involved and if aided by adenoidectomy will eradicate the cause.

In order to fully understand the physiological method of internal drainage, and how to procure it when, because of pathological developments, it is interfered with, it is best to refer to the anatomy of the rhinopharynx. The Eustachian tube, which is the drain pipe of the middle ear is influenced in its physiological function by the location and action of the tympanic and pharyngeal openings. The tympanic opening ordinarily is on the level of the anterior superior quadrant of the drum. At times it may be found somewhat lower, extending even as far down as a point corresponding to the superior border of the inferior quadrant. Rarely, if ever, is it found at the base of the inferior quadrant, where one would expect to find it ordinarily, if gravity were a factor in the drainage. The location of the orifice, therefore, eliminates gravity as a means of drainage through the tympanic opening. The secretions have to be pushed upwards in order to be drained into the pharynx. This is accomplished under normal conditions by the sweeping movement of the cilia of the epithelial lining of the tympanic cavity, the force being directed towards the tubal orifice.

The important orifice that concerns us in reference to aural inflammation is the pharyngeal. The action of this orifice is very peculiar, inasmuch as it has a suction, or pumping influence on the tube. This suction is due to the contractions of the tensor veli palati (sphenosalpingostaphylinus) the levator palati (petrosalpingostaphylinus) the pharyngopalatinus and the salpingopharyngeus muscles. The former two are used in yawning and swallowing,

the latter two are used in deglutition only. The muscles connected with the palate open the tubal end and elevate the soft palate. The pharyngopalatinus opens the orifice when it contracts during the act of swallowing. The salpingopharyngeus runs from the body of the pharyngoplatinus to be inserted into the inferior portion of the tube. This muscle is sometimes known as the third faucial pillar and is of relatively minor importance.

Any interference with these muscles or with the pharyngeal opening will cause obstruction of ventilation and drainage, damming back of the secretions, and consequent aural inflammations. Interference with the muscles is very common as demonstrated by the ferequncy of ear pains in acute tonsillitis. This is due to the swelling of the pharyngopalatinus, which is the posterior pillar of the fauces. The muscle being swollen takes up more space, blocks up the pharyngeal orifice, deranges the ventilation, increases the pressure within the Eustachian tube, and gives rise to the ear symptoms. With the subsidence of the tonsillitis, the muscle returns to its normal volume, the orifice is cleared, the ventilation returns, the intratubal pressure is relieved, and the ear symptoms disappear, the disease taking care of itself.

However, when adenoid tissue is the cause of the orificial obstruction, the pathological course is different. The adenoids have a tendency to proliferate, the obstruction increases and usually remains, the suction action of the tensor veli palati, the levator palati, the pharyngopalatinus, and the salpingopharyngeus is prevented, the damming up of the secretion persists, the epithelial lining of the Eustachian canal is inflamed, the middle ear becomes involved, the tympanic membrane becoming congested bulges and may rupture, or the process may extend further and involve the mastoid cells. The rational physiological method of relieving this condition and removing the cause, is not by opening the drum or the mastoid, but by removing the offending adenoids and reestablishing physiological internal drainage. The removal of the adenoids will not only abort the disease, but by insuring patency of the pharyngeal orifice of the Eustachian tube, prevent recurrences.

The technic of the adenoidectomy is of paramount importance, for the success of the operation depends entirely upon its thoroughness. Adenoidectomy is a comparatively simple procedure, but a complete adenoidectomy, including the tissue around the orifices of the Eustachian tubes, is very rarely accomplished, except by experienced and competent operators. This is readily proved by the frequency of persistent adenoid tissue in the nasopharynx, commonly found after the indiscriminate routine "tonsil and adenoid" operation. The author does not limit himself to any one method in removing the adenoids. The instruments commonly employed are the La Force box adenotome, the plain curet, the finger wrapped in gauze, and the finger nail. The choice of the instrument depends entirely upon the type of case, the amount of adenoid tissue, and the age of the patient. In smaller children and infants no anesthesia is employed. The child is wrapped in a sheet and held tightly by the mother or nurse, the head being retracted. The plain curet followed by the finger with gauze or finger nail usually suffice. In older children general anesthesia is advisable, as it is absolutely necessary in order to get results, to make sure that the lateral pharyngeal walls are cleared, especially the tissues around the fossa of Rosenmüller, which is just behind the Eustachian orifice. It takes very little adenoid tissue to obliterate the patency of the opening which in young children is really nothing more than a slit in the tissue. To insure patency the nasopharyngoscope may be employed. These detailed and careful procedures cannot be performed if the child struggles, and therefore a general anesthetic becomes necessary. A few whiffs of ethyl chloride are usually sufficient, the patient awakening just as the operation is over. The La Force box adenotome is used, it being introduced thrice in succession, once in the median line, once to the right of the median line and once to the left of the median line. The finger wrapped in gauze is then inserted to ascertain whether any adenoids are left near the Eustachian openings. If any are felt, they may be rubbed off with the gauze on the finger, scratched off with the nail, or scrapped off with a small plain curet.

To illustrate the effects of adenoidectomy in the acute ear conditions of children, I will describe a few typical cases:

Case 201.—Jeanette N., an 8 months old baby, had been crying all night. The family physician found nothing the matter with her, but suspecting the ears referred her for examination. The temperature was 103°. Both ear drums were red, the left one bulging. Mastoid tenderness could not be distinguished. The child was wrapped in a sheet, tightly held by the mother, and a few adenoid masses were removed with the plain curet. The gauze-wrapped finger was then inserted and the fossæ well rubbed. The bleeding was profuse. No anesthesia was used. The child slept pretty well that night, awakening only twice and rapidly falling asleep again. The temperature next day was 101°, the bulging was gone, the redness was still present on the left, but entirely absent on the right. The mother did not return for three days, the child having been comfortable, nursing properly, and sleeping well. Examination of the ear drums at this time showed only slight congestion. Two days later the congestion disappeared entirely and the case was discharged as cured.

Case 209.—Philip J., a 3 year old boy had been "cranky" for three days, but since the morning (this was 5 o'clock in the afternoon) was complaining of a shooting pain in the right ear. The history revealed a previous attack the year before, which had required paracentesis, three times. He was then very ill for two weeks, running a varying temperature. At the present time the right ear drum was markedly reddened, all the landmarks were obliterated and tenderness was elicited over the tip of the mastoid. The temperature was 102.4°. The child was anesthetized with ethyl chloride. A La Force box adenotome was used, curetting the median and lateral aspects. Large adenoid masses were removed, particularly from the right side. The finger covered with gauze was introduced and the rhinopharynx was found to be clear. The bleeding was profuse. The next day the child was seen. The temperature was 100°, the mostoid was only slightly tender, the drum was a real red only over Shrapnell's membrane, the rest being of a pinkish hue; the landmarks were still not quite distinguishable. The following day there was a rise in temperature to 102° and paracentesis was considered, but the child complained of no pain or tenderness over the mastoid and the landmarks were visible. The next day the temperature dropped to 99.2° and stayed there until the case was discharged. At the end of the week, all signs of an acute otitis media were gone and the child was discharged as cured.

Case 254.—Ralph P., 4 year old boy, has had frequent attacks of "ear trouble" every winter for three

years. At times the drums would rupture spontaneously and at other times myringotomy would be necessary. At times the right drum would be involved, at other times the left and at still other times both of them would be affected. The mother stated that altogether the child must have had at least a dozen attacks. This time the attack was three day sold, the child not having slept two nights. The hot water bag, hot boric acid irrigation every two hours, leeches, camphorated oil, and phenolglycerin had been used with no appreciable relief of the pain. Upon examination the child appeared acutely ill, his facies was drawn and taut, the cheeks were flushed, he cried and moaned, occasionally emitting a shriek of pain, and presented an acute rhinitis which was probably the focus of his infection. The temperature was 103°. The tonsils were small and could be seen only if pressure was exerted upon them from the outside of the neck. They did not appear diseased. Examination of the ears showed that the left drum had ruptured spontaneously and was draining, but imperfectly. The right drum was markedly congested, the whole of it being red, the landmarks were obliterated, and there was a moderate amount of bulging. No mastoid tenderness. It was after a great amount of persuasion that the mother consented to an adenoidectomy, insisting that the child had never had a sore throat or any "adenoid trouble." The boy was anesthetized. A medium size La Force adenotome was used and each of the three times it was used, it came out packed to the brim with adenoids. The finger covered with gauze removed a few small pieces from the fossa of Rosenmüller and the neighborhood of the Eustachian pharyngeal orifices. The bleeding was profuse. The recovery was remarkable. The next day the temperature dropped to normal, the left ear stopped discharging, the pain was gone, and the congestion of the right drum was diminished.

CASE 281.—Sarah A., a three year old girl, had been complaining for two days of pains in her ears, couldn't sleep the last night, and had a temperature of 102.8°. Examination of the ears showed a slight redness of the right drum and a marked redness of Shrapnell's membrane of the left drum. Mastoid tenderness was marked on the letf side and absent on the right. The child was anesthetized with ethyl chloride. The La Force adenotome was used and large adenoid masses were removed. The bleeding was very profuse. That night the child rested comfortably and offered no complaint in the morning. Examination of the drums showed no redness of Shrapnell's membrane on the right. Mastoid tenderness was still present. The next day the mastoid tenderness was markedly diminished, and the left Shrapnell's membrane was only streaked, not uniformly congested as heretofore. The following day the tenderness over the mastoid disappeared. A slight congestion of Shrapnell's membrane persisted for two weeks with no other associated symptoms. When this congestion finally subsided the case was discharged as cured.

The presentation of these four cases is made because they are characteristic of various types of ear inflammations. The author, however, has performed the adenoidectomy in acute ear conditions in a series of fifty unselected cases. Not all of these cases have shown such uniform good results. Some came too late, suppuration had gone too far, and spontaneous perforation occurred even after the adenoidectomy. This occurred in five cases and was probably due to the great amount of pus present and the consequent increase in pressure, relief of which came too late. In a few cases paracentesis had to be done following the adenoidectomy. This occurred in seven cases and was probably due to the fact that in removing the adenoids some trauma is unavoidably inflicted which in a certain percentage of cases is sufficiently great to cause a temporary swelling of the lips of the pharyngeal orifice of the Eustachian tube and a consequent blocking of the opening. Therefore, in these few cases patency of the canal is not immediately established and paracentesis is necessary.

On the whole the procedure is very satisfactory and it is well to note that all of the adenoidectomies were done while the inflammation was in an acute state, with elevated temperature, congestion, pain, and tenderness and there were absolutely no untoward effects from the operation. The general surgeon does not hesitate to remove an obstructing band, adhesion, or mass in an acute intestinal condition and likewise the otologist should not hesitate to remove an obstructing adenoid mass in an acute ear condition. Although a few cases (five) went to spontaneous perforation and a few (seven) had to be opened up, it surely is gratifying to find that out of this series in which adenoidectomy had been employed not one case developed a real mastoiditis requiring operative intervention and the majority (thirty-eight or seventy-six per cent.) were cured without any paracentesis, sparing the mother and the child the torture of daily irrigations for six weeks or more, keeping the tympanic membrane intact, and preventing chronic running ears, furunculosis, and eczemas.

231 EAST ELEVENTH STREET.

ULCERS OF THE RECTUM.

BY ARTHUR A. LANDSMAN, M.D.,

NEW YORK.

ASSOCIATE SURGEON RECTAL DEPARTMENT POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING RECTAL SURGEON JEWISH MEMORIAL HOSPITAL; DEPUTY SURGEON DISEASES OF THE RECTUM OUT PATIENTS DEPARTMENT, NEW YORK HOSPITAL.

ULCERS of the rectum have a great interest for the physician because of their frequency, variety, and importance in differential diagnosis. The ill effects upon the individual from the secondary symptoms present in certain types, such as the anemia, absorption of toxins into the circulation, and complications arising from interference with bowel function, have further contributed to make this subject one of marked importance to the physician.

The more general and efficient use of proctoscopy has given us more light on this group of cases, and furnished proof that ulcers of the bowels are far more common than was supposed; this need occasion no surprise when we consider the large number of people who suffer from rectal diseases, many of which may sooner or later become associated with some degree of ulceration, ranging from superficial epithelial erosions, to deep destructive lesions of the walls, and from symptoms which cause merely transient annoyance, to permanent impairment of function, and even loss of life.

It may be naturally inferred that when there are such wide differences in effect, there must be differences in the character of the causative agent, and so it has been found. Ulcers of the bowel may be, broadly speaking, simple, when they are the result of innocent causes, unrelated to special bacterial action or particular disease; or specific, when they are of definite bacterial origin, the expression of constitutional disturbance or malignant states.

Simple ulcers occur in the rectum from bruises or tears of the epithelium by stools which are hard, dry, or rough, from the effect of sharp foreign bodies, or as a complication of some local disease

of the organ such as hemorrhoids, fistula, stricture, proctitis, etc. While injuries to the bowel from the sources stated must be quite common, it is fair to presume that they terminate in normal repair except in those cases in which the primary disease is attended by disturbances of nutrition, of which varicosities of the vessels so commonly seen in this region are good examples. Nevertheless, though healing may be sluggish in such circumstances, there is a tendency for the injury to be repaired without interference with the general health or impairment of function, certainly when the local disease receives appropriate treatment.

Not so in the second group, where the problems are different in degree and kind; the local disease is caused by (*a*) a specific organism which produces characteristic changes in the intestine, (*b*) constitutional conditions whose symptoms may appear in the lower bowel, (*c*) some unknown agent which causes changes, at first local, but soon tending to spread to adjacent and remote organs. The lesions are destructive, the complications severe, the course away from spontaneous recovery. In this category belong ulcerations due to amebic or other tropical forms of dysentery, syphilis, tuberculosis, malignancy, and in a milder form ulcers seen in connection with diabetes, uremia, blood diseases, and some severe general infections.

The differentiation of these becomes an important matter for the physician because the laboratory often fails to furnish the evidence necessary to distinguish one from the other. If we are fortunate enough to have an examination of the patient's blood when it still reacts strongly to the complement fixation test, we may be able to base our diagnosis on syphilis, but even then the possibility must always be borne in mind that persons suffering from ulceration of the bowel due to some other cause, may become infected with lues; in amebic dysentery the organisms are sometimes absent from the discharges for weeks or months, or they may after a time be entirely displaced by secondary organisms. Hence the value of the laboratory examination is limited to such cases as show affirmative evidence.

In not a few cases no positive diagnosis of the etiology can be made at the time when the patient presents himself for examination, or later, and his treatment must perforce remain expectant and symptomatic. But certain types of ulceration present sharply contrasting features and fortunately they are frequently the ones in which differential diagnosis is of greatest help. Cases in point are tuberculous ulcers occurring past middle age, in which no primary focus of infection can be located elsewhere, or ulcers in young individuals who happen to be suffering from chronic gastrointestinal catarrh, frequently recurring colds, or other symptoms which might be interpreted as due to tuberculosis, and especially so when they happen to have a tuberculous family history; in these, attention to certain points will frequently clear up all doubt. Broken-down tubercles of the rectum are very rarely single or limited to any very definite regions, but are scattered in various parts of the rectum and other parts of the intestine; they present a shallow, irregular, worm-eaten base, with soft undermined edges and very slightly raised borders, and are, furthermore, characterized by the absence of any marked infiltration. Malignant ulcers, on the other hand, have a tendency to occur singly and spread by direct extension, forming deep excavations with hard edges, raised borders, and a marked degree of infiltration at the base of the ulcer.

Chancres of the rectum are very rare, occur exclusively low down, are single, have an offensive discharge, and are often accompanied by other changes about the anal margin, and enlargement and tenderness of the inguinal glands. Ulcerating lesions of late syphilis, as for example broken down gummata, are apt to be multiple and often accompanied by stricture or evidences of repair. It is characteristic of syphilis of the rectum that it causes a deposit of plastic material in the bowel, increasing its thickness and lessening its caliber. Hence the walls of the rectum may be made out to be firm and inelastic while the lumen is diminished even to the extent of forming stricture, very common in syphilis, especially in the colored race. Moreover, in late syphilis the history and a complete physical examination may afford significant clues.

Amebic ulcers are not limited to the rectum, and in their early stages are generally small, shallow, oval, and circumscribed and covered with a greyish exudate. Later they may become confluent, but the base of the ulcer remains soft, and lacks the infiltration present in malignancy.

Ulcerations which occur in the course of chronic uremia, diabetes, and blood diseases, as they are found in the rectum, are of no essential interest in this connection, as they can neither be distinguished from each other, nor effectively treated, except as it is possible to cure or hold in check the primary disease. But in the other specific forms, the problem of correct and early diagnosis assumes vital importance as it determines the question of treatment and enables us to take timely measures to prevent disability, restore function, and save life.

310 WEST 86TH STREET.

Recoverable Purulent Meningitis.—Schultheiss of Professor Feer's Pediatric Clinic, University of Zurich, reports two cases of this rare sequence. The first case he sums up as follows: Pneumococcus meningitis following an intranasal operation. Treatment consisted of large doses of urotropin followed by five consecutive acts of lumbar puncture. The headache promptly vanished, the mind cleared up, and after each individual puncture the patient ate with relish. The author concludes that the strain of pneumococcus must have been of low virulence, partly because of the slow, insidious onset of the affection and in part by reason of the quick response to treatment. Purulent meningitis almost always sets in violently. The number of organisms was also small and the cultures were poorly developed. The patient was a boy of five years. In the second case, in a boy of seven years, it was a streptococcus meningitis of otogenous origin. Naturally it was an operative case and to the mastoid operation was added a series of lumbar punctures. Of medical treatment the primary resource was injection of streptococcus serum into the spine after puncture. Urotropin was the second course, for it is known that this substance rapidly enters the cerebrospinal fluid. The prognosis in purulent meningitis, almost hopeless as it seems, is yet considerably better than that of tuberculous meningitis, which is practically 100 per cent. fatal. The ages of the patients afforded a slight advantage, for recovery under the age of three or four is more common than in the later years of childhood. Few cases of this lesion are primary.—*Schweizersche medizinische Woehenschrift.*

Medicolegal Notes.

Opinion Evidence Rules Applied in Malpractice Case—Qualification of Medical Expert—Erroneous Reference by Court to Lack of Knowledge of Defendant.—As an expert is not allowed to draw inferences or conclusions of fact from the evidence, his opinion should be exact upon a hypothetical statement of fact. It is the privilege of counsel to assume any state of facts which there is any testimony tending to prove, and to have the opinion of the expert based on the facts assumed. But the testimony should tend to establish the facts embraced in the question. If the hypothetical question is clearly exaggerated and unwarranted by any testimony in the case, an objection to it should be sustained. The form of the hypothetical question, whether it states facts or puts facts hypothetically, or refers to the testimony of witnesses as being true, should be shaped so as to give the witness no occasion or opportunity to decide upon the evidence. Hypothetical questions are clearly improper if they directly seek the opinion of the witness on the merits of the case. In a malpractice case the question whether a physician has in a given case adopted the proper treatment is one in which the opinion of medical men may be received in evidence, and they may state whether in their opinion the treatment was proper or not, whether it was in conformity with the rules and practice of the profession. As the opinion evidence rule is intended to provide against the danger of invasion of the province of the jury, a court should, as far as possible, exclude the inference, conclusion, or judgment of a witness as to the ultimate fact in issue, even though the circumstances presented are such as might warrant a relaxation of the rule excluding opinions but for this circumstance. But the rule is not absolute, for it frequently occurs that the only possible or practicable method of making proof of the fact in issue is by means of opinion evidence. Applying these rules in an action for damages for alleged negligence in setting and treating the bones of plaintiff's wrist, the Oregon Supreme Court holds that it was error to allow the plaintiff to ask his medical witness whether the application of side splints was unskillful and negligent, over the objection of defendant's counsel. The court said: "The distinction between improper treatment and negligent treatment is not as broad as it is vital. Improper treatment by a surgeon might be due to an error in judgment of a skillful surgeon honestly and carefully exercised, and not constitute negligent treatment. Dishman v. N. P. Beneficial Association, 96 Wash. 182, 164 Pac. 943. The opinion of the expert, Dr. Strickland, left little or nothing for the determination of the jury. It was undisputed that two soft pliable wood splints 3½ inches in width were applied by Dr. Knott (the defendant) to plaintiff's wrist, and encircled the same, except for a quarter of an inch on the top and bottom, as Mrs. Lehman (the plaintiff) stated, or about one-half inch as estimated by another member of her family. It would seem that, in order for the opinions of the experts to be of any assistance to the jury, the condition in which the splints were applied to the arm should have been described. This point was not specifically called to the attention of the trial court. The plaintiff was content to call them 'side splints,' and one of the doctors inquired if the anterior and posterior splints were omitted, and was informed by counsel for plaintiff that they were. If the splints practically encircled the wrist, we fail to see that it would be very material whether they were termed side splints or anterior and posterior splints. While the place where Dr. Knott practised and treated plaintiff was mentioned, the practice about which the experts were interrogated was in no way confined to the practice in similar localities. 21 R. C. L. p. 385, § 30. The testimony in regard to the application of the splints was practically the only testimony indicating negligence on the part of the defendant, and the testimony of the experts was very material. We think it precluded the granting of the motion for a nonsuit, or the request for a directed verdict. It is unnecessary to speculate what the testimony would have been if all of the material elements had been called to the attention of the experts." It was also held that it is not a ground for striking out the testimony of a medical witness that it showed no qualification to answer the hypothetical question as to the treatment of a broken wrist, because the witness had never treated a fracture of this nature with infection. It appeared the witness was skilled in medicine and surgery, and the fact that he had never treated a case exactly like the one in question would not disqualify him from giving his opinion. As the plaintiff did not allege that the defendant did not possess the requisite knowledge and skill to treat the plaintiff, but that he failed to exercise such skill and knowledge, it was held error to refer, in an instruction to the jury, to possible lack of knowledge of the defendant, which reference might lead the jury to consider the defendant's qualifications. Judgment for the plaintiff was reversed.—Lehman v. Knott, Oregon Supreme Court, 196 Pac. 476.

Hypothetical Questions Including Matter Not in Evidence Excluded.—In an action by a physician for medical services to the defendant's wife, the defendant counterclaiming for damages for the plaintiff's negligence in treating the wife after childbirth, the Wisconsin Supreme Court holds that it was error prejudicial to the plaintiff physician to allow hypothetical questions to medical witnesses by the defendant's counsel as to the existence of pus in the uterus of the defendant's wife, in the absence of evidence as to the nature of the pus.—Schentzky v. Zants (Wis.), 182 N. W. 751.

Cross-Examination of Medical Witness Called Merely to Identify X-Ray Plates as to Treatment of Fractured Joint Excluded.—A physician, called merely for the purpose of identifying *x*-ray plates made by him showing a fracture of both bones of one of the plaintiff's legs, testified that he did not know whether the fracture had been reduced before the plates were made, and that he could not say whether or not it was a compound fracture. The Kansas Supreme Court holds that an objection to a question on cross-examination calling for his opinion whether or not a compound fracture could be reduced the same as any other kind was properly sustained, this not being proper cross-examination, because, although the witness was a physician, he was called merely for the purpose of identifying the plates made by him.—Simpson v. Schiff (Kan.), 197 Pac. 857.

Sufficient Indictment Charging Practising Without License Under West Virginia Statutes.—An indictment which avers that the defendant without first having complied with sections 9, 10, and 11 of chapter 150 of the West Virginia Code (secs. 5343-5345), governing applicants and the issuing of certificates of license to practise medicine and surgery in the State, and without first having obtained a State license so to do, as required by the laws of the State, did unlawfully practise medicine and surgery as defined in chapter 150, § 8aXII (sec. 5342l), Supplement 1918 of the Code, sufficiently charges the offense prescribed by the statute, and sufficiently negatives the fact of the defendant's being of the first class of practitioners described in said section 9. While practitioners of medicine and surgery since the amendment of said section 9 by chapter 22 of the Acts of 1889 have not been required to submit themselves to examination and obtain new certificates of license, nevertheless prior to that amendment and since the amendment and reenactment of said chapter 150 in 1882 (Acts 1992, c. 3), they have been required to have such certificates of license as a condition of the right to practise medicine and surgery, and the averments of the indictment were held sufficiently to negative the fact that the defendant was of the first class of practitioners described in the statute.—State v. Kirkpatrick, West Virginia Supreme Court of Appeals, 106 S. E. 887.

Hospital Held Public Charity, Not Liable for Negligence of Its Servants.—The Massachusetts Supreme Judicial Court holds that the Massachusetts Homeopathic Hospital, created by St. 1855, c. 411, and authorized to hold property for the support and maintenance of a hospital for sick persons, the recipient of a donation under St. 1890, c. 358, in consideration of maintaining not less than twenty free beds, and authorized by St. 1898, c. 137, to accept the property and funds of the Homeopathic Medical Dispensary held for charitable purposes, is a public charity, and therefore not liable to a patient for the negligent acts of its servants or agents.—Kidd v. Massachusetts Homeopathic Hospital (Mass.), 130 N. E. 55.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, October 22, 1921.

THE NEGATIVITY OF A NEGATIVE WASSERMANN.

THE old-time practitioner is fond of remarking that these young shavers nowadays can't make a diagnosis unless they have a laboratory along with them. This, we hope, is rather a heightened statement, but it is built upon the undoubted fact that far too much reliance is placed upon laboratory tests and too little upon the patient himself. This attitude tends naturally to neglect of physical diagnosis and the acceptance of the dicta of the laboratory as final. One wonders what would happen should the labels on specimens get mixed up occasionally. Probably the minister would be put on arsphenamine therapy and the typhoid fever patient served with steak and potatoes.

In a recent article, Dr. Ferencz Veress, professor of venereology at the University of Chuj, Roumania, calls attention to the unfortunate results which may accrue from attaching too much importance to a negative Wassermann reaction. As the professor justly points out, this reaction may be negative at any stage and with any severity of syphilis. Rather should clinical symptoms be searched for and properly evaluated, especially when the question is whether or not to discontinue antiluetic treatment. It may quite possibly be necessary to give a prolonged course of treatment even after the Wassermann reaction becomes negative. It is not difficult, of course, for a medical practitioner to realize the truth of this, and indeed most physicians who have occasion to treat many syphilitics soon come to hold the same idea themselves. What is not always appreciated, however, is the undue importance which the patient himself attaches to a negative Wassermann. Wishing to believe that he does not have syphilis or that he is cured, the patient is too likely to ignore the request of the physician that he have further examinations made, and go on his way rejoicing. Far better, should there be any clinical manifestations of the disease, it is to tell the patient, not that the test was "negative," but that it was not final and that probably several more will have to be done. This course of procedure is ordinarily entirely feasible when the usual relations exist between physician and patient and is quite justified for the latter's sake when there are any clinical evidences of lues. It is, of course, unwarranted when there is no logical reason to suspect the disease, but when the patient himself is suffering from syphilophobia. In such a case the practitioner should dwell with emphasis on the negative reaction.

Unfortunately many of the laity, knowing that they have contracted syphilis in the past or fearing they have done so, go directly to a laboratory and have a Wassermann reaction done. If this is negative, they are once conclude that they do not have syphilis and do not bother to see a practitioner or to take treatment. In this way necessary treatment may be neglected and the disease itself communicated to others owing to the patient's misplaced confidence in the one laboratory test. When the doctor thinks then of a negative Wassermann reaction let him think of it as indeed "negative." By itself it means exactly nothing. If a knowledge of this fact will turn his attention more to clinical symptoms the patient—and incidentally the physician—will be greatly benefited.

ASTHMA IN NURSLINGS AND CHILDREN.

ASTHMA in nurslings is generally overlooked or mistaken for bronchopneumonia or recurring bronchitis. In very young infants the affection does not assume the same clinical aspects as in adults; in the latter the paroxysms develop suddenly without premonitory catarrh of the throat or bronchi, while in infants and children up to the age of six years it is always accompanied or preceded by signs of tracheitis or bronchitis. The paroxysms of asthma generally appear in infants who are predisposed to colds, hoarseness, sneezing, or bronchitis. During an attack of rhinitis the infant is seized suddenly either at night or during the day with dyspnea, respiration increases—in adults it is usually slow—the nasal alæ are animated with movements, while a pulmonary whistling sound, especially during expiration, which is very prolonged, can be heard some distance from the patient. This noise is frequently interrupted by a paroxysmal cough and the patient is distressed, cyanosed, and pale. Auscultation reveals sibilant râles, especially during expiration, the respiration sound is short and obscure, percussion is normal with a slight tympanic sound. Occasionally some mucous râles can be heard, particularly over the pulmonary bases, which might lead one to suspect a bronchopneumonia, all the more so because the temperature is raised.

In infants the attacks last from one to two days with intervals of respite and exacerbation, the latter being more frequent at night. The attack usually ends suddenly. The asthmatic process may be mild or, on the other hand, assume the aspect of a suffocative catarrh. The

prognosis of the affection is good, and the younger the infant the greater are the chances of a permanent cure. When the first paroxysm of asthma occurs after the age of fifteen years the affection will last during the life of the patient, while if the onset occurs under the age of five years complete recovery will usually be noted by the age of ten, and is greatly favored by the exhibition of potassium iodide.

As is known, asthma is a spasm of Reisseissen's muscles with vasomotor and secretory disturbances that have been regarded as the result of an abnormal stimulus of the pneumogastric. It is admitted that the paroxysm is always provoked by some variable occasional cause, but always the same for each patient. In order that this cause shall act, the predisposed subject must offer a special constitution, the nature of which is not clear. Some stimuli, the inhalation of dust, the perception of certain odors or certain foods determine paroxysms of asthma by acting on the terminal filaments of the pneumogastric or on the bulbar origins of this nerve; therefore, the process has been thought to be due to a neurosis of the vagus or bulb.

This theory at present seems to be giving way to the opinion which regards asthma as the result of an anaphylactic shock. To maintain this hypothesis clinical and experimental observations have been taken as a basis. In the same subject it is usually the same cause which produces the paroxysm, so that the patient is in a way sensibilized. In the guinea pig anaphylactic shock is manifested by a spasmodic dilatation of the thorax similar to that occurring in asthma, and autopsy reveals a spasm of the bronchial muscles. The conditions of this sensibilization or predisposition to asthma are to be found in the arthritic heredity of asthmatic subjects, their parents having been subject to migraine, periodical vomiting, asthma, eczema, hemorrhoids, gout, diabetes, obesity, and other diatheses. And, in point of fact, in children one frequently observes the coincidence or succession in the same patient of eczema and asthma. Hutinel has seen attacks of asthma alternate with urticaria, prurigo, strophulus, or even periodical vomiting.

Landouzy formulated the theory of tuberculous asthma. The bacillary toxins sensibilize the organism and give rise to the paroxysm, the preexisting pulmonary lesion localizing the shock to the respiratory apparatus. As a proof Landouzy showed that the syndrome of asthma usually accompanied the manifestations of tuberculosis in the immense majority of cases. But Marfan points out that the cases observed by Landouzy were all in adults. Now, after the age of twenty years, nearly every individual in all civilized countries will have tubercle bacilli somewhere in the organism, and we know that of one hundred adults taken at random 97 per cent. will react to tuberculin. Therefore, in order to solve the problem very young asthmatics must be examined or those still free from tuberculous infection. Now, of the asthmatics less than two years of age the cutireaction essayed by Marfan several times in succession was always negative, excepting in a single instance of an infant nine months old. Therefore, asthma, in at least some subjects, is quite independent of any tuberculous infection.

PSYCHOTHERAPY IN PHTHISIS.

A POPULAR lay idea of the tuberculous patient is an emaciated individual with a hectic flush on his cheek, an unnaturally bright eye and an incurable optimism. This latter point has even been embodied in an aphorism to the effect that: "Patients having diseases below the diaphragm are depressed; above, exalted." An even more appealing idea, although not perhaps so widely held, is that the toxins of tuberculosis often stimulate the fires of genius and the indulgers in this romantic fantasy quote glibly the names of Stevenson, Chopin, *et al.*

Now all these theories have their origin in a fact which was dimly recognized many years ago and which is coming more and more into its own; that is, that certain peculiarities of individual psychology lead to habits of life and manners of thinking which inevitably predispose to certain very definite physical disorders. For example, the dementia precox patient, with his disinclination to exercise, his tendency to close, secluded places, his comparative physical immobility and often his uncleanness, easily becomes tuberculous. So we see in hospitals for mental disorder a large incidence of tuberculosis among precox cases and, conversely, reviews of the previous history of this class of patients, even in general hospitals, disclose many of them to be of the introverted type of make-up.

No one would pretend, of course, to treat phthisis by purely psychotherapeutic measures. At the same time, there is no doubt but what these would form an effective part of the therapy, if tried more generally. In that millenium to which psychiatrists look forward, where insanity will be treated by prevention instead of segregation, the child showing tendencies toward introversion will be directed toward healthier mental attitudes, and precox or tuberculosis or both will be prevented. Even where the disease is actually established, there is a vast and greatly neglected field for psychotherapy. These patients often, as is not surprising, develop pathological mental reactions which impede a cure and may indeed hasten the progress of the disease. These reactions may amount to true psychoses, such as confusional or paranoid reactions, or they may be such psychoneurotic reactions as fear or anxiety states. Often with the realization of the disease, the patient rapidly regresses to a rather infantile level where he is content to be waited upon and to let the disease take its course.

Such states are naturally rather intractable,

but much may be done in the way of prevention; and even when they are fully established intelligent psychotherapy may enable the patient to withdraw his interest from himself to some extent and assist in his own treatment. Of more use is psychotherapy when there exists such a condition as a morbid fear of hemoptysis or where the patient is unable, through some psychical reason, to tolerate certain articles of diet almost indispensable to recovery.

In short, the tuberculous patient will be found very frequently to suffer from wrong mental habits which tend materially to hinder his treatment. From this viewpoint each of these patients is a highly individual problem. Close study of his psychology, followed by the intelligent application of psychotherapeutic methods, will give the routine forms of treatment their utmost opportunity.

Unique Lesions of the Mucosæ (Koplik's Spots?) Due to Vaccination.

An efflorescence on the buccal mucosa suggestive of Koplik's spots would naturally lead in foundling and children's hospitals to isolation on the presumption that measles was imminent. This would invariably happen if measles already existed in the vicinity. The fact that the affected children had recently been vaccinated against smallpox would not alter the *status quo*. A careful study of the unusual behavior of vaccinia has failed to show that such a buccal efflorescence has ever occurred during this condition, whether artificially or naturally acquired. Yet Preisich, a pediatrist of Vienna, writing in the *Wiener klinische Wochenschrift* for August 18, 1921, xxxiv, 33, claims to have had this experience. The condition of redness, roughness, and loosening in some of the area of the buccal mucosa—the portions of the cheeks surrounding the orifices of Steno's duct—was associated in one child with a suspicion of conjunctivitis. The affected infants were all in the febrile period of vaccina. Further investigation showed in some subjects similar lesions of the border of the soft palate at the sides of the base of the uvula. But no measles-efflorescence developed in the skin, and the buccal lesions subsided with the vaccina fever. The closest resemblance exists between these lesions and the terminal appearance in Koplik's spots.

"Barbed Wire Disease" in Tuberculosis Sanatoria.

The so-called "barbed wire" or "wire fence" disease of war prisoners was described among others by Vischer of Zürich in 1918, and this author may have been the first to call attention to the fact that the same picture appears in sanatorium patients. Kollarits, a Hungarian physician, who has been sojourning in Davos, Switzerland, contributes an article on the latter phase of the subject in the *Schweizerische medizinische Wochenschrift* for August 11, 1921, li, 32. The symptoms may be readily summed up. The central point is the desire to get out of the institution. This is expressed by depression, insomnia, anorexia, dislike and distrust of the other inmates, personnel, and medical men, which lead to petty squabbles and animosities. This mental state is interwoven with the hopes and despair incidental to the progress of the case. The disease picture often comes on explosively. The patient of a sudden feels that he can no longer tolerate being under supervision. If possible he may at once leave the sanatorium for a hotel. Once in the latter there is a further reaction. The patient is now extremely lonely and on one occasion a rise of temperature of but 2-10 of a degree led the sufferer to wire his mother to come to Davos, a journey of 1000 kilometers. He next returned to the sanatorium as the lesser evil, but at once there returned the impulse to get away. He then left Davos altogether for Meran, entered a hotel and then at once repaired to a local sanatorium. In two weeks' time he was in Davos again, constantly impelled by the "barbed wire" sensation, yet having always the counter impulse to get "within the fence" again. Treatment is of the simplest—merely tell the patient he is free to leave the institution at any time and the motive for barbed wire disease no longer exists. This course could not of course be pursued with war prisoners.

News of the Week.

Baltic States Set Up First Wall Against Cholera.—According to a report from the American Red Cross Commission to Europe, the famine stricken districts of Russia from which the emigration started are so affected with cholera that combative measures are impossible under present circumstances. The cholera epidemic is gradually spreading over the country, and the rest of Europe is faced with the danger of cholera. Three Baltic States, Latavia, Esthonia and Lithuania, have assumed the responsibility of making a sanitary cordon against the spread of the disease. A Baltic conference was suggested by Lieutenant-Colonel Edward W. Ryan, Red Cross Commissioner to Western Russia, and this conference was held in Riga under his honorary presidency, with the assistant director of the Latavian Health Department, Dr. Livitzki, in the chair. The conference agreed to adhere to the Paris convention of 1903-1911, and it was decided to consider the decrees of the convention of Paris as binding for the three Baltic States, and to induce the representative Foreign Offices to take the necessary steps for their formal adherence to the convention. It was decided by the conference to request the aid of the American Red Cross in organizing the work, so that the first wall against cholera should not be in danger of collapse, and the infection spread from the harbors and the borders of the Baltic States throughout the world.

The conference also dealt with the internal measures to be taken against cholera, and unanimous agreement was reached on this subject. A restriction of railway traffic was found to be necessary in order that the health departments might confine the right of railway travel to such persons only as could show a certificate of health issued by the local authorities. Compulsory vaccination against cholera was not provided for as an invariable rule, but the medical officer in charge was authorized to apply compulsion should circumstances call for such action.

County Commissioners Favor Tuberculosis Hospitals.—The County Commissioners of Pennsylvania, in their annual convention held in Harrisburg, September 29, 30 and October 1, passed resolutions recording their approval of the plan providing hospital care for the persons in each county afflicted with tuberculosis. The convention at the same time voted to name a committee of five commissioners to consider the question of hospital care for the tuberculous and those afflicted with other contagious diseases. Seven counties in the State will hold referendums next month on the question of maintaining tuberculosis hospitals.

Anthrax in New York.—The death of Michael F. Farley, formerly representative from the Fourteenth Congressional District of New York, from anthrax believed to be caused by a shaving brush, has revealed the fact that the Health Department has been carrying on a campaign for several months to prevent the spread of anthrax germs through the importation of foreign hair and hides. The Division of Industrial Hygiene has barred the entry of 10,000 shaving brushes from Japan, and has compelled the return of the shipments on the ground of anthrax infection. Similar action has been taken with regard to large shipments of hair from Russia and Siberia. Fifty-seven bales of hides from China have been excluded because they were found to be infected with anthrax. In the last nineteen months there were thirty-four cases of anthrax here, twenty of which were shaving brush infections. There was a total of eleven deaths in this group, nine of them shaving brush victims. One of the other two deaths was caused by an anthrax tooth brush. The other resulted from an infected scrubbing brush.

Physical Examinations for New York's Vagrants.—Steps have been taken in a program to examine physically every man of the 40,000 or more now classed as "vagrants" in New York. On the theory that a large percentage of the men in the parks and without homes here are diseased, the Department of Public Welfare is making arrangements with the city's hospitals for commitment of many men. All the men found loafing in the streets and parks will be placed under temporary arrest, it is understood, by the police. The roundup will start as soon as cooperation can be had between the Welfare, Health and Police Departments, according to Commissioner Bird S. Coler, head of the former. The men "arrested" will be taken to the Department of Health, and those needing hospital care will be held prisoners until cured.

Birth Control Clinics.—Plans for the First American Birth Control Conference, which will be held in the Hotel Plaza, November 11-13, 1921, are under way. It has been announced that following the conference clinics will be opened in several of the Southern States where there are no laws prohibiting them, and that, according to present arrangements, more than ten of these clinics will be in operation within the next year. Among those on the Conference Committee are Professor Walter B. Pitkin, Dr. S. Adolphus Knopf, Dr. Mary I. Bigelow, Dr. and Mrs. Frederick Peterson, Dr. Donald R. Hooker, and Miss Lilian Wald.

Hospital Notes.—Architects are preparing plans for an addition to the Wilkes-Barre (Pa.) Hospital. The estimated cost of the new structure if $125,000.

Arrangements have been made for the erection of a new hospital in Phillipsburg, Pa.

Work has been begun on the addition to the Syracuse (N. Y.) Hospital. The plans for the new building call for the expenditure of $40,000, and provide for a modern maternity service.

Ground was broken on October 9 for the new Beth Israel Hospital in Livingston Place, between Sixteenth and Seventeenth Streets, New York. The estimated cost of the new building is $3,000,000. It will be thirteen stories high and furnish accommodations for 500 patients. The site for the new building was purchased four years ago for $400,000. The hospital has $1,125,000 with which to start building operations and expects to raise the remainder before the completion of the building.

New York Hospital Anniversary.—The Society of the New York Hospital, which controls the New York and Bloomingdale hospitals and the Campbell Cottages for Convalescent Children at White Plains, and which was chartered by King George III, will celebrate its 150th anniversary on October 26. Ceremonies will be held in Trinity Church, when Bishop William T. Manning, Governor Miller, Elihu Root, and others will speak.

Dr. H. H. Rusby, head of the Mulford biological exploration party, has sent a report to the Columbia University School of Pharmacy announcing that new drug plants and species of insects have been discovered in the Amazon River basin. The expedition is proceeding down the Bopi River in the prosecution of its researches and has penetrated into the little known regions of the interior of Bolivia.

Intensive Course in Tuberculosis.—An Institute for Physicians will be held by the Boston Tuberculosis Association on October 26 and 27 in the amphitheatre of the Massachusetts General Hospital. It is to consist of an intensive course of lectures on tuberculosis. The institute has been organized by a committee of the Association, consisting of Dr. Cleaveland Floyd, chairman; Dr. Edward O. Otis, Dr. William C. Woodward, Dr. John B. Hawes, 2d, and Dr. Randall Clifford. The lectures will be delivered by authorities on tuberculosis from various parts of the country.

Memorial to Dr. E. L. Mooney.—Members of the Lieutenant Edward Mooney Post, Veterans of Foreign Wars, Syracuse, N. Y., at a meeting on October 6, adopted resolutions to erect a memorial tablet to the late Dr. Edward L. Mooney, father of the boy after whom the post is named. A committee has been appointed to draft a plan for a tablet to be placed in the rooms of the post.

Dinner to Professor Dessauer.—Dr. Charles H. Jaeger of New York gave a dinner on the evening of October 14 at the Hotel Plaza for Professor Fredor Dessauer of the University of Frankfort, who came to this country on the invitation of the American Roentgen Ray Society to read a paper at the annual congress held in Washington recently. The guests included the physicians and surgeons of the Lexo Hill Hospital.

Dr. Oliver S. Hillman has removed his office to 114 East Fifty-fourth Street, New York City, where he has opened a pathological laboratory.

Dr. Rene Ledoux Lebard of Paris, France, addressed the Section on Historical Medicine of the New York Academy of Medicine at its meeting held

October 13. His subject was, "Color Print Illustration of Medical Books up to the Year 1800."

Dr. John M. Quirk of Watkins was elected president of the Sixth District Branch of the Medical Society of the State of New York at its annual meeting held in Watkins, October 4, 1921.

Gifts and Bequests.—Harvard University is the recipient of a bequest of $200,000, the income of which is to be devoted to the investigation of the origin and cure of cancer, under the will of Hiram F. Mills of Hingham, Mass.

A gift of $100,000 by T. F. and H. E. Manville toward the fund of $750,000 needed for the completion of the Fifth Avenue Hospital, New York, has been announced.

The will of Mrs. Jemina S. Sims bequeaths $10,000 each to the Manhattan Eye and Ear Hospital, the New York Eye and Ear Hospital, New York City, and the Masonic Hospital, Ithaca, N. Y.

By the will of the late Edith E. Collins of Lower Merion the sum of $10,000 is bequeathed to the Hospital of the University of Pennsylvania for the maintenance of beds in the orthopedic ward in memory of the testator's parents, S. Conard and K. E. Conard.

The will of the late Robert Foland of Philadelphia bequeaths $2,000 to the Children's Hospital and $1,000 to the Chestnut Hill Hospital.

Free Health Lectures.—The Public Health Education Committee of the Medical Society of the County of New York in cooperation with the New York Academy of Medicine announces a course of free public lectures on health education and prevention of diseases, to be given at the New York Academy of Medicine, 17 West 43d Street, from October 14 to December 14, 1921. The first of these lectures was delivered on October 14 by Dr. Ralph Lobenstine, who spoke on "The Proper Care of the Expectant Mother." Following him Dr. George W. Kosmak spoke on "The Necessity for Proper Care for the Mother after the Delivery of Her Child." On October 19, talks on the "Care of the Pre-school Child" were given by Miss Mary Arnold and Dr. Louis Schroeder. On Friday, October 28, at 8:15 P. M., the subject will be "Mental Hygiene in the Community," and the speakers will be Dr. A. J. Rosanoff and Dr. Mary MacLaughlin. On Wednesday, November 2, at 4 P. M., the subject will be, "What the Public Should Know about Cancer." At this time Dr. Charles E. Farr and Dr. Elise S. L'Esperance will speak.

The New York and New England Association of Railway Surgeons will hold its thirty-first annual meeting at the Hotel McAlpin, New York, October 29, 1921, under the presidency of Dr. J. F. Black of White Plains, N. Y. On Friday, October 28, clinics will be held at the Hospital for the Ruptured and Crippled in the morning and at the Post-Graduate Hospital in the afternoon.

Medical Society Elections.—The Indiana State Medical Association, at its annual meeting held in Indianapolis, September 28-30, elected the following officers for the ensuing year: *President*, Dr. W. R. Davidson, Evansville; *First Vice-President*, Dr. Thomas Jones, Anderson; *Second Vice-President*, Dr. William Ashbury, Terre Haute; *Third Vice-President*, Dr. E. S. Jones, Cameron; *Secretary-Treasurer*, Dr. Charles N. Combs, Terre Haute.

The Valley Medical Association, at its semi-annual meeting held in Winchester, Va., October 1, elected the following officers for the ensuing year: *President*, Dr. Charles C. Conrad, Harrisonburg; *First Vice-President*, Dr. Hunter H. McGuire, Winchester; *Second Vice-President*, Dr. Harry Wallace, Greenville; *Secretary*, Dr. Alexander F. Robertson, Jr., Staunton; *Treasurer*, Dr. J. Y. Beidler, Harrisonburg.

The Medical Society of Pennsylvania, at its seventy-first annual convention held in Philadelphia, Oct. 6-8, 1921, elected the following officers for the ensuing year: *President*, Dr. Lawrence Litchfield, Pittsburgh; *Vice-Presidents*, Dr. John B. Carnett, Philadelphia; Dr. Victor Chanel, Williamsport; Dr. John B. Murray, Washington, Pa., and Dr. Spence M. Free, Du Bois; *Secretary*, Dr. Walter F. Donaldson, Pittsburgh; *Assistant Secretary*, Dr. C. B. Longenecker, Philadelphia; *Treasurer*, Dr. J. B. Lowman, Johnstown.

Obituary Notes.—Dr. James Raynor Hayden of New York was found dead on the golf links of the Rockaway Hunt Club at Cedarhurst, L. I., shot through the head, on October 10. He was fifty-nine years of age. Dr. Hayden was graduated from the College of Physicians and Surgeons, New York, in 1884, and was formerly a professor in that institution. He was a member of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Urological Society, of the American Genito-Urinary Association, the International Société d'Urologie, the New York Academy of Medicine, and many other medical and lay organizations. He was formerly on the staff of Bellevue and Roosevelt Hospitals, and was consulting genitourinary surgeon to St. Joseph's Hospital, Yonkers, N. Y.

Dr. Everind A. Kirkpatrick, a graduate of McGill University Faculty of Medicine in 1888, died at his home in Halifax, Nova Scotia, on September 23, at the age of sixty years.

Dr. Robert A. Toms of Noroton, Conn., a graduate of the New York Eclectic Medical College in 1896, died on October 4, at the age of fifty-two years. Dr. Toms formerly practised medicine at Kenmore, N. Y.

Dr. William S. A. Castles of Memphis, Tenn., a graduate of Vanderbilt University Medical Department, Nashville, in 1882, died in a local hospital on September 29, at the age of sixty-two years.

Dr. John S. Frazer, a graduate of the Michigan College of Medicine in 1885, died of heart disease at his home in Detroit, Mich., on September 29, at the age of sixty-four years.

Dr. Asa A. Allen, a graduate of the New York Homeopathic Medical College in 1876, died suddenly at his home in Edgewood, R. I., on September 25.

Dr. O. C. Walker of Alliance, Ohio, a graduate of the Cleveland College of Medicine and Surgery in 1913, was assassinated at his home on September 27. He was thirty-five years of age.

Dr. Milton Howard Fussell of Philadelphia died on October 15 on a train on the way from Lock Haven to his home, at the age of sixty-six years. He was graduated from the medical department of the University of Pennsylvania in the class of 1884. He was for a number of years assistant in medi-

cine, later assistant professor of medicine and since 1911 profesor of applied therapeutics in the university. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the American Medical Association, the Pathological Society of Philadelphia, the Philadelphia Pediatric Society, the Philadelphia Neurological Society, and the Association of American Physicians, and a Fellow of the College of Physicians of Philadelphia. He served during the recent war with the rank of captain as a member of a Tuberculosis and Cardiovascular Board at Fort Niagara and Gettysburg, and also as a member of a Medical Advisory Board. He was author of "Differential Diagnosis of Internal Diseases" and editor in charge of the revision of "Tyson's Practice of Medicine."

Dr. EDWARD G. JONES of Atlanta, Ga., a graduate of the Atlanta College of Physicians and Surgeons in 1900, and a Fellow of the American College of Surgeons, died on October 6, at the age of forty-eight years. He was formerly president of the Georgia State Medical Association, and professor of surgery at Emory University.

Dr. JOHN H. MURPHY, a graduate of Harvard University in 1893, died at his home in Dorchester, Mass., on October 6, at the age of forty-eight years.

Dr. A. CLARENCE MUSGRAVE of Toledo, Ohio, a graduate of the Eclectic Medical School, Cincinnati, and also a graduate in dentistry, died in a local hospital following an abdominal operation, on October 4, at the age of forty-seven years. During the recent war he served nine months as first lieutenant in the dental corps, overseas.

Dr. THOMAS CLAYTON FRAME, a retired physician of Dover, Del., died on October 3, at the age of eighty-one years. He was graduated from the University of Pennsylvania School of Medicine in 1866. He later graduated from the Law School of the University of Pennsylvania and from the University of Edinburgh, Scotland, in medicine.

Dr. WALTER LYTLE PYLE, a graduate of the University of Pennsylvania School of Medicine in 1893, died at his home in Merion, Pa., on October 8, at the age of forty-nine years. He was a member of the American Medical Association, the American Ophthalmological Society, the Philadelphia County Medical Society, and the Medical Society of the State of Pennsylvania. He was for a time chief resident physician at the Emergency Hospital, Washington, D. C., and was later ophthalmologist to the Polyclinic and Wills Eye Hospitals, Philadelphia; author of a "Manual of Personal Hygiene" and editor of a "System of Personal Hygiene" and with Dr. George M. Gould, co-editor of "Anomalies and Curiosities of Medicine and Surgery."

Dr. EVERETT SHIPLEY of Seaford, Del., a graduate of the College of Physicians and Surgeons, Baltimore, in 1891, died suddenly of angina pectoris on September 30, at the age of sixty-six years.

Dr. ALBERT W. CARSON, a graduate of the Medical College of Ohio, Cincinnati, in 1875, died at his home in Richland, Kan., on September 29, at the age of seventy-one years.

Dr. JOHN W. ELLIOTT of Linden, Ind., a graduate of the University of Louisville Medical and Surgical Department in 1897, died on October 1, at the age of fifty-nine years.

Correspondence.

HOW TO INCREASE THE DEATH RATE FROM CANCER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—*Health News* is an official publication of the New York State Department of Health, Division of Public Health Education. The August, 1921, issue of this publication contains an article upon cancer by Francis Carter Wood, M.D., director of the Institute of Cancer Research, Columbia University, New York City. This article is, perhaps, the most remarkable article upon cancer that I have ever read. I quote a few sample passages. To be thoroughly appreciated, the article should be read as a whole. (*All italics are mine.*)

"This [yearly] *increase in the number of deaths from cancer* . . . is partly, at least, due to improvements in methods of diagnosing the disease." (Paragraph 1.) Then: "It is, therefore, the duty of every practitioner to remove for microscopic examination specimens of tumors which can not be diagnosed in any other way, *for it is only by such means that the mortality from cancer can be reduced.*" (Closing sentence.)

"Others, again, will grasp at the *false hope* offered by the magic reputation of radium and *x*-ray, and *most of those who do so will be added to the death list.*" (Paragraph 7, explaining why there are so many deaths from cancer.) Then: "*Every tumor* which has passed beyond the stage where satisfactory operation is possible *should be treated with x-ray or radium*, and *all patients operated upon should receive a post-operative course of x-rays to delay or prevent any possible return of the tumor* from particles which have escaped the knife."

I like the "false hope" paragraph, followed in the next paragraph by advice to use said false hope at some stage in every last case of cancer. And fancy "every practitioner" cutting out samples of "tumors which cannot be diagnosed in any other way"—it's their "duty"!

This is an educational document! For the public! With the official sanction of the New York State Department of Health! At public expense the public is being taught what isn't so about cancer in order to avoid death from cancer; and physicians are informed that it is their "duty" to do an impossibility! It would be a roaring farce if it were not tragic.

SEELYE W. LITTLE, M.D.

ROCHESTER, N. Y.

RELATION OF THE ADRENAL CORTEX TO GRAVES' DISEASE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—This is to call your attention to an editorial article, "Possible New Light on the Nature of Exophthalmic Goiter," which appeared October 8, 1921, in the *Journal of the American Medical Association*. The writer of the editorial comments on the experimental work of David Marine and E. J. Baumann which was published in the *American Journal of Physiology*, August, 1921, under the title, "Effect of Suprarenal Insufficiency (by Removal or Freezing) in Rabbits." The chief interesting point in their admirable work is the fact that in supra-

renalectomized rabbits the basal metabolism is increased in a similar manner as in exophthalmic goiter, and for this phenomenon the cortex and not the medulla is responsible. Inasmuch as until now a primary thyroid hyperfunction was considered as the sole cause for increased metabolism in Graves' disease their work is bound to revolutionize our modern conceptions. The writer of the editorial also comments on the fact that articles had appeared in the journal in which views were expressed on purely hypothetical grounds in the same direction.

In a paper: "The Possible Relation of the Adrenal Cortex to Graves' Disease," etc., read before the Harlem Medical Association, November 4, 1920, and published in the MEDICAL RECORD, February 19, 1921, which was discussed by Dr. Emil Goetsch, Dr. George Draper and Dr. Samuel Bandler, an explanation in full was given of the relation of the adrenal cortex in Graves' disease. If one compares this article with the experimental work of Marine and Baumann it will become evident that there is no difference. In summing up the paper, I wrote: "Some of the clinical symptoms found in individuals afflicted with Addison's disease, such as emaciation, asthenia, and hyperpigmentation, manifest themselves, truly to a lesser degree, in individuals suffering from Graves' disease. The symptoms have been shown to be due chiefly to various degrees of cortical deficiency. Because of the mild grade of cortical hypofunction in hyperthyroid states the above mentioned symptoms are not as frequent or as pronounced as in Addison's syndrome. The hyperpigmentation in Addison's disease as well as in Graves' disease is due to the same cause, *i.e.* to the increased retention of uric acid in the blood on account of adrenal cortical insufficiency." A suggestion of treating patients suffering from Graves' disease with adrenal cortex was made.

My purpose in writing these lines is an attempt to correlate my clinical observations with the experimental work of Marine and Baumann to whom the credit belongs for establishing a definite link in the chain of the relation of the adrenal cortex to Graves' disease.

G. A. FRIEDMAN, M.D.

1000 PARK AVENUE.
NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, September 30, 1921.

The National Insurance Act.—Somewhat of a bombshell has been dropped into the camp of the panel medical practitioners, those who practise under the National Insurance Act, by the announcement of Sir Alfred Mond, the new Minister of Health, that he proposed to reduce the capitation fee paid to panel doctors from eleven shillings to nine shillings and sixpence or thereabouts. The present total cost of medical benefit under the act is about £8,000,000, of which medical men receive about £6,700,000. The carrying into effect of the proposal of the Minister of Health would mean a reduction of the government share of the payments to the extent of about £2,000,000. It is believed by some that this is only a part of the truth, and that really the government intends to withdraw from participation in the Insurance Act altogether. Perhaps the attitude of the two leading medical journals of this country possesses some significance; the *British Medical Journal* has ranged itself almost unreservedly on the side of the panel practitioners, while the *Lancet* in its issue of September 24 published a leading article which seemed to hint that if certain things came to pass government financial support might be withdrawn entirely. However, the *Lancet* editorial rightly pointed out that the act had as yet not had a fair trial and went on to show that in spite of the war which paralyzed development, the act had worked so well for the friendly societies that they now had at disposal a surplus large enough to be coveted for a number of useful purposes. The medical practitioners themselves who were at first opposed to the scheme, now welcomed insurance practice, especially in industrial districts. Moreover, it must not be assumed that if the state refused to continue to contribute its quota toward health insurance, the contributory principle would fall to the ground. It appears more than likely that the friendly societies will still desire to offer medical benefit, making arrangements directly with the medical profession. The government must economize in view of the immensity of the unemployment problem, and as the Ministry of Health and its policy have been unpopular with the masess from the beginning economy will commence with the Ministry of Health. So far as the question of the proposed reduction of the capitation fee of the panel practitioners rests between the Ministry of Health and these practitioners, the official contention is that medical men have benefited enormously under the panel system. The panel practitioners, on the other hand, hold that they are not excessively paid and some of them even suggest that the broom of economy should be used to sweep out many if not most of the highly paid medical bureaucrats at the present time directly employed by the Ministry of Health. It is thought by certain of the would-be cognoscenti that the government contribution to the National Insurance Act will cease entirely in the near future and that if the medical men raise a great disturbance over the matter the death of the act will probably come quickly.

Post-Graduate Medical Study in Glasgow.—A central organization has been formed, the Glasgow Post-Graduate Medical Association, for the purpose of arranging, coordinating, and administering post-graduate medical education in Glasgow and the West of Scotland. General and special courses will be arranged and duly advertised. A comprehensive permanent scheme has been adopted and with its wealth of clinical material it is confidently anticipated that Glasgow will become one of the leading centers of post-graduate medical teaching.

Increase of Tuberculosis in Glasgow.—At a meeting of the subcommittee on the Prevention of Tuberculosis held in Glasgow on August 22 last, Dr. A. K. Chalmers, the Medical Officer of Health, reported an increase in the number of cases of pulmonary and other forms of tuberculosis. It was stated that there were now 11,634

cases under observation as compared with 10,895 for the same period last year—133 cases were awaiting admission to sanatoriums and 195 to hospitals; while 3,703 were attending dispensaries for treatment.

Population of Glasgow.—Details of the recent census have just been published. Glasgow's position as second city of Great Britain remains well established with a population of 1,034,069 inhabitants as against 1,005,487 ten years ago. The females predominate by 24,979.

Plastic Surgery of Facial and Jaw Deformities.—In previous London letters reference has been made to the remarkable results effected in plastic surgery of facial and jow deformities at Sidcup, near London, by Major H. D. Gillies and colleagues. A year or more ago Major Gillies visited America and gave lectures and lantern-slide demonstrations on his especial branch of surgery, and has published recently a book on the subject which was favorably commented on in one of these letters. Of course, the war brought plastic surgery of facial and jaw deformities greatly into prominence, and there were among American surgeons and dentists at the front some very distinguished pioneers and exponents of this comparatively new art. It must be borne in mind that the dentist has as much to do with the success of this kind of surgery as has the surgeon. Indeed, it seems obvious that without the dentist's technical and mechanical knowledge and skillful cooperation the surgeon would be at a loss, or, at any rate, unable to bring about the brilliant results which they have achieved working together. At a meeting of the Royal Medico-Chirurgical Society of Glasgow, held some little time ago, Major Gillies gave a lantern-slide demonstration of the facial and jaw reconstruction done at Sidcup, assisted by the chief dentist at Sidcup, Dr. Thomas Jackson, who made some instructive remarks on the matter. He pointed out that Major Gillies had described the principles of plastic surgery and their application to civil cases, and had referred frequently to the necessity for close cooperation between surgeon and dentist. In no other two branches of surgery so widely separated and so absolutely different was such a copartnership essential for the attainment of the ultimate result. Such cooperation was seldom seen in civil practice, but although his experience was confined to war injuries, he was convinced that it was essential to all types of plastic surgery and every day he saw this point more strongly emphasized. Men were being admitted at Sidcup now who, wounded in the early months of the war, were untreated or neglected in the great rushes which followed. Although it was possible to improve these cases, the long delay had rendered the patients unwilling to accept any extensive treatment recommended. However, the point of Dr. Jackson's remarks to which it is particularly desired to draw attention, is that the experience of the war has immensely improved plastic surgery of the face and jaw, and that the improvement should be taken advantage of in civil practice. Moreover, in order to gain the best results there must be close cooperation between the dentist and the surgeon.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 6, 1921, clxxxv, 14.

1. Non-Tuberculous Pyelonephritis. Arthur H. Crosbie.
2. Subluxation of the Shoulder—Downward. Frederic J. Cotton.
3. Mental Responsibility and Petty Crime. D. A. Thom.
4. The Surgical Treatment of Ulcer and Cancer of the Stomach. F. B. Lund.

1. Non-Tuberculous Pyelonephritis.—Arthur H. Crosbie asserts that most cases that are called pyelitis are really pyelonephritis. This is practically always true of the pyelitis of children and also of that of pregnancy. Almost any of the pus organisms may cause the disease. Examination of the urine always shows pus and the offending organisms. At some time during pyelonephritis, ureteral catherization should be done and the divided urine examined and cultured, and pyelograms made. It is preferable to wait for a few days before passing any instruments into the bladder. Cystoscopic examination during the acute stage may show a very marked cystitis. Frequently one sees the so-called beefsteak bladder. This generally clears up as the process in the kidney subsides. A great many of these so-called acute hematogenous kidneys are removed that would get well if left alone. If one kidney is removed it leaves an impaired kidney on the other side. In pyelonephritis complicating pregnancy the writer does not believe the pyelonephritis disappears until after the uterus is empty. Acute pyelonephritis should be treated expectantly. It is most important to force fluid; one should not be satisfied until the output exceeds one hundred ounces in twenty-four hours. In especially severe cases it is well to begin with hypodermoclysis. If the infection is by the colon bacillus the alkalis are of help. If an acute pyelitis becomes chronic there is generally some obstructive lesion to account for it. If no abnormality can be found, most cases of chronic pyelonephritis can be improved and some cured by pelvic lavage. For this the writer has been using a fairly strong solution of silver nitrate, but recently has been using mercurochrome 2½ per cent. with much better results. It is especially good when the condition is nothing more than a bacilluria. No case should be operated upon until one is sure of the necessity.

2. Subluxation of the Shoulder—Downward.—Frederic J. Cotton calls attention to a lesion which he finds common but apparently unwritten—the subluxation of the shoulder downward not from a single trauma, but from the weight of the arm made possible through gradual exhaustion of the muscles—primarily of the deltoid. He has observed this for years in case after case as a complication of shoulder and arm injuries. If neglected it become a troublesome complication. Many of the cases ordinarily listed as circumflex paralysis belong to this group. It seems that if we have an injured arm treated with traction by the weight of the arm or treated by any method that does less than carry the full weight of the arm, then, if the muscles are not strong, and if the arm is a heavy one, there is often a stretching paralysis of the deltoid and superspinatus muscles that lets the head of the humerus drop down. This is readily overlooked, but readily verified by finding a groove below the acromion to the outer side, often visible, always easily felt. Treatment consists of early massage, and, just as soon as the main damage makes it practicable exchange of traction for support, and effective support of the whole arm.

New York Medical Journal.

October 5, 1921, cxiv, 7.

1. The Etiology and Treatment of Eclampsia. Barton Cooke Hirst.
2. Surgical Endothermy in Malignancy and Precancerous Conditions. George A. Wyeth.
3. The Treatment of Carcinoma of the Cervix and Uterus by Radium Supplemented by Deep Roentgen Therapy. Russell H. Boggs.
4. Prophylaxis in Carcinoma of the Cervix. Irving Smiley.
5. Obstetrical End Results of the Tracheoplastic Operation. M. O. Magid.
6. Drainage in Pelvic Abdominal Surgery. Howard Kelly.
7. The Comparative Value of Whole Ovarian Extract, Corpus Luteum Extract, and Ovarian Residue in the Treatment of Menstrual Disorders. John Cooke Hirst.

8. Dysmenorrhea. John Van Doren Young.
9. Report of Two Cases of Acute Inversion of the Uterus. W. P. Manton.
10. The Present Status of the Treatment of Uterine Fibroids. Solomon Wiener.
11. Unilateral Twin Tubal Pregnancy. Max Thorek.
12. A Brief Review of Recent Obstetrical Progress. J. O. Arnold.
13. Practical Prenatal Care. Philip Oginz.
14. Accidents During Delivery. Cheney M. Stimson.
15. Difficulties Encountered in Pregnancy, Labor and Lactation in Working Class Mothers and Those of the Educated Classes. Gordon Ley.
16. The Antenatal Factors of Life and Death—Genetic, Toxigenetic, Gestational and Obstetrical. C. W. Saleeby.
17. The Dangers and Treatment of Antenatal Syphilitic Environment. J. H. Sequeira.
18. Congenital Abdominal Ascites with Other Abnormalities. Louis Blumenfeld.

1. The Etiology and Treatment of Eclampsia.—Barton Cooke Hirst discusses various theories as to the etiology of eclampsia and expresses the belief that the origin of the toxins of eclampsia is mainly in the fetal body; to a less extent in the placenta. When these toxins are thrown into the maternal system overburdened organs break down, and this is more likely to occur if a heavy proteid diet, an inactive skin, and sluggish bowels increase the work they have to do. If one accepts this etiological theory there are four therapeutic principles to be considered, namely, elimination, the sedative treatment, measures to reduce blood pressure, and if the patient is not yet delivered, the operative treatment. Since in every case of eclampsia the patient has an acute parenchymatous nephritis and is uremic as well as toxic, the writer employs diaphoresis and catharsis, energetically sweating the patient in a sweat cabinet every four hours for thirty minutes and supplying the subtracted fluid by proctoclysis—a quart of water with an ounce of bicarbonate of sodium by the drop method midway between the sweats. He always begins by washing out the stomach and using the stomach pump to instil a purgative, using 2 ounces of castor oil with 2 drops of croton oil. If the patient is able to swallow this is followed by repeated doses of concentrated epsom salts solution every half hour until 2 ounces are taken. If there is much edema, 20 grains of compound jalap powder is administered. Anesthetics are not used. Morphine alone is depended upon, but is only administered if convulsions are violent and frequent. To reduce blood pressure, an initial dose of ten minims of veratrum viride and the subsequent administration of 1/100 of a grain of nitroglycerin every four hours is most efficacious. Venesection is done routinely to the extent of 16 ounces if the systolic blood pressure is above 180. Operative treatment by cesarean section is reserved for those cases in which the patient has not responded to the treatment above outlined, and in which there has been no progress in labor. During the last five years in the writer's service at the Maternity Hospital of the University of Pennsylvania there have been 89 cases of eclampsia, with a maternal mortality of 21.3 per cent., and an infant mortality of 36 per cent. If allowance were made for four patients who died within an hour of admission, the mortality rate would be 15 per cent.

4. Prophylaxis in Carcinoma of the Cervix.—Irving Smiley epitomizes his conclusions on this subject as follows: The morbidity and mortality of cervical cancer operations at the present writing is approximately 40 to 50 per cent. Chronic endocervicitis is an established precursor of cervical cancer. Tracheloplasty correctly executed is a cancer prophylactic, hence the teaching to postpone all tracheoplastic procedures until after the child-bearing period, still advocated by some, thus exposing the irritated cervix to further traumatism, is both fallacious and pernicious.

7. The Comparative Value of Whole Ovarian Extract, Corpus Luteum Extract, and Ovarian Residue in Menstrual Disorders.—John Cooke Hirst holds that of all the glandular extracts at present in use, none are more valuable or wider in their application than the various preparations of the ovary. As a result of his experience he states that results are not invariable with any extract, but if intelligently used, a good degree of success can be expected; excepting always the use of ovarian residue, where the results are considered decidedly nebulous. Results are often slow, particularly in menstrual disorders, and patience is one of the prime requisites, in both patient and doctor. Results are most prompt in the menopause with the whole ovarian extract, and in the nausea of pregnancy with corpus luteum extract. Co-operation between physician and patient is needed, and overoptimistic statements are to be avoided. The tendency is to expect too much and too quickly. The most discouraging results are with the cases of obesity and amenorrhea. It is probable that future developments will be along the lines of pluriglandular therapy, due to the probable correlation between the pituitary, thyroid, mammary gland, suprarenal, and ovary, rather than in the use of single extracts. Especially will this hold true in the developmental anomalies of the genitalia.

8. Dysmenorrhea.—John Van Doren Young outlines the lesions of true dysmenorrhea, a condition without gross pathology, and urges that the endometrium be spared, because it is a functioning organ and seldom involved as a causative factor of dysmenorrhea. He points out that pathological conditions of the myometrium are causative factors in the production of dysmenorrhea as is borne out by the relief obtained in some cases by the use of the stem pessary, and the usual relief after childbirth, as both undoubtedly develop the myometrium, dilatation of the cervix being only a secondary result. A warning is sounded, however, against the use of the stem pessary, even of glass, in the presence of infection. In searching for a method of producing rhythmical uterine stimulation, and at the same time hyperemia, with the idea of developing the myometrium and improving the pelvic circulation, Young has devised an instrument which is an application of the Bier's hyperemia method to the uterus. It consists of a suction syringe, a rubber tube with vent valve, and a long glass cup which fits over the cervix. Cups may be made of any size or shape to meet any indication. The value of this instrument is ease of application and rhythmical regulation of the stimulation. The exhaust pump is operated by the nurse for from five to ten minutes. The instrument is also useful for emptying infected cervical glands and removing viscid cervical mucus, in both cases rendering the application of iodine or other medication more effectual. In the treatment of dysmenorrhea, the instrument should be applied twice a week at first, then once a week, and later just before the menstrual period.

Journal of the American Medical Association.

October 8, 1921, lxxvii, 15.

1. Postgraduate Work in Laryngology. Ross Hall Skillern.
2. Causes of Failure in the Radical Operation on the Frontal Sinus. Thomas J. Harris.
3. The Value of Drugs in Internal Medicine. Lewellys F. Barker.
4. The Value of Drugs in Surgery. George W. Crile.
5. The Use of Drugs in Infancy and Childhood. Henry F. Helmholz.
6. The Ocular Menace of Wood Alcohol Poisoning. S. Lewis Ziegler.
7. The Counting of Blood Cells and Bacteria: A Precise and Simple Method without a Special Chamber. Georges Dreyer.
8. Treatment of Tuberculosis of the Ankle in the Adult. F. J. Gaenslen and C. C. Schneider.
9. Senile Cataract Extraction: A Comparative Study of Results Obtained in 1,421 Operations. Walter R. Parker.
10. Aseptic Nephro-Ureterectomy: Technique and Indications. Edwin Beer.
11. Prognosis of Foreign Body in the Lung. Chevalier Jackson.

3. The Value of Drugs in Internal Medicine.—Lewellys F. Barker states that we are witnessing a cautious revival of the use of drugs in the treatment of disease following the reaction of the last half of the nineteenth century against the scandalous abuse of the "shotgun prescription." He surveys briefly the help offered to the physician in his daily work by modern pharmacotherapy under the headings etiological pharmacotherapy, functional pharmacotherapy, regulatory pharmacotherapy, and symptomatic pharmacotherapy, and expresses the opinion that the internist looks on the use of drugs in therapy more hopefully now, perhaps, than ever before. Adequately to make use of the pharmacotherapeutic means at his disposal, the internist must have mastery over a large body of facts. He must be well trained in normal and pathologic physiology, and should have become acquainted with the known facts of etiology and pathogenesis. He should have learned in the pharmacologic laboratory the effects of the more important drugs on the normal

animal body; and he should have had opportunity in the hospital wards, and in the laboratory of experimental pathology and therapy, to observe the changes that can be produced by drugs in disease. Very few have as yet had opportunity for the latter, but the medical schools should provide for it in the future. Our teaching hospitals at present are, perhaps, more diagnostic institutes than institutes of therapy. It might possibly be wise to divide our medical clinics into two parts, patients entering one division for general diagnostic study and emergency measures, to be transferred afterward to the other division for full treatment, the effects of which could be carefully observed by the students. The internist with such a training will be prepared to institute rational therapy when this is possible. He will know how to make a judicious use of empiric therapy when a rational foundation is lacking.

6. The Ocular Menace of Wood Alcohol Poisoning.—S. Lewis Ziegler has made an intensive study of wood alcohol through which he has reached the following conclusions: (1) Wood alcohol is the most deadly poison used in daily commerce. (2) One teaspoonful has been known to cause blindness and one ounce to cause death. (3) The port of entry may be through the mouth, nose, or skin. (4) Wood alcohol should be identified by Robinson's test. (5) It is a protoplasmic poison possessing a selective affinity for the delicate nerve tissues of the eye. (6) Its biochemistry is modified by oxidation, first to formaldehyde, and then to formic acid, both of which are corrosive poisons. (7) If formic acid is present in the urine, it will promptly reduce Fehling's solution, thus suggesting to the inexperienced a false diagnosis of diabetes. (9) Van Slyke's test will reveal acidosis in the early stages and alkalosis later. (10) Sudden blindness with vomiting and abdominal pain should always arouse suspicion of methyl alcohol poisoning, especially if diplopia or ptosis is associated. (11) Papillitis, sector-like atrophy, and sudden sclerosis of the nerve-head are equally typical fundus lesions. (12) Symptoms of pituitary injury are most suggestive in pointing to this as the primary and fundamental lesion. (13) Contracted fields and central or paracentral scotomas are usually present. (14) Treatment should include early neutralization by alkalis, and elimination by lavage, emetics, diaphoretics, and rapid oxidation, together with stimulation of the optic nerve by negative galvanism applied directly to the eye. Thyroid extract and pituitary extract may be indicated. (15) The manufacture and sale of wood alcohol should be prohibited or regulated by law. (16) If sales are permitted, safeguards and warnings should be required and the public instructed as to the great danger to vision and life. (17) A special revenue tax with registered "poison sales" would regulate and record its distribution, and in cases of poisoning reveal the source. (18) This tax should equalize the cost of denatured alcohol and methyl alcohol, and thus remove the temptation to adulteration because of cheapness. (19) All wines, whiskeys, toilet articles, and "patent medicines" imported from foreign countries should be tested for wood alcohol before passing through the customs inspection. (20) The name "methanol" specifically designates this product and yet avoids the tempting suggestiveness of the word "alcohol."

7. The Counting of Blood Cells and Bacteria: A Precise and Simple Method without a Special Chamber.—Georges Dreyer presents a modification of Wright's method for counting blood cells and bacteria by which he has overcome the lack of precision in that method. This he has accomplished by substituting hen's erythocytes, with their distinctive appearance, for human red cells as the standard suspension; by preparing them in such a way that they form a stable, unchanging standard suspension; by enumerating the standard suspension with great precision in an accurate counting chamber; by mixing standard suspension in measured proportion with the suspension to be enumerated, and counting them in the wet state. In this way a very accurate method for the enumeration of human red cells and bacteria is achieved without sacrificing any of the rapidity of Wright's technic. Figures are given of comparative blood counts by this method with those made with a first-class Bürker chamber, which show very slight differences between the two methods and what differences there are speak in favor of the differential method. The method is much quicker and less fatiguing than the counting chamber, and is equally available for counting erythrocytes, leucocytes, and bacteria.

The Lancet.

September 17, 1921, cci, 5116.

1. The Milroy Lectures on Respiratory Efficiency in Relation to Health and Disease. Lecture I. Martin Flack.
2. Spina Bifida. Frederick C. Pybus.
3. Studies from St. Andrew's Institute of Clinical Research. II. Case-taking Methods. J. H. P. Paton.
4. A New Method of Investigating Gastrointestinal Secretion. E. C. Dodds.
5. On the Organization of a Fracture Service. Harry Platt.
6. The Hospital Problem and a New Hospital Service. Joseph Griffiths.

2. Spina Bifida.—Frederick C. Pybus describes the various forms of spina bifida, which he says occurs in about one in 1000 births. It is met with almost equally in the sexes, and occasionally it is met with as family defect. Only a comparatively small number of cases admit of surgical treatment, which should be limited to the most favorable types, and those who, after operation, are likely and capable of becoming useful members of society. In spina bifida occulta operation is rarely required for the spinal defect, though it may be required for the relief of symptoms due to pressure or traction on the spinal cord. In larger defects where static deformity shows itself some form of spinal brace may be necessary or a plastic operation to control this. In all other cases general rules for the care of the patient may be given. It is important to keep the affected parts clean and the surface of the tumor protected from pressure and abrasion by a careful arrangement of wool around it, and its surface covered by an antiseptic dressing. The lower margin of such dressing may be sealed down by collodion or strapping, and so protected from the napkin area. Most meningoceles require operation, but there is no urgency; the operation may be carried out at leisure any time during the first year. Operation is contraindicated in the presence of hydrocephalus, as after operation the head continues to distend, the cerebrospinal fluid being robbed of a second outlet for the relief of tension. Other cases presenting gross bodily deformity should be included in this group. Cases in which operation is of doubtful use are those of myeloceles and meningo-myeloceles where there is a large raw area. The operation for the correction of spina bifida consists in isolation of the neck of the sac, freeing the spinal cord, and returning it with its nerves to the spinal canal. In some cases it is impossible to pack the cord back into the spinal canal. In these cases it must be left projecting as far as necessary with the hope that with growth in length of the spine it will be gradually drawn into its proper place. After replacing the cord the spinal defect is repaired, being careful to give sufficient protection to the cord and to prevent further displacement of the contents of the canal. In some cases osteoplastic repair may be necessary, though it has not been so in the writer's cases. Where a considerable defect requires filling, bone grafting, after the Albee method, would be suitable.

4. A New Method of Investigating Gastrointestinal Secretion.—E. C. Dodds, by taking samples of alveolar air at intervals after a meal, has been able to demonstrate that the tension of carbon dioxide undergoes certain definite changes in response to the amount of secretion poured out by the stomach and the lower portions of the alimentary tract. In later work, in conjunction with Dr. T. Izod Bennett, it has been shown that in normal individuals of varying type the curve of alveolar carbon dioxide tension so obtained corresponded closely with the curve of secretion of gastric hydrochloric acid. The variation in the tension of the alveolar carbon dioxide is explained in the following way: When acid is removed from the blood during gastric secretion the reaction of the blood tends to shift to the alkaline side. This shifting is prevented by retention of the volatile acid, carbon dioxide, the tension of which rises in the blood, and hence in the alveolar air. Later, when the alkaline intestinal and pancreatic secretions are poured out, the reaction of

the blood tends to shift to the acid side, and hence acid in the form of carbon dioxide must be eliminated. This is brought about by a lowering of the carbon dioxide tension in the blood, and therefore in the alveolar air. This method has been applied in a number of pathological conditions. The samples of air were collected by the Haldane-Priestley method, and the analysis made with the Haldane gas analysis apparatus. The writer claims the following advantages for this method over other methods in use: (1) The analysis of the alveolar air does not cause the subject any discomfort whatever, hence it may be employed in patients in whom nervousness, or some other general condition, forbids the passage of stomach tubes of any type. It is difficult to believe that in patients in whom the stomach tube and test meal cause considerable discomfort digestion follows its usual course. (2) The method gives an index of the total amount of acid or alkali being secreted from the blood by the gastric or other digestive glands, and hence is independent of neutralizing factors such as mucous and regurgitation which affect ordinary gastric analyses. (3) It gives a measure of secretory activity below the pylorus, as well as of that of the stomach. (4) The form of test meal is immaterial provided that a fixed standard be selected, allowing comparisons with the curve shown by normal persons after the same meal.

British Medical Journal.

September 17, 1921, No. 3162.

1. Renal Efficiency Tests. Hugh Maclean. Francis D. Boyd.
2. Statistical Records of Serious and Fatal Hemorrhage Following Operations on the Tonsils. A. Brown Kelly.
3. Conditions Predisposing to Hemorrhage in Tonsil Operations. John F. O'Malley.
4. Influence of Operative and Anesthetic Technique upon Serious Hemorrhage in Tonsil Operations. Herbert Tilley.
5. Surgical Removal of the Tonsils. Irwin Moore.
6. Treatment of Hemorrhage in Tonsil Operations. Dan McKenzie.
7. Ligature of the Carotid Vessels in Serious Tonsillar Hemorrhage. T. H. Just.
8. Treatment of Collapse. T. H. Just.
9. The Place of the Anesthetist in Operations on the Tonsil. G. A. H. Barton.
10. Influence of Operative Technique in Prevention of Hemorrhage. E. M. Woodman.
11. An Artery Forceps for Ligature in the Tonsillar Bed. Gilbert Chubb.
12. The Clamp in Treatment of Tonsillar Hemorrhage. E. Watson-Williams.
13. Observations on Ossiculectomy. James Dundas-Grant.

1. Renal Efficiency Tests.—Hugh Maclean gives his personal experience with renal function tests that he has been using for several years. While no tests for renal efficiency are necessary in well-marked acute nephritis, certain tests may be necessary late in order to ascertain what progress is being made, and here functional tests are quite as important as, if not more important than, clinical symptoms. In his routine work Maclean estimates the blood urea, and has never obtained any additional information from an estimation of the nonprotein nitrogen as well. As a result of a large number of experiments he has found that the blood of normal individuals may contain from 15 to 40 mg. urea per 100 c.c. blood. In young people the normal content lies toward the lower level, and perhaps the maximum should be placed somewhere below 30 mg. Anything above 45 mg. is suspicious. While this test is of great value in many cases, it unfortunately gives no indication of any kidney defect in subacute and chronic cases of Bright's disease until the greater part of the renal tissue is out of action. A point to note is that lowering of the blood urea is not necessarily any indication of improvement unless the patient continues on the same kind of diet as he had when the blood urea was found to be high. This unfortunately is frequently forgotten. On the whole the estimation of urea or nonprotein nitrogen in the blood is one of the best tests we have for advanced renal deficiency. General speaking, the diastatic test is of value in conjunction with other tests, but should never be relied on alone. Undoubtedly the phenolsulphonephthalein test often seems to give a fairly good indication of the state of the kidneys, but in the writer's experience the results have not been very satisfactory. The same may be said of the indigo-carmine test. As the result of using the "urea concentration" test in over 10,000 patients suffering from various grades of nephritis it may safely be said that it is exceedingly useful as a simple means of ascertaining the state of the kidneys. If the test shows a concentration of urea over 2.5 or 3 per cent., it is quite certain that the kidneys are efficient. Of all the procedures used in renal investigations from the clinical side, this simple procedure appears to give more information in the majority of cases than any other. For practical clinical purposes Ambard's coefficient of urea excretion is too elaborate to be of value. A good deal of useful information may be obtained by comparing the concentration of the urea in the blood at a given time with that in the urine secreted over a short time. The retention of sodium chloride in the system is at once indicated by the presence of edema, so that it is practically never necessary to perform a test for salt tolerance. If no edema is present we may be certain that salt is excreted all right. This observation is important because it is no uncommon occurrence for nephritis patients to be limited to salt-free diets where no edema exists. From the clinical standpoint we do not need any more tests for ascertaining the state of renal function. We have too many already. What is needed is some simple combination of tests which will give the necessary information, and which all physicians can use with a view to increasing our knowledge of their value. Such a scheme for examining a renal case includes: (1) Estimation of blood urea or nonprotein nitrogen; (2) examination of 24-hour specimen for protein, casts, blood, pus, etc., and estimation of diastatic activity; (3) urea concentration test; (4) condition of cardiovascular system; (5) presence or absence of edema; (6) general condition of the patient. Modern renal tests are important in surgical work, especially in certain genitourinary diseases such as enlarged prostate.

New Orleans Medical and Surgical Journal.

September, 1921, lxxiv, 3.

1. Removal of a Twenty-Penny Wire Nail from the Bladder. W. H. E. Walther.
2. Cancer of Appendix. J. M. Perret.
3. Unsuspected Sinus Involvement as a Sequel to Contagious and Infectious Diseases. E. V. Whitaker.
4. A Case of Long-Continued Masturbation in a Girl Cured by Fright. Everett M. Ellison.
5. Treatment of Urethritis. M. H. Foster.
6. Acute Ileocolitis in Infancy. M. S. Picard.
7. Recent Progress in Ophthalmology. Charles A. Bahn.
8. Some Interesting Gastrointestinal Cases. L. W. Fortier.
9. The Treatment of Antepartum Hemorrhage. J. C. Greniillion.
10. Surgery of the Biliary Tract. J. A. Danna.
11. Cholecystotomy vs. Cholecystectomy. E. Denegre Martin.

6. Acute Ileocolitis in Infancy.—M. S. Picard states that in the treatment of ileocolitis in children specific therapy has had no success in his hands. He believes as many children die from starvation as from the disease. Children are fed over long periods on rice water, barley water, broths, and liquid peptonoids, foods of low caloric value, until their tolerance of food has sunk so low that assimilative power is gone. The therapy consists in a thorough emptying of the bowel. The remedy of election is castor oil. Calomel should not be used in the inception of the disease. All efforts should be made to keep the water balance. The habit of giving a child water by spoon or a medicine dropper is too uncertain. Water in large quantities should be administered through the nasal tube. If vomiting is uncontrollable saline solution is given intraperitoneally. The writer claims to have saved almost hopeless cases by this method. Normal saline or 5 to 10 per cent. glucose can be used, 8 to 12 ounces, or even more, being given. He has seen no harmful effects except that frequently the tendency is to wait too late. Drugs are of no value in shortening the course or modifying the type of the disease. He has abandoned the use of opium and of irrigations aside from flushing the first day. Since abandoning irrigation he has seldom had to treat tenesmus, which without irrigation disappears about the third or fourth day. He particularly emphasizes the importance of avoiding starvation, and treats the condition as in typhoid fever, using forced feeding if necessary. He finds protein harmless and cocoa and junket the main reliance during the early days of the disease. The child is fed every four hours. At 6

o'clock, cocoa; 10 o'clock, cocoa and junket; 2 o'clock, broth and scraped beef; 6 o'clock, cocoa and junket; 10 o'clock, cocoa.

Southern Medical Journal.

September, 1921, xiv, 9.

1. Result of the Diagnostic Study of One Thousand Cases Seen in the Southeast. Stewart R. Roberts, Robert N. Holland and L. B. Robinson.
2. Some Observations on the Fractional Analysis of the Gastric Contents. Julius Friedenwald and Zachariah R. Morgan.
3. Pellagra. John L. Jelks.
4. A Proposed Standard Treatment for Early Syphilis. George Walker.
5. A Rational Method of Producing Antihuman Amboceptor in Rabbits. George F. Klugh.
6. Malnutrition in Children of the Well-to-Do: A Review of Case Histories. Charles Gilmore Kerley, Edward J. Lorenze, Jr., and Roger H. DuBose.
7. The Endocrine System in Infancy and Early Childhood. Oliver W. Hill.
8. X-Ray and Radium as an Aid to Surgery in Deep-Seated Malignancies. W. O. Floyd.
9. Radium Therapy in Fibroid and Other Benign Conditions of the Uterus. William Kohlmann and Ernest C. Samuel.
10. Extension Treatment of Fractures. Thomas H. Ingram.
11. Factors That Lower the Mortality Rate of Suprapubic Prostatectomy. George R. Livermore.
12. The Combined Examination of the Urinary Tract by the Urologist and the Roentgenologist. Howard E. Ashbury and Albert E. Goldstein.
13. The Nausea and Vomiting of Pregnancy. James R. Garber.
14. Eliminative Subjective Testing for Glasses. Charles A. Bahn.
15. An Antrum Operation with Demonstration of New Instruments. E. L. Roberts.

2. Some Observations on the Fractional Analysis of the Gastric Contents.—Julius Friedenwald and Zachariah R. Morgan, from their study of 210 cases in which fractional analyses were made, believe the following conclusions may be safely drawn: (1) By means of fractional analyses the entire cycle of digestion can be studied, both as to the secretory and motor activity of the stomach. (2) By complete aspiration at any period of digestion one can obtain definite information regarding the amount of secretion. (3) In duodenal ulcer the acidity is usually higher than in any other condition. There is a rapid and prolonged rise, followed frequently by a fall, and a secondary rise, though there may be a continuous prolonged rise from the onset. The highest acidity appears frequently after an hour. Blood is at times found in the contents, which adds additional evidence as to the presence of ulcer. Rapid evacuation is rather characteristic of uncomplicated forms of duodenal ulcer. (4) In gastric ulcer there is no typical curve of acidity, though a fall followed by a secondary rise is frequent. There is usually delayed motility in gastric ulcer. (5) By means of fractional analyses the acidity in any period of the cycle of digestion may be noted. The highest acidity frequently occurs after an hour and occasionally before, so that the appearance would be entirely overlooked should reliance be placed entirely upon the hour extraction. (6) The effect of an ulcer cure upon the hyperacid secretion can be followed by means of fractional analysis. In but half the cases, however, is a decided reduction in acidity obtained even though clinical improvement may be noted, indicating that the symptoms ordinarily attributed to excess of acid are not necessarily due to this factor. (7) In pyloric stenosis there is usually a higher acidity during the whole period of digestion, with delayed motility. Food shreds are observed in the fasting state. (8) In most cases of gastric carcinoma one finds a typical achylia frequently with delayed motility, and a rather high total acidity, with lactic acid and blood. The Wolff-Junghans test is positive, considerable amounts of albumin being present within three-quarters of an hour, being markedly increased within an hour to an hour and a half. (9) Cases of chronic gastritis present the same characteristics as are usually observed in simple achylias. The total acidity is usually higher, however, and in addition mucus is obtained. The motility of the stomach is often delayed. (10) In gastric syphilis the curves of acidity are similar to those observed in cancer. The total acidity is high, and there is a complete achylia; the stomach emptying itself rapidly. (11) Fractional analysis of the gastric secretion according to the Rehfuss method is extremely important in all cases of achylia gastrica, inasmuch as by means of this method one can easily differentiate the true achylias from the spurious forms. In the true achylias free hydrochloric acid is absent in every specimen; the total acidity is low, and there is a marked hypermotility. In pernicious anemia one observes the typical features of a true achylia. (12) In nervous gastric affections one observes the various forms of hyper- or hypochlorhydria, or normal acidity. The hyperchlorhydrias present a rapid rise in acidity 100 or over with a normal motility. One frequently notes among these cases the so-called false achylias, with an absence of free hydrochloric acid at the end of an hour, yet presenting a hyperacidity before or after this period. (13) In gall-bladder affections one observed a tendency to a lowered acidity and achylia, while in chronic appendicitis hyperacidity is usually observed. (14) While fractional analyses are of the greatest importance and usually present, additional evidence in diagnosis, a study of this series of cases, together with the observations of Rehfuss, leads the writers to the conclusion that no pathognomonic curve exists which can be considered as absolutely distinctive of any gastric affection.

Brazil-Medico.

August 27, 1921, xxxv, ii, 7.

Direct Bronchoscopic Extraction of Foreign Bodies.—Dr. Castilho Marcondes relates a personal case of extraction of a foreign body from a bronchus, and gives a brief résumé of the entire subject before and after the pioneer work of Killian. The patient was a 5-year-old child, and the foreign body, a seed, had been in the bronchus for more than a month. The degree of success was complete, and the intervention was witnessed by a large number of the best-known medical men in Rio. Others in Brazil who have had similar experience comprise Meira of Rio, who recently reported a case before the National Academy of Medicine, and Seng, a well-known operating surgeon of São Paulo, who has recently had two cases, in both of which the outcome was all that could be desired. The author has evidently had other cases, but Brazil does not seem to have the record of Argentina, in which country these extractions have been rapidly increasing of late years. Professor Segura of Buenos Aires, like some of his northern contemporaries, already has a small museum of extracted foreign bodies.

Finska Läkaresällskapets Handlingar.

July-August, 1921, lxiii, 7-8.

Treatment of Putrid Affections of the Lung with Neosalvarsan.—Savolin states that salvarsan has been used for pulmonary gangrene since 1914. First introduced into practice by Brauer, the latter was followed by O. Gross, who reported six cases in 1916, while three years later Schroeder extended the use of the remedy (neosalvarsan) to putrid bronchitis. The author has had one case each of pulmonary gangrene and fetid bronchitis. In all of the cases mentioned the results were good—either complete cures or improvements.

Artificial Inflation of the Stomach and the Diagnosis of Operability of Cancer.—Faltin refers to the original method of Runeberg in 1884 of inflating the stomach in connection with the diagnosis of cancer. This has been used in his clinic as a routine measure for a number of years, and has been found of great value in determining operability or inoperability. The greater the distensibility of the stomach, irrespective of the recognition of cancer, the better the outlook for a radical operation. If the stomach does not inflate the latter is nearly out of the question. In pyloric insufficiency the test is vitiated, because the insufflated air escapes at once into the duodenum. This occurrence is in itself a bad prognostic, even if the neoplasm cannot be palpated. Usually it signifies that much of the gastric wall is rigidly infiltrated. It is very unusual to operate on such a stomach after laparotomy. The use of this method has lowered the frequency of surprises after the stomach has been exposed. It cannot, of course, replace the *x*-ray, but in the absence of the latter is, as stated, very valuable.

Book Reviews.

RATIONAL TREATMENT OF PULMONARY TUBERCULOSIS, by CHARLES SABOURIN, M.D., Medical Director of the Durtol Sanatorium, Puy-de-Dome, France; Sixth edition, 1921, 440 pages. Price, $3.50, net. Philadelphia: F. A. Davis Company.

SABOURIN was one of the pioneers of the sanatorium treatment in France, and his book is a welcome addition to the therapeutics of pulmonary tuberculosis. The name of the translator has not been given. Had he been an American physician he probably would have omitted the first chapter, which is devoted to a discussion of the difference between *tuberculosis* and *phthisis* and its respective designation. The American physician designates the disease due to the tubercle bacillus as tuberculosis, adds the word pulmonary if there is an involvement of the lungs, divides the disease into first, second and third stages, and hardly ever uses the term phthisis or phthisis pulmonalis. Even among the laity the term tuberculosis has become so familiar that even the word consumption is coming into disuse.

The second and third chapters in part I of the book are devoted to the "acquisition" of tuberculosis and to congenital immunity respectively. In chapter IV the author very wisely calls attention to the fact that it is erroneous to believe that tuberculosis becomes implanted almost exclusively in the apices of the lungs. He says that in early childhood the initial focus of the disease is most frequently situated in the central portions of the lower lobes and accompanied by enlarged lymphatic glands. He admits, however, that such a condition can only be diagnosed by the *x*-ray, and later on he freely states that in the adult as well as in the child, clinically, the disease process at the apices is the first to become perceptible to examination and consequently remains the first outward manifestation of tuberculosis of the lungs.

When speaking of the mortality, he gives us the sad figures that 150,000 deaths occur annually in France. The need of early diagnosis in tuberculosis is well set forth in strong and forceful language. In a chapter, entitled "Fundamental Features of the Rational Treatment of Tuberculosis," he gives creosote the first place, although he does not speak very enthusiastically about it, and he considers it, as well as arsenic and the various phosphates, as mere tonics. He strongly opposes the administration of tannin in high fever, which is a favorite custom with many French physicians. Concerning tuberculin he very cautiously makes the following statement: "Some high medical authorities attribute a certain number of recoveries to the tuberculins. It is to be hoped that these favorable results will be confirmed with sufficient frequency to carry conviction and elevate this method of treatment from the state of hesitation in which it is at present."

Deploring the custom of well-to-do European patients to spend the winter in southern resorts and the summer in winter resorts, he comes to the conclusion that the main factors are pure air by day and by night, the avoidance of physical and mental fatigue, and wholesome generous diet. By this, however, he does not wish it to be understood that he favors overfeeding. The author devotes quite an interesting chapter to the subject of auxiliary treatment under which he classifies the dry or wet rub, baths, true hydrotherapy, and counterirritants. He pays a great deal of attention to the matter of skin hygiene and skin affections, a subject which one finds very rarely treated in works on tuberculosis. Acne, and particularly the necrotic type, he treats by early cauterization, pityriasis, seborrhea, keloids, or ichthyosis, and for the many other skin affections occasionally observed in the tuberculous, he cites suitable remedies; even for alopecia he gives a prescription consisting of a local application, its principal ingredient being pilocarpine:

"R	Aquæ coloniensis....	150 gm.	(5 ounces)
	Tincturæ cantharidid	8 gm.	(2 drams)
	Glycerini puri.....	2 gm.	(½ dram)
	Pilocarpinæ nitratis.	0.8 gm.	(12 grains) MS.

"A toothbrush is slightly moistened with this solution and the roots of the hair over a surface of the size of the palm brushed over with it each day, the entire scalp being thus gone over in a week's time."

The rest of the volume is devoted to the symptomatic treatment, the tuberculosis sanatorium regime and the utility of sanatoria. The author does not offer anything new, but these chapters merit the careful perusal by the students of tuberculosis as well as sociologists, because they contain discussions of the following subjects: Sanatoria for the wealthy and for the poor; social hygiene; tuberculosis and marriage; tuberculosis and child welfare; and phthisiophobia and phthisiomania. As a whole the book can be recommended to the careful persual of all interested in the rational treatment of tuberculosis. If any criticism is justified, it is that the translator who has resorted to some rather queer expressions, has evidently failed at times to grasp, or at least to give the exact meaning of the French author.

THE ASSESSMENT OF PHYSICAL FITNESS. By Correlation of Vital Capacity and Certain Measurements of the Body. By GEORGES DREYER, C.B.E., M.A., M.D. Fellow of Lincoln College, Professor of Pathology in the University of Oxford, Corresponding Member of the Royal Danish Academy of Letters and Sciences, in collaboration with GEORGE FULFORD HANSON, late Lieutenant U. S. A. Medical Corps, Air Service, with a foreword by CHARLES H. MAYO, M.D., Rochester, Minn. Containing 127 pages with tables and illustrations. Price, $3.50. New York: Paul B. Hoeber, 1921.

DOCTOR Dreyer's book on "The Assessment of Physical Fitness" offers an extremely interesting thesis; but the fundamental concept underlying the tables presented in this small volume cannot be accepted without immediate challenge.

Topinard beautifully expressed an anthropological truth when he said that any three measures repeated in a large series of cases will give information of anthropological value; so that Doctor Dreyer's table, based on the relation between the weight of the human body and the sitting height of the trunk, the circumference of the chest, and the vital capacity of the lungs, can at least claim Topinard's dictum as a precedent.

We find the statement that there are separate tables for males and for females. "Such a division is essential because the two sexes differ greatly in almost every particular, and the results obtained by using the tables for one sex in the case of the other are found to be entirely misleading." One might surmise from these teachings that the female anatomical structure is basically different from that of the male. Such a teaching is fundamentally contrary to the revelations brought out by anthropological studies; for the mammal is an evolutionary type in which there is a cogent relation in the scheme of development of the child, the female and the male. Gratiolet first mentioned this possibility, and subsequent anthropological investigations wholly substantiate Gratiolet's contention.

Doctor Dreyer's book gives many pages of figures dealing with the "normal;" but it signally fails anywhere to indicate or to define by what standards the normal is measured other than the collection of a vast number of statistical measures. There is no indication that any cognizance is taken at all of the cogent facts that anthropology, endocrinology, psychiatry, and other sciences daily teach us, namely, that the relation existing between the child, the feminine, and the masculine morphology is infinitely deeper rooted than the superficially observed differences. It is difficult to determine why a new and arbitrary branch of anthropology should be created. Far better would it be if physicians would inquire into a science that has been established since 1875, and before, and make their studies in accordance with a precedent that has been set by anatomists, physicians, and anthropologists since the days of Broca, Quatrefages, Topinard, and the immortal Morton of our own country. If anthropology offers aid to the clinician, and it does, then we should first study anthropology and subsequently apply it to our clinical problems; and if we study anthropology, then Doctor Dreyer's book justly loses its value.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Forty-Third Annual Congress, Held in Atlantic City, May 30 to June 1, 1921.

THE PRESIDENT, DR. HARRIS P. MOSHER OF BOSTON, IN THE CHAIR.

President's Address: The Liver Tunnel and Cardiospasm.—Dr. HARRIS P. MOSHER of Boston delivered this address, in which he recalled that last year he had reported the cadaver findings in thirty casts of the injected esophagus and stomach of adults and those of sixty injected and dissected babies. The findings now presented supplemented these. The result of his observations indicated that a free passage through the subdiaphragmatic esophagus depended upon the patency of the liver tunnel. In ten cases of cardiospasm in which he had sufficient data to draw conclusions there was either a partial crescentic stricture, or a full annular stricture at the beginning of the liver tunnel and opposite the upper edge of the left lobe of the liver. In his cases stricture and not spasm was found to be the chief causative factor. More cases were necessary, however, in order to determine whether or not the high percentage of stricture in cardiospasm which he had found was constant. The basic fact in his paper of last year was that the liver was chiefly responsible for the shape of the lower end of the esophagus. The subdiaphragmatic portion of the esophagus ran in a tunnel of liver, and according to the closeness of the investing liver was either flaring and trumpet shaped or narrow and cone shaped. *X*-ray plates of the lower end of the esophagus often showed it ending in a nipple-like point. Between this and the fundus of the stomach there was a gap, which was the closed liver tunnel. The upper edge of the liver often made a crease in the front wall of the esophagus, and this crease was present at birth. The left crus made a crease in the posterior wall of the esophagus and a marked notch in its left edge. Experiments on the cadaver showed that the crescentic mound which was often seen through the esophagoscope in the right half of the field as the liver was approached was made by the upper rim of the liver. The result of observations made by Dr. Gordon of the *x*-ray department of the Massachusetts General Hospital, in collaboration with the writer, showed that in a majority of normal cases there was an appreciable delay of the bismuth milk at the upper border of the liver when a patient swallowed. Dr. Gordon made the further observation that when the diaphragm was lowered the bismuth milk which was held back momentarily by the liver edge, shot at once into the stomach. He had found in the cadaver four specimens of annular stricture of the lower part of the esophagus. Each one capped circumscribed dilatation of the esophagus which was bounded below by the constriction caused by the left crus, and each one was on a level with the upper edge of the left lobe of the liver. Of three cases of cardiospasm of which he had good records the diaphragm was moderately lowered in one and markedly lowered in the other two. In grouping his cases of cardiospasm he found there was an element of stricture in the majority of them and this stricture was by preference at the beginning of the liver tunnel at the upper edge of the liver. The stricture element in his cases varied from a slight crescentic fold in the right quadrant of the esophagoscope in the region of the hiatus to a full annular stricture with a central opening. In the cases which showed the crescentic fold steady pressure with the end of the esophagoscope usually resulted in the tube slipping by into the normal esophagus below and through this into the stomach. The withdrawal of the tube disclosed a vertical slit in the mucous membrane of the esophagus. He held these cases to be analogous to partial webs at the mouth of the esophagus. He had records of three cases in which there was a full stricture with a central opening. This stricture was at the upper edge of the liver. He had had one case which showed a narrowing of the whole length of the liver tunnel. One might, then, have a narrowing of the whole length of the liver tunnel or of any part of it. Observation seemed to show that spasm was a minor element in these cases. He believed these structures were due to some inflammatory process either within the liver tunnel or in the vicinity of the cone of the diaphragm. The inflammation could originate in any part of the peritoneal cavity, and when the lesser omentum became involved the liver tunnel became less flexible, the liver and diaphragm less mobile, and the familiar result, temporary cardiospasm, followed. In one of his cases of full stricture the patient when an infant swallowed a two-cent piece. In another case there was a history of general peritonitis twenty years ago. He had proved to his satisfaction that many of these so-called cases of cardiospasm were mainly cases of stricture of the upper end of the liver tunnel.

Tonsillectomies in Adults for Rheumatism with Critical Review of Reviews.—Dr. HILL HASTINGS of Los Angeles read this paper, in which he stated that comparatively little had appeared in the laryngological literature dealing with the clinical problems of tonsillectomy or the results from the patient's standpoint. In the present paper all adult cases in which tonsillectomies were done solely for ear, nose, and throat conditions were excluded; also cases that dated back over six years, and all cases that were of shorter duration of observation than four months. Tables were presented showing ages, duration of rheumatism, parts affected, character of rheumatism, with results of tonsillectomy, throat history, and subsequent history of 130 cases. The subsequent results were based on personal examination of the patient by the writer, by the internist, or by the orthopedist, and checked up by questionnaires received from all of the 130 cases except 26 who could not be located. Of these, 39.5 per cent. were improved, some were gradually growing worse, some were remaining stationary. In this whole series of tonsillectomies there were no hopeless chronic cases operated upon, and it would seem that the percentage of non-improved, 21 per cent., should not have been so high; nevertheless many of these cases that were marked "unimproved" might have become hopelessly chronic but for the tonsil surgery. Of the 40 cases in which apparent cure resulted, 22 were diagnosed "chronic arthritis, mild"; 11 were acute arthritis cases, and three were diagnosed "myalgia." A general survey of the history of these patients showed that most of them had suffered for years, but not continuously, with pain and stiffness in one or several joints. A few of them gave a history of symptoms of tonsil trouble; some gave no history of throat trouble. In seven cases the history showed an acute tonsillitis as a forerunner of the rheumatism. In other cases an accumulation in a tonsil crypt caused rheumatic symptoms. It had been the writer's experience to find that adult patients suffering from toxic symptoms were referred to the laryngologist for his decision as to whether or not the tonsil was the seat of a chronic infection. Other patients came with the statement that their tonsils had been pronounced infected. The writer told such patients that every adult tonsil was a chronic infected tonsil from which a positive culture could be made. The same was true of most tonsils in children. Therefore, the necessity for a tonsillectomy depended not solely upon the examination by a laryngologist but upon a complete study of the patient to determine all possible factors for the invalidism.

Results of the Treatment by X-Ray and Radium of Diseased Tonsils and Adenoids.—Dr. D. BRYSON DELAVAN of New York presented this communication, in which he said that very small amounts of *x*-ray were sufficient for the reduction of lymphoid tissue, doses so small that no injury, it was claimed, resulted to other parts from its application. The current used was too weak to affect even the external integument, but sufficiently strong nevertheless to destroy the lymphoid tissue, and no scar tissue was left behind. The rays themselves did not destroy bacteria, hence they did not affect concealed abscesses of the tissue. They acted by so modifying the crypts that free drainage from them was secured, and thus the crypts continued to empty themselves of all offending contents. As the tonsil atrophied the infection disappeared from the opening up and drainage of the crypts. Dr. Murphy maintained that little atrophy would result in the

case of fibrous tonsils, since the rays had no effect upon fibrous tissue. This being true such cases must continue to be treated surgically, as heretofore. Moreover, since radiation did not affect bacteria, its application in cases of concealed chronic abscesses of the tonsil would be ineffective, an unfortunate circumstance in view of the prevalence of this condition. That the method of treatment by radiation would quickly come into general use was improbable. The region of the neck was one containing numerous important anatomical structures which must be carefully guarded against injury. Inasmuch as a knowledge of the safe and effective use of both *x*-ray and radium was acquired only through highly intelligent study and much experience, it was far better that experiments be carried out by those qualified for the work than that the success of a method of such good promise should be compromised and perhaps discredited through errors due to incomplete understanding of the medium or to faulty technique in its application. Knowledge of this subject was in its infancy, and far more study and observation was needed to prove the value of the theories already suggested. What had been done had developed questions of the greatest interest, not to be settled by theoretical discussion but by painstaking experimentation and accurate scientific observation.

Must It Always Be Tonsillectomy?—Dr. HENRY L. SWAIN of New Haven, Conn., read this paper, in which he said that in late years the tonsil had been looked upon as the cause of an astonishingly large number of diseases and symptoms affecting the comfort and menacing the lives of patients, and while recognizing the perfectly laudable desire on the part of the operator to get rid of the tonsil, root and branch, he felt that we as a profession ought not to leave out of consideration the fact that there were other methods than tonsillectomy, which were safe, sane, sure, and enduring in their results. These methods did not endanger life, did not subject the patient to the distressing effects of serious hemorrhage, avoided the chances of lung abscess, and brought the patient through the ordeal with undistorted and non-adherent palate, and without the disturbance of the daily routine of his life. By a simple method of slitting up intercommunicating crypts and other retention pockets, punching out undesirable tissue areas, and, if necessary, shrinking the tonsils by galvanocautery procedures, he was able, by the same process, to prove tonsils guilty and to make them cease from troubling. He frequently achieved as spectacular and permanent results thereby as he or anybody else ever attained by perfect tonsillectomies. Many others had had similar results by other means; only lately he had been made acquainted with the brilliant results of *x*-ray exposures. He felt convinced that it was not always necessary to do a complete tonsillectomy in order to remove the threat and menace of the faucial tonsil.

Dr. JOSEPH L. GOODALE of Boston, Mass., asked Dr. Hastings to tell them if in these cases it was possible for him to ascertain absolutely whether there had been an unusually large proportion of what might be called anaphylactic types among the 20 per cent. of arthritic cases that failed to show improvement. He asked this because Dr. Hastings suggested the hypothesis that certain arthritic cases might conceivably be explained on the ground of previous sensitization of the joints, which, in subsequent infection, were again brought into prominence—not through direct penetration of bacteria but through toxins generated in the tonsils finding response in the joints. Dr. Goodale said he had seen a case of what he had called ingestion anaphylaxis giving rise to arthritis. In this case the patient gave up the foods that had been demonstrated to be the cause of anaphylaxis, the joint symptoms disappeared, and he had been well ever since. In regard to Dr Delavan's paper, the cases that could be influenced by *x*-ray were chiefly the juvenile ones; in the senile ones, with symptoms resulting from absorption, he questioned whether one could accomplish so much.

Dr. JOSEPH BRYAN of Washington, D. C., stated his experience was confined to five or six cases, three of which he reported. One of these was a patient who following an attack of influenza developed pneumonia with endocarditis and nephritis. The latter condition persisted long after the other complication had cleared up. The tonsils showed the presence of two kinds of streptococci, *viridans* and *hemolyticus*. The patient received six applications of *x*-ray when the nephritis cleared up, though the organisms in the tonsils remained the same. In a second case with marked *Streptococcus hemolyticus* infection *x*-ray treatment had effected no reduction in the amount of tonsillar tissue, the organisms were as numerous as before, and the patient showed no improvement. The third case was that of a woman of 73 with glaucoma and infected tonsils containing *Streptococcus hemolyticus* and *viridans*. The *x*-ray was applied and the tonsils had been completely absorbed. The organism had been changed from *viridans* to *hemolyticus*. There had been great improvement in her health and in her eye. The *x*-rays were a valuable adjunct to treatment, particularly in selected cases, but he did not believe they would supplant surgery.

Dr. CORNELIUS G. COAKLEY of New York said about ten days ago he had reported before the New York Academy of Medicine the results of a survey of tonsils that he and his associates had operated upon during the past twelve years for rheumatism, and their results in the series of 146 cases were above 85 per cent. of very marked improvement or cure. The total time consumed in giving the *x*-ray treatment was certainly more per individual patient than when surgery was employed. There was no question that the *x*-ray would reduce the size of lymphoid tissue. The question came up, "What effect will simply reducing the size of the tissue have on the infective material?" The Rockefeller Institute had cultured the tonsils before and after *x*-ray treatment, and found various organisms before and also afterwards. Dr. Coakley said he thought it would also be found eventually that the *x*-ray would unquestionably reduce the size of the tonsils, but whether it would put the tonsils in such a shape as to free them from infection, especially in the case of small-sized tonsils, he had great doubt.

Dr. LEWIS A. COFFIN of New York asserted that the tonsil had nothing at all to do with the trouble. The trouble was altogether with those tonsils that did not free themselves of pus or crypt secretion and accumulation. The problem of the tonsil was solved if the crypts were thoroughly drained or rendered aseptic. The interesting questions were why some tonsils developed so as to interfere with their own drainage, and whether one could do anything to prevent such development.

Dr. J. PAYSON CLARK of Boston, Mass., reported a case of severe rheumatism in a woman, 69 years of age, who was greatly relieved by tonsillectomy. Two years after the operation she stated that she was free from pain and could walk with more ease. Slitting the tonsils was, of course, a procedure which had been successful in the hands of many of them. Suction in the crypts he thought a valuable treatment in suitable cases.

Dr. GEORGE L. RICHARDS of Fall River, Mass., asked Dr. Delavan to tell them about the tendency of dryness of the mouth and throat following *x*-ray treatment. Even with ordinary tonsillectomies there was a certain amount of dryness of the mouth and throat in a certain percentage of cases. There was no doubt that the *x*-ray would destroy lymphatic tissue, but was it not possible that in this destruction we should have ill results, not in a year, but in some later period?

Dr. HARMON SMITH of New York pointed out that they all knew that in the application of the *x*-ray and radium they benefited a malignant tumor by the production of endarteritis. The application did not destroy the tumor; it shut off the blood supply and shrunk the mass. When this happened nature established a new blood supply of more lasting character, and the tumor began to grow again. When, in the application of raying, the lymphatic tissue was not destroyed, but the blood supply shut off, the tissue shrunk; when the blood supply began to reestablish itself, as it would if the patient lived long enough, there would be an increased growth of the mass.

Dr. JOHN R. WINSLOW of Baltimore, Md., said we had proof that *x*-ray and radium would destroy tissue, lymphoid tissue included, but what proof had we that it would not destroy more important structures in the

neck? If it would destroy these tissues, why should it not destroy other tissues (the parathyroids, for instance)? In applying the *x*-ray to the nasopharynx he thought there was a certain possibility of the production of meningitis. In fact this had occurred in the treatment of tumors in this region with radium. In the treatment of comparatively simple hypertrophy, such as that of the tonsils and adenoids, he did not think that the time element was much reduced or that the safety was much greater as compared with surgery.

Dr. HASTINGS of Los Angeles, in closing his part of the discussion, emphasized the importance of studying one's cases thoroughly before deciding for or against operation. It would be interesting to study those cases which were not operated upon to see if secondary focal symptoms developed. It would also be interesting to study a group of cardiovascular cases in the way in which this group of rheumatic cases were studied. Dr. Goodale asked whether there had been any anaphylactic reactions noticed in the uncured cases. The speaker's attention was not brought to such reactions, though such might have been the factor in the case reported in which the patient starved himself for twenty-six days on account of rheumatism with marked improvement, the symptoms recurring when he began to eat.

Dr. DELAVAN of New York called attention to the fact that he had not said anything that should lead one to suppose that he accepted all the proposition about radium in this connection. On the contrary, his idea was to bring up the subject with as much conservatism as possible and to point out the cases in which it was probably of benefit. It had been demonstrated that this form of treatment would probably rather diminish lymphoid tissue, and that it would not do other things. He thought they should receive what was given them with friendly consideration, and try to find whether there was anything of practical value in the method. Valuable deductions would not be reached through the medium of theoretical objections or unkind opposition. When scientific tests had been made they might be given to the world, and then we would know more.

Dr. SWAIN of New Haven, Conn., in closing the discussion, said he had worked a good deal on what he had presented. It had been conscientiously done so that he was able to assure them that there were several safe ways to eliminate the tonsil as a cause of trouble. He agreed with Dr. Hastings that we must in considering these focal infection cases remember that we had twenty-six feet of intestines of which the tonsil was only the beginning.

Ventriculocordectomy—A New Operation for the Cure of Goitrous Paralytic Laryngeal Stenosis.—Dr. CHEVALIER JACKSON of Philadelphia presented this communication, in which he stated that in ventriculocordectomy he believed we had a simple endoscopic operation that could be done under local anesthesia and that would cure almost every case of laryngeal stenosis due solely to abductor paralysis if the case was not complicated by a faulty tracheotomy. The technique of the operation was as follows: In children no anesthetic, general or local, was used. In adults cocaine was painted on with a swab and one-quarter of a grain of morphine was given an hour before operation. The larynx was exposed with the direct laryngoscope and through it the punch forceps was inserted. The ventricular band was elevated and the forceps applied. Thus the floor of the ventricle and part of the mucosa of its outer wall was removed at one clip. A clear cut was necessary. In some cases the ventricular bands were in tight apposition, so that the forceps had to be insinuated between them before expanding the jaws. Great care should be taken to avoid getting too far outward between the thyroid and cricoid cartilages lest the crycoarytenoideus lateralis be injured. With the forceps used this accident was easily avoided. Great care should be taken not to excise any part of the arytenoid cartilage. The clipping off of the extreme tip of the vocal process of the arytenoid was necessary in some of the cases because of the shortness of the cord, but the excision of more than this was unnecessary and should be avoided. Judging from post-graduate teaching at the Bronchoscopic Clinic, few laryngologists seemed to realize how far the vocal process of the arytenoid projected forward toward the anterior commisure. To perform the operation required education of the eye and the fingers in endoscopic technique. Of course, the excision of the cord and ventricular floor could be done by laryngofissure, but in this we had, though not a serious operation, one that would appear much more formidable to the patient. No after treatment was necessary. The surface of the wound was covered with an exudate under which healing by granulation progressed. The duration of the operation done endoscopically on one side only was never over one minute in any case, and in some cases healing was completed in ten days. Ventriculocordectomy was indicated in cases of stenosis resulting from a hopelessly paralyzed larynx. This or any other form of clearing the air-way was contraindicated in the first six months of abductor laryngeal paralysis. In most cases it was wise to wait a year. The best means of affording relief of dyspnea and safety of the patient during this waiting period was by prompt low tracheotomy. High tracheotomy was the cause of more cases of cicatricial laryngeal stenosis than any other one thing. With a low tracheotomy a pair of proper cannulæ and a daily toilet of the fistula nothing was lost by waiting. Out of eighteen cases ventriculocordectomized seven that were uncomplicated by cicatricial stenosis were afforded by this procedure alone satisfactory relief of dyspnea. Considered in the light of the degree of preservation of the functions of the larynx ventriculocordectomy, in the writer's opinion, surpassed any previously devised operation. It was ideal for those cases in which neural and muscular atrophy had rendered resumption of normal cordal motility hopeless by either spontaneous recovery or neuroplastic surgery.

Dr. D. BRYSON DELAVAN of New York stated that it was known that methods similar to this had been employed, not only in the surgery of the human being but in veterinary surgery. Any betterment in the process and what might be called standardization of the treatment was welcome.

Dr. ROBERT CLYDE LYNCH of New Orleans, La., said it struck him during Dr. Jackson's description of the reason for the regeneration of the vocal cord, that in cases of infrapharyngeal carcinoma which he had operated on by suspension, and in which he had removed a considerable portion of the vocal process of the arytenoid cartilage and muscle, there had been no effort on the part of nature to re-form any portion of the cord whatever. He was at a loss to know why this had occurred, since in cases of thyrotomy the cords did re-form or something re-formed which took the place of the vocal cords. In the cases he had operated on by intralaryngeal resection there had been no disposition to renew the cord. The space remained wide open. Possibly this might add something to the theory of the regeneration of the cord.

Dr. CORNELIUS G. COAKLEY of New York said that in his service at Bellevue they saw two or three of these cases a year. The only treatment they had been using was tracheotomy. Most of their cases were in patients with central lesions or bulbar paralysis. Dr. Coakley asked Dr. Jackson whether he considered it necessary in long-standing cases of bulbar paralysis to do a tracheotomy, and how much hemorrhage he got during the operation on small children.

Dr. JOSEPH B. GREENE of Asheville, N. C., said he had several patients under observation at the present time who should have treatment and he would refer them to Dr. Jackson.

Dr. HENRY L. SWAIN of New Haven, Conn., asked Dr. Jackson what proportion of cases had to have ventriculolcordectomy and what vocal results he obtained.

Dr. EMIL MAYER of New York asked Dr. Jackson what local anesthetic he used, and what was the manner of application and the strength of that particular local anesthetic.

Dr. CHEVALIER JACKSON of Philadelphia, in closing the discussion, said in regard to the matter of the voice that the patient must be told that the voice would be reduced to a whisper for quite a number of months. Then it would be a stage whisper, and later the patient would be able to phonate; in a year or so he would have a voice that could be heard across the room. The operation was especially adapted to the goiterous cases. Their expectation of life was longer than in other cases. In tabes and disseminated sclerosis it was not so long, although many survived for years. With regard to Dr.

Swain's question about the necessity of doing a double operation, after making a section on one side, usually about a month elapsed before he operated on the second cord. If the patient had plenty of air, the second cord might not need operation, but he would not feel justified in abandoning the tracheotomy cannula in that case. Regarding the name of the operation, ventriculocordectomy, the floor of the ventricle was excised, and that was why he used the term, faulty though it might seem. As to the anesthetic, 20 per cent. cocaine was sufficient in most cases. Most of the patients were adults; one was a child in whom no anesthetic was needed. With regard to preliminary tracheotomy, in the cases of bilateral paralysis in which one cord had become cadaveric, the patients would get along without tracheotomy. He felt that it was better to tracheotomize than to wait a year to see if movement would be recovered. If no motility appeared within a year, adduction would never come back and ventriculocordectomy was indicated. Regarding hemorrhage, it was extremely insignificant. Probably the pinching off of the blood vessels prevented hemorrhage.

Papilloma of the Larynx in Children with the Report of an Unusual Case.—Dr. O. A. M. McKIMMIE of Washington, D. C., read this paper, in which he stated that a review of the literature brought out the following facts: Our knowledge of the causation of papilloma had not increased; nearly all writers stated their conviction that removal by use of the direct laryngoscope was the preferable method if removal seemed best. The youngest children operated upon by the direct method were seventeen months and eighteen months old, respectively. No operative method seemed to be entirely satisfactory. Numerous cases of spontaneous cure, that was disappearance without actual removal of the papillomata had been reported. The case reported was that of a child with a history of increasing hoarseness and difficult breathing during a period of six months before coming under observation. She was evidently suffering from marked laryngeal obstruction. Examination showed a granular mass filling the entrance except for a small chink posteriorly. The child was taken to the hospital and the consent of the parents obtained to do a tracheotomy whenever the writer thought necessary. As breathing was becoming steadily worse a low tracheotomy was done on the following day, a few whiffs of ether being used. At the end of one week the larynx was opened and the masses of papilloma, which practically filled the box of the larynx below the cords and extended above them also, were removed. The patient was discharged at the end of the twenty-fifth day without the tube and with the laryngotomy wound healed. During the following five months she was perfectly well, but six months later she suffered an attack of grippe which seemed to have been the starting point of a recurrence of the papillomata, which necessitated a second tracheotomy, followed a week later by laryngotomy. The following one hundred and fifty-two days were spent in the hospital, the tube being worn continuously so that rest of the larynx would give the greatest chance of allowing the process to run its course without reinfection, if one might use such an expression. The mother became expert in the care of the tube, so the child was allowed to go home, the idea being to allow her to wear the tube for an indefinite period. This proved to be the correct procedure, for three months after discharge from the hospital there were small papillomatous masses on both posterior pillars of the pharynx, which later disappeared spontaneously. The child wore the tube continuously for two and a half years, and was about ready to dispense with it when she died of influenza-pneumonia during an epidemic. The microscopist reported the masses removed as papilloma. The use of the direct laryngoscope, without tracheotomy, in children under four years of age was not justified; in small children tracheotomy followed by opening the larynx was preferable, because this operation when carefully done permitted absolutely perfect access to every portion of the organ and perfect removal without undue traumatism of every particle of the growth. It was not always possible to get a larynx cleared out by the direct method even in adults. The various drugs applied locally in adult cases had in the main been unsuccessful and were not applicable in small children. Radium and *x*-ray exposures had been used and a few good results therefrom had been reported. Cases were reported of cure by removal followed by fulguration repeated at intervals. There were two classes of laryngeal papillomata in children. First, those in which no marked obstruction to breathing existed and in which the patients were in good general condition; and, second, those in which there was progressively difficult respiration. In the first class one might temporize in the hope of a spontaneous cure, supplementing the waiting by hygienic measures. In the second class one must consider (1) removal of the growth by the direct method without preliminary tracheotomy; (2) simple tracheotomy, relying upon laryngeal rest to bring about a cure; (3) tracheotomy followed by direct laryngoscopic removal of the growths, and (4) preliminary tracheotomy followed later by laryngotomy.

Dr. J. PAYSON CLARK of Boston, Mass., adhered to his position previously taken that in these cases no treatment should be undertaken that would cause permanent injury to the larynx or leave a scar. He advocated preliminary tracheotomy in all cases in young children owing to the size of the larynx and the danger of rapid growth and obstruction of the larynx. After doing a tracheotomy the larynx should be given a period of rest. A laryngeal papilloma, like an ordinary dermal wart, would often disappear.

Dr. GEORGE L. RICHARDS of Fall River, Mass., related the history of a case of papilloma of the larynx in a child in which he made applications of alcohol directly to the cord. The papilloma disappeared and during a period of five years, until he lost sight of her, there had been no recurrence.

Dr. CROSBY GREENE of Boston, Mass., described a case of papilloma in a child upon whom he operated once or twice by the direct method. Later he had a recurrence and another surgeon operated by thyrotomy and thoroughly cleaned out the larynx. Within a year he saw the child with his larynx full of papillomata. Such an experience he thought was sufficient reason for not resorting to such a radical procedure as laryngotomy in these cases.

Dr. HENRY L. SWAIN of New Haven, Conn., told of a case of his in which four or five small recurrent papillomata in various parts of the larynx receded under alcohol treatment, during a time when the patient was pregnant and could not be operated upon. Only the original growth remained on the vocal cord. This was removed by direct laryngoscopy, and applications of alcohol to the site from which the growth was removed were employed for some time, with no recurrence.

Dr. ROBERT CLYDE LYNCH of New Orleans, La., said an experience with ninety cases of papilloma of the larynx led him to believe that any cutting operation was likely to be followed by recurrence, and not only that, but it seemed to be followed by a type of papilloma that indurated below the level at which the tumor originally grew. For that reason thyrotomy or any type of operation except that described by Dr. Jackson this morning was not indicated. He had obtained the best results by drying the surface with alcohol and ether, and using either fulguration or the actual cautery. For a time he thought fulguration was the better of the two, but now he was leaning to the actual cautery, applied in the same way as in laryngeal tuberculosis. The performance of tracheotomy early in these cases was to be regarded with fear and trembling because of the danger of scattering the papilloma and implanting it in the trachea. There was a psychological moment for the disappearance of these growths. He had operated upon some cases many times, in one instance forty-two times, and finally a time came when there was no recurrence of the growth.

Dr. D. BRYSON DELAVAN of New York said that in the small, slowly growing and warty papillomata of the larynx the use of alcohol, not once a month (that was too much in the line of prohibition altogether) but every day, by the patient who could be taught to do it, would cure a certain proportion of cases. In another proportion this treatment retarded the growth, and made it easier to remove it and remove it thoroughly. But there were papillomata that such treatment could not possibly cure.

Dr. Oscar A. M. McKimmie of Washington, D. C., said that in so small a child he should probably do again what he did in this case, because he believed that even the method suggested by Dr. Jackson this morning offered as much chance of spreading the papilloma as laryngotomy. The latter in the hands of the average laryngologist he thought was a safer operation.

Presentation of Patients, Instruments, and Reports.—Dr. D. Bryson Delavan of New York presented a patient showing the splendid results following external applications of radium. The patient stated that he had had two hours treatment the first time, and then four and a half hours on each side. They were cross-fired, and the next time he had one hour and fifty minutes on one side. The third time he had two hours. His voice, as they could hear, was coming back. He thought it was better each day.

Dr. Chevalier Jackson of Philadelphia said he felt so enthusiastic over this patient that he would like to say a word. After not so many weeks of perfectly painless treatment, all the enormous masses that had occupied the place of the ventricular bands simply melted away. It approached ideal medicine in a way one practically never saw. It was one of the most brilliant cures he had ever seen. He was so enthusiastic that he had made drawings which he wished to present.

Dr. Jackson then presentd a little girl who had had masses of papillomatous growths removed with the crushing forceps. Her speech was clear and there had been no recurrences.

General Measures in the Treatment of Laryngeal Tuberculosis.—Dr. Lawrason Brown of Saranac Lake, N. Y., presented this communication in which he said that tuberculous laryngitis was rare in children, being more often found at autopsy; it occurred in 25 per cent. or more of adults with pulmonary tuberculosis, slightly more in men than in women, and next to tuberculous enteritis and colitis was the most frequent complication of pulmonary tuberculosis. Laryngeal tuberculosis was rarely, if ever, a primary disease. One vital essential in its treatment was rest. They put the patient on silence and gave the larynx absolute rest except for such movement as occurred in breathing, swallowing, and coughing. The results of this absolute rest were just as striking as they were in tuberculosis of any other organ that could be given nearly 100 per cent. of functional rest. How long absolute rest should continue must depend upon how the lesion progressed. Lip whispering, then ordinary whispering, next an occasional sentence in speaking tones, was the method of progression, but singing, shouting, and public speaking should be avoided for some months after recovery. Personally, Dr. Brown said he went further in the rest treatment and did not hesitate to put the patient to bed for six weeks in a well ventilated room with wide open windows, or better still upon a porch during the day and in a well ventilated room at night. Recovery from laryngeal tuberculosis depended in most instances largely upon the condition of the pulmonary tuberculosis. With advancing pulmonary tuberculosis, fever and poor nutrition, it was difficult to promote healing in a tuberculous larynx, but it had been done with the electrocautery. In regard to local treatment, he felt that the laryngeal dropper, devised by Dr. Yankauer of New York, was not yet widely enough known and used. To produce rest and to facilitate swallowing, freedom from or lessening pain was necessary. Dr. Brown had tried injection of alcohol into the superior laryngeal nerve with some success but the respites had never been long. The insufflation of anesthesine or orthoform had been helpful. In these cases the laryngeal dropper had proved a godsend. Before the application of these drugs he had the patient rinse the larynx thoroughly with physiological salt solution. Menthol (1 per cent.) in oil was an excellent application which to begin the treatment. He had by these methods been able to avoid largely cocaine with its disagreeable after-results. In a few cases he had not hesitated to use morphine hypodermically. More recently he had been interested in a thin solution of gelatin suggested by Mr. Petroff, who had afterward prepared a strongly immune serum (sheep or goat). Spraying the larynx with these substances apparently afforded a few patients marked relief, but in others it was of little avail. In view of the large number of patients with pulmonary tuberculosis who had laryngeal tuberculosis, treatment of the throat condition must in large part devolve upon the medical man doing tuberculosis work. They felt their shortcomings and turned to the laryngologist for help, but when they saw patients with high fever dragged to a laryngological dispensary, which they knew was wrong, they realized that they or some one else had erred.

Climate in the Treatment of Laryngeal Tuberculosis.—Dr. Carroll E. Edson of Denver, Col., read this paper. He stated that tuberculosis of the larynx was practically always secondary to an active pulmonary tuberculosis, and hence the extent and character of the primary lesion usually determined the choice of climate for the patient. It was, therefore, in the first place necessary to have a clear understanding of the part climate played in the cure of tuberculosis of the lungs. This the writer dealt with at length. Tuberculosis of the larynx responded only in a general way and to a slight degree to the increased vitality induced by outdoor life and general nutrition. Its arrest was more dependent upon the third member of the physiologic tried, rest. Under the establishment and maintenance of complete rest the prognosis of laryngeal tuberculosis was much better than commonly believed. Complete rest was incomparably the most important part of the treatment. The most effective means to this end and the most difficult to obtain was silence, the absolute avoidance of all phonation. Next in value was reduction or control of cough from whatever source it arose. Local laryngeal irritation was to a considerable degree affected by atmospheric conditions, the control of which might greatly assuage the patient's discomfort. The supralaryngeal cough caused by nasal and pharyngeal trouble was a factor of great importance in its wear upon the patient. This was not sufficiently appreciated or given enough detailed care, either in laryngeal tuberculosis or purely pulmonary tuberculosis. A patient with laryngeal tuberculosis did not endure well extremes of heat or cold. Climates characterized by sudden or frequent changes of temperature were to be avoided. The patient would benefit most if sent to a mild, equable climate with a dry air, low relative humidity, and long periods without wet weather. Strong winds and dusty air were sedulously to be avoided. Frequently in the same region of generally similar climatic conditions one locality would have a topography giving shelter from the prevailing winds, and would be thus entirely suitable, while a station near at hand not so protected would be undesirable. Such local details were important to consider even after the general problem had been settled. One mistake in the management of these patients was traveling to a physician's office and waiting their turn for treatment in a crowded, often poorly ventilated, room when the exertion involved or the presence of fever should forbid such conduct. A patient with laryngeal tuberculosis needing regular local treatment should be treated at his residence; if this could not be done the patient would be best placed in a sanatorium where the means for local treatment were at hand. A careful consideration of the balance between the patient's needs, his means, and the reasonable advantage to be expected from a change in surroundings was necessary to avoid disappointment or disaster. To make a correct selection the physician must understand the climatic characteristics of both the home and the contemplated resort; he must have an accurate knowledge of and interest in meteorological statistics and be able to interpret them properly in terms of physiological effect on the patient. Future advance in the best utilization of climate would come with a greater appreciation of the fact that the physical modalities of temperature, humidity, sunlight, wind, and barometric pressure were real and definite in their action.

The Treatment of Tuberculous Laryngitis by Suspension Laryngoscopy.—Dr. L. W. Dean of Iowa City, Iowa, presented this paper, in which he asserted that, using proper precautions, endolaryngeal operations might be performed upon the tuberculous larynx by suspension without detriment to a coexisting quiescent pulmonary condition. He found it quite impossible to do as accurate work by direct laryngoscopy as by suspension. Unless there was some contraindi-

cation to its use suspension laryngoscopy was to him the procedure of choice for endolaryngeal operations on the tuberculous larynx. The well illuminated larynx was thoroughly exposed; both hands of the operator were free, so that he might have in one hand a spatula to expose better or to protect a certain area of the larynx, while in the other he held his galvanocautery point, punch, or curette; he was at liberty to turn to his instrument table and select a different instrument without interfering with his work; there was no hurry. The work was done under local anesthesia. There was no excuse for loosening teeth and there should not be the slightest danger of jaw fracture. To get a good view it was not necessary to separate the patient's jaws widely, and it was not always necessary to bring the anterior commissure into view. It was never necessary to raise the patient's head from the table. The anesthesia consisted of morphine $\frac{1}{4}$ of a grain and atropine 1/120 of a grain given twenty minutes preceding the operation. Ten per cent. cocaine was applied to the epiglottis and larynx, using a cotton swab. Suspension prevented hemorrhage and edema by permitting exact incision and cauterization when operating in the larynx and so thoroughly exposed bleeding points that they might be properly handled. For amputating the epiglottis, suspension laryngoscopy was the procedure of choice. Under local anesthesia, using the short Lynch tongue spatula, the epiglottis was distinctly exposed. It was grasped with a tenaculum forceps and, using a Lynch knife, cleanly severed at its base. No hemorrhage of importance followed this procedure. It required but a short time. The decision as to whether the operation was to be performed by direct laryngoscopy or suspension was made by the pulmonary expert. He approved of suspension for those patients who could have the endolaryngeal work done in this way without much risk of a reaction. It was particularly desirable to suspend those patients needing cutting and curetting operations. The first essential in treating laryngeal tuberculosis by suspension laryngoscopy was to have the patient under the supervision of a pulmonary expert who had authority to say that the patient should or should not be suspended. Their tuberculous laryngitis cases were divided into four classes for treatment: (1) those who remained in bed and received only simple medication; (2) those who might sit up and have applied to the larynx mild astringents and antiseptics; (3) those who received rapid endolaryngeal surgical procedures by direct laryngoscopy, and (4) those who were operated upon under suspension. Suspension laryngoscopy was particularly adapted to the treatment of superficial tuberculous ulcerations of the trachea. If these ulcerations were high up, using the laryngeal spatula enabled one to cauterize them readily; if situated low down in the trachea a tracheoscope might be passed under suspension and proper treatment instituted.

Dr. JOSEPH B. GREENE of Asheville, N. C., said it seemed to him that the general man who treated pulmonary tuberculosis was apt to pay too little attention to the laryngeal condition. The treatment of laryngeal tuberculosis depended largely upon the stage of the disease, and likewise upon the site of the lesion. It was obvious that silence, which had been so well emphasized, could have no effect upon lesions of the epiglottis and could influence very slightly if at all chronic infiltrations in other situations of the larynx. In ulcerations of the epiglottis there was no treatment comparable to that of epiglottidectomy. In many cases of ulceration and infiltration he was in the habit of using formalin with a great deal of benefit to the patient. There were certain cases, however, which required the use of the electrocautery. For this treatment he used the indirect method. In conclusion, Dr. Greene emphasized the importance of alcohol injections into the superior laryngeal nerve for pain in laryngeal tuberculosis. The method of making this injection was presented clearly by Dr. Fetterolf in a paper published in the *Annals of Otology, Rhinology, and Laryngology*, March, 1912.

Dr. GEORGE B. WOOD of Philadelphia, Pa., said the only method that in his hands yielded positive results in the treatment of tuberculosis of the larynx was the application of the actual cautery. He did not believe that any drugs checked the progress of the disease except in so far as they prevented secondary infections. However, the application of drugs for the purpose of combatting secondary infection was an important part of the treatment. There was a distinct danger in the use of the punch or other compressing instruments of forcing tubercle bacilli from the local lesion into the neighboring lymphatics, and the cut surface left an open channel for further infection. The value of the cautery was not alone that it destroyed a tuberculous lesion, but in the fact that it revitalized an area which, because of the tubercle, had been deprived of its blood vessels. In a large majority of patients, laryngeal lesions could be cauterized during the ordinary office routine with no more discomfort to the patient than an ordinary laryngeal application.

Dr. ROBERT CLYDE LYNCH of New Orleans, La., mentioned two cases of laryngeal tuberculosis which had yielded very nicely to the sun's rays applied by the patients themselves at a time when the pulmonary lesion was entirely quiet. Suspension certainly facilitated the ease and accuracy of the application of the cautery. He had seen cases of laryngeal tuberculosis treated by Dr. Dean and the healing was beyond expectation. He did not think Dr. Dean said enough about his routine treatment in the institution that he had charge of.

Dr. CORNELIUS G. COAKLEY of New York said he had divided the subject of laryngeal tuberculosis into two parts: (1) The non-ulcerative form, and (2) the ulcerative form. In the non-ulcerative form, most of the patients were able to go away from their homes, and it was perfectly surprising the results that were obtained by absolute silence. In the ulcerative type one did not always get such good results, especially where the epiglottis and adenoid region were involved. The thing which had given the greatest relief from the difficulty and pain of swallowing had been the application of orthoform, 1 grain; and compound stearate of zinc, 1 grain. The patients could be readily taught to make the application themselves by taking the powder-blower and making a pressure of the bulb with inspiration This would carry the mixture over all portions of the lower part of the pharynx, larynx, and even down to the trachea. Dr. Coakley said he had not had a chance to do much treatment with suspension, because most of his patients were able to be put on sanatorium treatment, where he thought they did better than at home. He objected to home treatment because it was difficult to carry out owing to interference from the family.

DR. JAMES E. LOGAN of Kansas City, Mo., stated that he had taken these patients, put them in an old fashioned prairie schooner, and sent them across the plains, instructing them to find the location in which they improved most. Most of them were greatly relieved by the out-door life. To his mind the ideal treatment for patients with tuberculous laryngeal ulceration was to seek the climate that benefited them, and there receive suspension laryngoscopy after the lungs and other conditions had improved sufficiently to accept that treatment. He advised against his patients taking treatment in the altitude in which he lived.

DR. E. ROSS FAULKNER of New York said he had been a patient of Dr. Lawrason Brown for a year and it was largely due to Dr. Brown that he was present today. Dr. Brown had kept him in bed for a year and for three months did not allow him to talk. He had not allowed anyone to touch his larynx by means of suspension laryngoscopy. Regarding rest, a patient might be making progress when his balance might be upset by a very slight thing, which would not affect a normal person. Dr. Ross cited a case in a woman 67 years of age who came to the clinic complaining of hoarseness of four months' duration and that she had lost weight. He operated upon her for what was thought to be an epithelioma of the larynx. It proved to be tuberculous. After closing the wound he left a ridge of tissue which afterwards made a very good vocal cord. The patient had quite a fair voice and the result was excellent. She was very well today.

Dr. EMIL MAYER of New York stated that in his clinic it was customary to give every patient one of the Yankauer droppers, so that he could make these applications. A little strip of adhesive plaster was placed at the distal end so that the patient might

know just how far to introduce it. This invaluable little apparatus was particularly cheap and should be borne in mind. These patients could not be sent away because financially they were not able to go any distance. Dr. Mayer cited a case demonstrating the great value of the galvanocautery.

Dr. Lee Wallace Dean of Iowa City, Ia., in closing the discussion, again emphasized the necessity of placing every case of laryngeal tuberculosis under the care of a tuberculosis expert before a therapeutic procedure was advised. The laryngologist should recommend to this expert what in his judgment would be the proper treatment of the larynx, basing his opinion on his findings. The pulmonary expert should then advise whether the treatment suggested should be carried out.

Mucocele of the Nasal Accessory Sinuses: Two Cases of Pan-Sinus Involvement with Recovery after Interval Operations.—Dr. Virginius Dabney of Washington, D. C., read this paper, in which he presented the various theories as to the etiology of this affection. Injury, congenital showing of the duct, and a high deviation of the septum were given. It was essentially an affection of the young, although the two cases reported occurred in persons 25 and 62 years of age, respectively. While the affection was principally that of the frontal sinus, similar conditions existed in other sinuses. The condition developed slowly without pain but with pressure symptoms. It was not easy to differentiate a mucocele from a malignant tumor, and often an examination of the contents became the only recourse. Empyema was more difficult to differentiate than any other condition. The severity of the symptoms, pus in the nose, and the patient's distress were of help in differential diagnosis. The prognosis of mucocele was uniformly good, and the treatment radical operation with drainage. The cases reported presented the classic symptoms and the extraordinary features that made mucocele of the accessory nasal sinus an interesting study. The nature of the growths, the type of secretion, the long and insidious development, the lack of insistent symptoms, and distention of the cavities were all present with an almost total absence of constitutional signs. In both radical operations effected a cure.

Dr. Otto T. Freer of Chicago, Ill., said that if the uncinate process was the site of an inflammatory swelling, as it often was during antrum, ethmoidal or frontal sinus suppuration, it impinged upon the lower border of the middle turbinate, lying in contact with it so that it completed the floor of the recessus frontalis, making it a partly or completely closed cavity. Secretions were then more or less retained in the recessus according to the amount of uncinate and associated swelling. His experience had not sustained the usual idea that antrum suppuration was secondary to the frontal sinus suppuration in these cases. Chronic antrum suppurations were, in his experience, nearly all of dental origin and the frontal sinus abscess followed that of the antrum. In aggravated cases of this sort the maxillary antrum, the recessus frontalis, and the frontal sinus formed one continuous lake of pus that drained under pressure through small fissures into the nasopharynx. As the fluid escaped with difficulty the result was a mucocele which was most conspicuously evident where it affected the frontal sinus, because the floor of the frontal sinus, which was the roof of the orbit, being a thin place, gave away, and became absorbed with displacement of the eye outward. If the fluid distending the mucocele cavity became sterile it contained merely mucus. He had observed two such cases.

Dr. C. G. Coakley of New York stated that within the past fourteen years he had had two cases that were diagnosed as mucocele. One was a patient in whom eleven or twelve years before, he had performed ethmoid exenteration for orbital cellulitis. He cleaned out the ethmoid only, along the nose, like the second half of a Killian incision. The patient made a good recovery from both the frontal inflammation and the ethmoidal. For a long time one could pass a probe into the frontal sinus and wash it out, until all secretion had ceased. The man disappeared from view, owing to residence in another country. He returned again in June, 1920, with a marked bulging in his forehead and downward and outward displacement of the eye which had been going on for several weeks. The diagnosis of mucocele was made, the frontal sinus opened, and the membrane only partially removed. This gave only temporary relief. In Novemoer he came into Dr. Coakley's hands again, when he completed the operation, cleaning out the right frontal sinus. If one wanted to call these conditions mucoceles, all right; but he thought the pathology was that of chronic inflammation of the mucous membrane, without bacteria being present, or with a low-grade bacterial content, which had become devitalized so that one did not get a growth. Looked at in this way one could better understand what was going on in these cases. The process was that of chronic inflammation, where the outlet had been obstructed with some anatomic disturbance—possibly inflammation and possibly trauma.

Dr. Lewis A. Coffin of New York said that what he understood by mucoceles were cavities confined to the ethmoidal tract which contained oyster-like sterile masses. They might extend into and involve the frontals. The interesting thing was the absolute destruction of all the natural cell walls of the tract and the extension and enlargement of the limiting wall of the cavity. That was the real wonder. He supposed it was due to the action of the osteoblasts and osteoclasts, but how they worked to retain the even thickness of the retaining wall was a mystery. He wondered whether, if, as Dr. Freer had suggested, the condition commenced in the antrum and spread upward, the infection might not come from the teeth. The antrum was so often infected from a diseased tooth that this origin seemed possible.

Dr. Hill Hastings of Los Angeles, Cal., recalled that Dr. Dabney made the statement that the existence of sarcoma with the diagnosis of mucocele was not uncommon. Some years ago he had reported before the American Laryngological, Rhinological and Otological Society three cases of mucocele, in all three of which a diagnosis of sarcoma had been made. In two cases the mucocele had been shown up externally in the orbit; in the third case there was a bulging of the maxillary wall of the sinus with rotation of the teeth. At operation the cyst was found to fill the whole antrum except a small area at the upper and outer angle. He had since doubted his diagnosis of mucocele and was inclined to the belief that it was a dentigerous cyst that almost filled the antrum.

Dr. Joseph H. Bryan of Washington, D. C., said there was a condition known as mucocele, though just what the actual pathology was he was unable to state. Undoubtedly it was an accumulation of pure mucus, due to low grade inflammation that had not gone on to suppuration. It was caused by plugging of a cavity. He believed it was a pathological condition.

Dr. Thomas J. Harris of New York reported a case of pneumocele in a Russian, 33 years of age, who complained of crackling in the frontal region and vague pain over the head. The nose showed distinct ethmoiditis. There was a history of considerable time in the development of the disease. The *x*-ray showed distinct frontal sinus disease. He thought it was a frontal sinus disease plus something else. Radical operation showed a distinct air tumor with a small opening into the frontal sinus, which was filled with pus, and a solitary sinus and an occluded naso-frontal canal. It would seem that the trouble had begun in the nose and proceeded up into the forehead.

Dr. Virginius Dabney of Washington, D. C., in closing the discussion, said Dr. Freer's explanation of the condition as due to the blocking of the natural outlet seemed perfectly reasonable, and was frequently seen. He thought that Dr. Coakley did not mean that there was no such condition as mucocele; he meant that cases were reported as mucoceles which were not of this type. Dr. Coffin spoke of finding very often a bony cyst filled with semisolid matter; this was interesting and fell within the domain of the subject. A cystic turbinate was one stage of a mucocele. Pneumatocele, referred to by Dr. Harris, was spoken of more frequently by the French than by any others. He had not touched upon it owing to its rarity and ease of differentiation, chiefly by crepitation and lack of local and constitutional signs.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December 14-17, 1920.

(*Concluded from page* 660.)

OBSTETRICS AND GYNECOLOGY.

1. Differentiate labor pains from other abdominal pains.
2. Explain how the placenta performs its functions.
3. At what stage in labor does concealed hemorrhage occur and give treatment.
4. Explain your method of applying forceps: (*a*) Low L. O. A. position. (*b*) R. O. P. position.
5. Name the different kinds of breech presentations, and which one do you consider the safest for the woman and child?
6. What is meconium and what diagnostic value has it?
7. What is the most frequent variety of extrauterine pregnancy?
8. Name and describe the fontanels that may be felt in a head presentation.
9. What variety of uterine tumor is most frequently seen and how is this affected by the menopause?
10. What infectious disease of the female genitalia may cause extrauterine pregnancy, and how may this be done?

SURGERY.

1. Symptomatology and treatment of acute catarrhal otitis media.
2. Give symptoms, diagnosis and treatment of acute glaucoma.
3. Give the differential diagnosis between a fracture of the surgical neck of humerus and a dislocation of the shoulder joint.
4. Give the diagnostic characteristics of: (*a*) Varicose, (*b*) Tuberculous, (*c*) Luetic ulcer.
5. Name varieties of fistula-in-ano and give treatment for same.
6. How would you treat a gunshot wound of the leg?
7. What surgical conditions occur in the neck? Give symptoms and treatment of the commonest form.
8. Describe rodent ulcers. Give their common locations and treatment.
9. What are the indications for the removal of the mammary gland?
10. Name the causes of intestinal obstruction. What are the signs and symptoms?

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. *The characteristics of labor pains*, are.—They occur just before and during labor; they begin in the back, and pass to the lower abdomen, and down the thigh; at first they are feeble, do not last long, occur at long intervals, are not accompanied by contraction of the abdominal muscles, and do not cause opening of the *os uteri*; later on they become more frequent, occur at gradually shortening intervals, are accompanied by contraction of the uterus and of the abdominal muscles, and the os opens more and more; the pains proceed in a kind of cycle—increase, acme, decline, and interval.

2. FUNCTIONS OF THE PLACENTA. "(1) *Respiratory.*—The placenta acts as the lungs of the fetus. The blood leaving the body of the fetus by the umbilical arteries is laden with carbonic acid which it discharges through the placenta in to the maternal blood. From the latter it receives oxygen which it conveys to the fetus through the umbilical vein.

"(2) *Nutritive.*—From the time of the appearance of blood in the chorionic vessels, the fetus obtains its food from the maternal blood by means of the placenta. Nitrogenous substances have been proved to pass through the placenta, although how they do so is not definitely settled. It may be that they pass through as soluble peptones, or it may be that the syncytium acts upon them by some enzyme, and transmits them in a simpler form. Fats also pass through the placenta, and inorganic substances like iron have been shown to be broken into simple compounds by the syncytium and passed into the fetal circulation. The passage of carbohydrates is associated with what is called (3) the *glycogenic function* of the placenta. By this is meant that in the early months of pregnancy before the fetal liver is sufficiently developed to functionate, the placenta takes on its work and stores up glycogen for the fetal body. The glycogen is probably split up into glucose by the syncytium, and as such absorbed. This glycogenic function has been proved in some lower animals, and probably applies to the human placenta also.

"From these statements it will be obvious that the syncytium is not a mere filter, but is probably gifted with considerable activities in the way of selecting and altering the constituents of the maternal blood.

"That it has the power to reject undesirable substances is clear, and constitutes what is known as' (4) the *barrier action* of the placenta.

"It is found, for example, that usually maternal diseases are not communicable to the fetus; that normally there is no passage of the maternal blood cells from the mother into the fetus; that there is no passage of large parasites like that of malaria through the placenta; and that chemicals, except some that are highly diffusible, are not usually transmitted. It is quite true that sometimes the barrier is broken down, and some toxins or organisms, for example, allowed to pass. These cases may, however, quite legitimately be regarded as, in all likelihood, abnormal.

"(5) *Excretory.*—The waste products of fetal metabolism are carried to the placenta and passed through it to the maternal blood. These are not great in quantity, as the active metabolism of the fetus is mostly constructive. It is possible that some urea may be excreted into the liquor amnii by antenatal micturition." (Johnstone's *Textbook of Midwifery*).

3. *Concealed hemorrhage* occurs in the first stage of labor. The treatment is prompt delivery (accouchement forcé), and the woman should be stimulated with strychnine, ergot, and by hypodermoclysis.

4. *Manner of using forceps.*—"They should not be used when the os is undilated, when the head is not engaged, except in placenta prævia, when the membranes are unruptured, when the disproportion between the child's head and the parturient canal is too great, or in impossible positions and presentations. Before applying the instruments they should be sterilized, preferably by boiling; and the patient anesthetized and placed in the lithotomy position. Two fingers of the right hand are introduced into the vagina; the left blade of the forceps is then held almost perpendicularly by the left hand, with the tip of the blade opposite the vulva; the tip is introduced into the vagina, passed along the floor toward the sacrum. The blade is rotated outward in its long axis in order to escape the promontory of the sacrum. The right blade is introduced in a similar manner. To facilitate locking, one of the blades must be rotated forward. If the head occupies the right oblique diameter, as in L. O. A. and R. O. P. positions, the right blade must be rotated; if it occupies the left oblique diameter, the left blade must be rotated. Traction is made in the direction of the pelvic axis until the perineum is well distended. The perineum is then protected by one hand, while the face is swept over it by an upward movement of the forceps. In posterior positions it is necessary to remove the instruments after the head is drawn down to the pelvic floor; after anterior rotation is secured they may be reapplied. If the occiput rotates into the hollow of the sacrum the hands should be depressed as the face is swept out under the symphysis pubis."—(*Pocket Cyclopedia*).

Forceps in occipito-posterior positions: "The blades are put in exactly as for cases where the occiput has rotated anteriorly. But since the occiput is now toward the sacrum, the *extension will, of course, be downward and backward over the perineum*, instead of upward toward the pubes; hence the handles of the instrument, at first lifted somewhat upward toward the pubes to draw the occiput up to the edge of the perineum, must, when the head emerges, be directed *downward and backward*, instead of toward the *mons veneris*. A moment's reflection will show that the short *straight* forceps (without any sacral curves) should be used in these cases; for the said curve is only adapted to follow the axis of the pelvic canal, but during *backward* ex-

tension of the occiput over the perineum the head departs from the axial line and goes in an almost opposite direction. If the *curved* forceps were used, the ends of the blades would impinge against the pubic arch while the handles were being depressed in following the movement of backward extension. Again, owing to the depth of the posterior pelvic wall being three times as great as that of the anterior one, there is so much more difficulty in getting the occipital end of the occipitomental diameter to escape over the edge of the perineum, hence greater danger of laceration, and necessity for extra care that the occipital pole *really* shall have cleared the perineum before extension is attempted."—(King's *Obstetrics.)*

5. *The different kinds of breech presentation* are: Left sacro-anterior; right sacro-anterior; left sacro-posterior; right sacro-posterior.

The left sacro-anterior is probably the safest for woman and child.

6. *Meconium* is the name given to the stools of the fetus or new born infant. Its continuous passage from the vagina of the parturient woman during labor indicates a breech presentation; in other presentations it implies actual or impending death of the fetus.

7. *The most frequent variety of extra-uterine pregnancy* is that which occurs in the Fallopian tube.

8. The *fontanels of the fetal head* are: (1) The anterior, or frontoparietal; (2) the posterior, or occipito-parietal. There are four other fontanels, two on each side, situated at the inferior angles of the parietal bones, but they are unimportant. They are determined before birth by the touch of the examiner's finger against the presenting fetal head.

In L. O. A. positions the small, posterior fontanel is found towards the left acetabulum. In R. O. A. positions the small, posterior fontanel is found towards the right acetabulum. In R. O. P. positions the large, anterior, fontanel is found towards the left acetabulum. In L. O. P. positions the large anterior fontanel is found towards the right acetabulum.

The *anterior fontanelle* is a lozenge-shaped space, formed by lack of ossification in the posterior superior angles of the two halves of the frontal bone and in the anterior superior angles of the parietal bones. It is situated where the coronal suture crosses the sagittal suture.

The *posterior fontanelle* is a triangular depression situated at the point where the sagittal and lamboidal sutures meet; it is much smaller than the anterior fontanelle.

9. Fibroids are the most frequently seen tumors of the uterus. At the menopause, these fibroids *may* atrophy and disappear, or remain stationary, or undergo degenerative changes. The effect of the menopause is uncertain.

10. Gonorrhea is mentioned as a cause of extra-uterine pregnancy; it is said to spread to the Fallopian tubes, causing inflammation and infection there, which result in hardening the tubes, removing their elasticity, producing kinking or stenosis, and so preventing the fertilized ovum from reaching the uterus. It has been asserted that the gonorrheal infection destroys the ciliated epithelium in the tubes; hut this statement has been denied by other competent observers.

SURGERY.

1. *Acute catarrhal otitis media* is frequently caused by acute coryza and the infectious fevers. There is a painless obstructed sensation in one or both ears, impairment of hearing, and tinnitus. The inflammation causes closure of the eustachian tube. Inflation and aspiration of the middle ear and syringing and douching the nares and nasopharynx must be avoided. A moderate spray of Dobell's solution may be used. If pain is present, dry heat, in the form of hot-water bottle, hot stone wrapped in flannel, etc., may be applied. A few drops, warmed, of a carbolic acid solution (1:40), or one of formalin (1:2000), may be instilled into the ear.

2. *Glaucoma* is a diseased condition of the eye, produced by increased intraocular pressure, and resulting in excavation and atrophy of the optic disc, and blindness. It is due to increase of the contents of the eye, hypersecretion, retention, old age, gout, rheumatism, nephritis. *Symptoms:* Visual disturbances, increased ocular tension, hazy and anesthetic cornea, sluggish and dilated pupil, shallow anterior chamber, ciliary neuralgia, cupping of optic disc, blindness. In *acute glaucoma:* "Objective examination reveals marked increase in tension; the cornea is clouded or steamy (due to edema), often presents punctate opacities, and is insensitive (from pressure upon nerve filaments); there is pronounced circum-corneal injection of a dark red color; the episcleral veins are prominent. The pupil is dilated, oval, immobile, and often presents a greenish reflex. The iris is congested, discolored, and dull. The anterior chamber is shallow, the aqueous sometimes turbid. The lens and the periphery of the iris are pushed forward. The lids are swollen and edematous. The ocular conjunctiva is markedly congested and chemotic. No details of the fundus can be seen with the ophthalmoscope, on account of the clouding of the media."—(May). *Treatment:* Myotics, such as eserine or pilocarpine; massage of the eyeball; mydriatics are contraindicated; operative treatment may include paracentesis, iridectomy, or sclerotomy.

3. In *fracture of the surgical neck of the humerus*, the head of the humerus will be found in the glenoid cavity, but it will not rotate with the shaft; the arm will appear shorter; and crepitus and abnormal mobility will be elicited unless there is impaction.

In *dislocation of the shoulder joint*, the glenoid cavity will be empty, and the head of the bone will be found in an abnormal position; the arm will appear longer; there will be no creptus, and no abnormal mobility.

4. "*Varicose ulcer* is associated with varicose veins, and is common in the legs, especially when the small venules in the skin are involved. There is at first congestion, then exudation, and often eczema, and deeply penetrating ulceration. This leads to spread of the inflammatory process in the adjacent veins (phlebitis), and so it progresses. Inflammatory thickening increases the congestion, and cuts off arterial supply, thus adding to the weakening conditions, which are also intensified by any injury to the skin. The ulcer is liable to destroy the wall of a varicose vein and lead to alarming hemorrhage. The skin is dusky, congested, and often discolored by brown stains, which are due to destruction of red blood cells and freeing of their pigment. These ulcers, if neglected, are the most common origin of callous ulcers.

"*Tuberculous ulcer*, usually of the edematous type. It occurs in tuberculosis affecting any surface, and shows a tendency to heal, but to break down again, sometimes healing on one side and spreading on the other. The edges are healthy, or in spreading conditions the skin is often greatly thinned, dusky in color, and deeply undermined. The floor is pale, the granulations are edematous, and there are sometimes sloughs in the middle from poor blood supply. Where there is much discharge, as at the mouth of a sinus, the granulations are very large and flabby.

"*Syphilitic ulcers* occur in secondary syphilis from involvement of the skin in the disease, and more commonly in tertiary, from breaking down of a gumma. When the ulcer is superficial, the edges are 'punched out'; the base is covered with sloughs or scabs, and the surrounding skin is red. In shape it is circular, and, being multiple, the tendency is to coalesce and form irregular patterns (*serpiginous* ulcer), and it tends to heal at one side and spread on the other. When due to breaking down of a gumma the ulcer is deep and of any shape. The base is covered with grayish, broken-down gummatous tissue. The edges are clean-cut or undermined. The surrounding skin is often brown in patches."—(Buchanan's *Surgery.*)

5. FISTULA IN ANO.—*Varieties.* 1. Complete.—Sinus opens into the rectum internally; on to the perineum externally. 2. Incomplete external—A perineal sinus not opening into the rectum. 3. Incomplete internal—A sinus opening into the rectum, but not externally.

Treatment. Preliminary.—Saline aperients for several days. Opium pill, gr. j. twelve hours before. Enema just before operation. *Operation.*—Pass a director up the fistula. Open it completely from end to end. Scrape out all granulations and cut out scar tissue. Cut through all tissue between rectum and the fistula,

including the sphincter ani. Open up all secondary channels and sinnses. Pack deeply with oiled gauze. In cases in which the fistula is superficial to the sphincter, the latter should also be deeply incised as in the case of a fissure. *In chronic or complicated cases.*—Either excise in the lower end of the rectum, retaining the sphincter (Kraske's operation); or perform an inguinal colotomy."—(Grove's *Synopsis of Surgery.*)

6. *Treatment of gunshot wounds.*—"The treatment of wounds due to the leaden bullet is that of any other infected wound in which a foreign body is lodged. Hemorrhage, if present, should be checked at once, and if necessary the patient reacted from shock. For determining the position of the bullet, the *x*-ray is by far the best means. In the absence of the *x*-ray one should ascertain the direction from which the bullet was fired and the position of the body at the time, examine the clothing for the position of perforations in relation to the skin wound as well as to determine whether portions are absent, and see whether or not there is a wound of exit. After disinfection the wound may be explored for the bullet and any foreign body which has been carried in with it. This is best done with the sterilized finger, enlarging the wound if necessary. When deeply lodged out of reach of the finger, a probe may be employed. Various electrical devices have also been invented for the detection of bullets. The bullet may be removed with the finger, or with strong forceps, such as the sequestrum forceps or special forceps. The wound is then disinfected with bichloride of mercury solution and drained with gauze. When a large number of shot are scattered in the tissnes, or when the exact location of a bullet is not known, less risk will often be taken in leaving the bullet than in a long or mutilating operation to remove it."—(Stewart's *Surgery.*)

7. *Surgical conditions occurring in the neck.*—Congenital fistulæ, cervical rib, torticollis, aneurysms, fracture of hyoid bone, cut-throat, foreign bodies in trachea or bronchi, inflammatory conditions, infections with enlargement of cervical lymph glands (from tuberculosis, syphilis, malignant disease, or leukemia), tumors, goiter. A common condition is torticollis.

"*Torticollis*, or wry-neck is a deformity produced by an affection of the sterno-mastoid mainly, and sometimes of the other cervical muscles, in which contraction occurs, which may be constant or spasmodic. The head is drawn down toward the shoulder, and the face is turned toward the sound side. The condition may be acute, permanent, or spasmodic.

"*Acute Torticollis* is due to cold, producing the ordinary stiff neck, or is secondary to inflamed glands lying under the sternomastoid or to caries of the cervical spine.

"*Congenital Torticollis* is present at, or more often appears soon after, birth. In the former case it is caused by developmental arrest, and is accompanied by asymmetry of the face; in the latter case it is due to partial rupture of the sternomastoid during delivery, and snbsequent cicatricial contraction.

"*Treatment.*—The sternomastoid and its sheath must be divided, and an open incision is absolutely necessary to do it safely and effectually. The best point for division is ½ inch above the clavicle. The position of the head should then be rectified and fixed by plaster of Paris over the dressings. In ten days voluntary movements and massages can be begun. In bad cases some apparatus has to be worn for a time, and the best is a band around the forehead, with a rubber cord running down from the mastoid process on the sound side to be attached to the front of a band running round the upper part of the chest.

"*Spasmodic Torticollis* is marked by clonic spasms of the sternomastoid, and sometimes of the other cervical muscles, especially those in the suboccipital triangle. The pathology is unknown, and the prognosis is unfavorable, as extension to other parts follows cure by operation of the first part affected.

"*Treatment.*—Medicinal: Bromides and chloral and the galvanic current are the most likely to be of use. Operative treatment consists of neurectomy of the spinal accessory nerve. If the posterior muscles are affected, resection of the posterior cervical nerves (first, second, and third) must follow."—(*Aids to Surgery.*)

8. *Rodent ulcer* is a carcinoma beginning in sebaceous glands. It generally occurs in patients over forty, and is of very slow growth. It begins as a smooth, rounded knob in the skin abont the nose, eyelids, orbital angles, or cheeks, slowly increasing in size. In time ulceration occurs. The ulcer has a smooth, depressed base covered with ill-formed granulations, and bounded by a slightly raised, indurated, rolled-over edge. There is little discharge if sepsis is prevented, and little or no pain. The lymphatic vessels and glands are not affected, and dissemination does not occur. The ulcer spreads and destroys surrounding structures; even bone is not spared, so that the brain may ultimately be exposed.

Treatment.—Free excision, allowing a margin of half an inch all around. If the situation or extent will not permit this, *x*-ray should be used for ten minutes daily till healing occurs.—(From *Aids to Surgery.*)

9. *Indications for removal of mammary gland.*—Enormous hypertrophy, Paget's disease of the nipple, epithelioma of the nipple, carcinoma, sarcoma, cystic adenoma, diffnse tuberculous or septic disease if breast is riddled with sinuses.

10. *The causes of intestinal obstruction* are: Strangulation through apertures, or by means of bands and contracting adhesions; impaction of foreign bodies or feces; the presence of tumors; volvulus or intussnsception; intestinal paralysis; disease in the intestinal walls ultimately narrowing the lumen.

Symptoms of acute intestinal obstruction.—"Sudden severe pain referred to the nmbilicus comes on, perhaps, after an effort. Shock, evidenced by a weak pulse, a cold, clammy skin, and a subnormal temperature, accompanies the pain. The pain, intermittent at first, becomes continuous. Vomiting is persistent, and soon becomes fecal smelling. The patient becomes exhausted by the vomiting and inability to take food. The abdomen becomes distended, and if the obstruction is not relieved, perforative peritonitis follows, so that the patient dies in about seven to ten days from the onset. Constipation is usually absolute, though the lower bowel may empty itself at first."—(*Aids to Surgery.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

TASCHENBUCH DER ÖKOKOMISCHEN U. RATIONELLEN REZEPTUR. By A. FROHLICH and R. WASICKY. 215 pages. Price, 30 Marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

BIDRAG TIL HJERNECHIRURGIENS KLINIK OG RESULTATER. By V. MAGNUS. 138 pages with illnstrations. Published by Merkur Boktrykkeri, Kristiania.

THE PRACTICE OF UROLOGY. By Dr. CHARLES H. CHETWOOD. 830 pages, illustrated. Price, $8.00. Published by William Wood & Company, New York.

INTERNATIONAL HEALTH BOARD. The Rockefeller Foundation, Seventh Annual Report, January 1, 1920, to December 31, 1920. 150 pages with illustrations.

INFLUENZA, AN EPIDEMIOLOGIC STUDY. By WARREN T. VAUGHAN, M.D. 260 pages. Published by *The American Journal of Hygiene*, Baltimore, Md.

BENIGN STUPORS. By AUGUST HOCH, M.D. 284 pages. Price, $2.50. Published by The MacMillan Company, New York.

PARASITOLOGIE HUMAINE. By M. NEVEU-LEMAIRE. 466 pages with 313 illustrations. Price, 24.50 francs. Published by J. Lamarre, Paris.

STUDIES FROM THE ROCKEFELLER INSTITUTE, Reprints Vol. xxxviii. 580 pages with illnstrations and 15 plates. Published by the Rockefeller Institute for Medical Research, New York.

DIE RÖNTGENSTRAHLEN IM KAMPFE GEGEN DIE TUBERKULOSE. By Dr. MANFRED FRAENKEL. 24 pages. Price, 6 Marks. Published by Johann A. Barth, Leipzig.

THAT BOGEY MAN, THE JEW. By G. FRANK LYDSTON, M.D., D.C.L. 136 pages. Price, $1.25. Published by Burton Publishing Company, Kansas City, Mo.

Medical History.

NEW BOOKS AND OLD.

XVI. FARLOW'S HISTORY OF THE BOSTON MEDICAL LIBRARY.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

A FEW years ago Dr. John W. Farlow, librarian of the Boston Medical Library, published a volume which I believe to be unique in American medical literature, that is, a complete history of a medical library. To any one interested in medical libraries this volume will be found to contain many lessons, the chief of which is, perhaps, the fact that if a medical library is to be a success, it must be well housed and have active officers. Growth by leaps and bounds invariably follows when the simple combination just alluded to obtains.

In the early years of the nineteenth century, there sprang up in Boston several so-called "social" libraries, that is, libraries owned in common by proprietors (socii) for their own purposes. The first of this kind was the Social Law Library, started in 1804 and still in existence under its original name, one of the most important law libraries in this country. In July, 1805, the Second Social, or Boston Medical Library was instituted. As was common with early medical libraries in this country, such books as they had were kept at the house of one of the doctors, in this instance at the home of Dr. John Fleet in Milk Street.

From Dr. Fleet's the books were removed to the apothecary shop of the sub-librarian, Amos Smith, at 39 Marlboro (now Washington) Street, and when the Harvard Medical School, in 1810, moved from Cambridge to Boston to some rooms over another apothecary shop, where Dr. J. C. Warren had given courses in anatomy and Dr. Gorham in chemistry, the Medical Library joined forces and made use of one of the rooms for its books. This happened a second time, in 1816, when the Medical School moved into its own new building in Mason Street, the Medical Library again using a room in connection with the very meagre collection of books belonging to the Medical School. Here the Library remained until 1826, when it was decided to turn its books over to the Boston Athenæum. At the time of the transfer there were thirty-one members, and the library was said to contain two thousand books which it had purchased at an expense of forty-five hundred dollars. Strange as it would appear today, the Athenæum appraised these common medical books and paid for them the same amount of money as the Medical Library had originally paid for them. In 1896 these volumes were transferred to the present Boston Medical Library. There is quite a complete series of catalogues of these early books, which are extremely interesting, but space prevents further consideration.

After the original transfer had been made, there remained in Boston three Medical Libraries; one the Boylston Medical Library in Harvard College in Cambridge, established in 1802; the Library of the Massachusetts Medical College, and that of the Massachusetts Medical Society. These were what Farlow calls somnolent collections of books whose use was not encouraged.

The Boston Public Library, founded in 1852, gradually developed the most important medical department in Boston and to it many physicians sent their books instead of to the libraries connected with medical schools or societies, as heretofore. The Massachusetts Medical Society was the possessor of a library of a limited number of books, principally Proceedings and Transactions of Societies, evidently not considered of any great value, judging from the report of Dr. J. C. White, in 1871, in which it was stated that "no one had consulted the books the past year." As a result of this discouraging statement, a committee of two was appointed with full powers to examine the situation and make such disposition of the books as they saw fit. Acting under this authority, they gave the books to the Boston Public Library, where they remained until 1906, when the entire medical section of the Public Library was transferred to the Boston Medical Library, over 11,000 volumes.

In the *Boston Medical and Surgical Journal*, September 14, 1871, the following note appeared: "The members of the Chicago Medical Society are making earnest efforts to found a public medical library. When will our local societies in New England do the same thing. This Journal has an exchange list of more than fifty medical journals on file at the office, which may be consulted by medical men."

Dr. Henry I. Bowditch and Dr. James R. Chadwick took a more active part in the founding of the Boston Medical Library than any one else. Dr. Chadwick's original records tell of the preliminary meetings held in December, 1874, which led to the establishment of the Library in August, 1875, with Dr. Oliver Wendell Holmes as president and Dr. Chadwick as Librarian. Two small rooms at No. 5 Hamilton Place were rented, with Dr. E. H. Brigham in charge as assistant librarian.

The overflowing of these quarters caused Dr. Chadwick, in 1878, to prepare and send out a circular appealing for funds for a new building. He stated that in a little over two years the library had grown to more than 8000 volumes and 5000 pamphlets, making it the sixth largest collection of medical books in this country at that time. In the same year the library of the Surgeon-General's Office in Washington had 40,000 volumes.

The movement to secure larger quarters was successful, and from 1878 to 1901 the library occupied the house No. 19 Bolyston Place, formerly owned and lived in by Dr. Samuel G. Howe and his wife Julia Ward Howe. The new building was dedicated December 3, 1878, the principal speaker being Oliver Wendell Holmes, who gave a remarkable address, learned and witty, which every medical man would do well to read. In connection with the Dedication and continuing for several weeks, there was a loan collection of 72 portraits of deceased Massachusetts physicians, which aroused much interest and resulted in a number of gifts of pictures to the Library.

What was probably the first directory for nurses was started by the Library in 1879, through the efforts of Dr. F. C. Shattuck and Dr. C. P. Putnam. This was prosperous from the first, and at the end of each year, after taking out the necessary running expenses, there was left a substantial sum for

the Library, which was very welcome in the early days when money was a scarce commodity.

By 1881 the library had increased to over 10,000 volumes, 6000 pamphlets and 286 periodicals on file. Three years later there were nearly 15,000 volumes with a corresponding increase in other departments.

After serving for thirteen years as president, Dr. Holmes resigned in 1888, but continued his interest, as is shown by his gift the following year of his splendid collection of nearly one thousand medical books. This added largely to the works on anatomy and to fine editions of the early medical writers.

The library now grew rapidly by gifts from many sources and the building was ridiculously small for the collections which it housed. In 1893 plans were drawn for a new building and a lot of land on St. Botolph Street was purchased, but changing city conditions made the site less desirable during the years that the Library was obliged to wait for building funds. In consequence, the land was sold and a lot on the Fenway was bought, on which the present building was erected. Dr. Farlow goes into considerable detail concerning this matter and it makes instructive reading for those interested in helping their medical libraries.

The new building was completed at a cost of $126,000 and was open for inspection on January 12, 1901, the dedication exercises taking place the same evening. The president, Dr. David W. Cheever, made the opening address and, in concluding, called on Dr. Chadwick, the librarian, in these words: "If any man were named who had collected and created our Library, it is he."

Other speakers were Dr. F. W. Draper, Dr. J. S. Billings and Dr. H. P. Walcott. Dr. Osler made one of his characteristically charming addresses, saying, among other things, "only a maker of books can appreciate the labors of others at their true value."

From the very early days of the Library Dr. Chadwick had been greatly interested in drawing up a proper system of medical classification. He had many conferences with Dr. J. S. Billings at which were discussed the various schemes proposed by different librarians. After much study and thought for years, there was gradually evolved the Boston Medical Library System of Medical Classification, which was published and described in the Bulletin of the Medical Library Association for January, 1918, in an article by Mr. James F. Ballard, Assistant Librarian of the Boston Medical Library since 1909, who with Mrs. E. J. Collins, Cataloguer since 1880, have had a great share in perfecting the present system. With some slight additions, this system was adopted by the Medical Library Association at its meeting in June, 1921, as a standard for medical libraries. This means that the Medical Librarians of the country believe that all medical libraries in the process of formation will do well to adopt it. This is not the place to discuss the subject, but by using more or less uniform classification, the work of librarians will be greatly simplified.

With the new building came a perfect flood of gifts of books and periodicals, which had been waiting for the erection of a suitable building. A most notable bequest was that of Mrs. Sarah E. Potter, in 1904, of $150,000, as a memorial to her late husband, Warren B. Potter. When the new building was planned, it was thought that the shelf space would be ample for years to come, but already it is entirely outgrown. With great foresight, however, the officers of the Library have bought an adjoining lot of land on which they hope to erect a building sufficient for their greatly increasing needs.

In 1917 the Library numbered 93,399 volumes and over 60,000 pamphlets, in addition to a duplicate library of 9,500 volumes. Dr. Farlow has made a chart showing the increase in the number of volumes from 1875 to 1917. The curve rises rapidly, but the sudden and continued increase brought about by the new building is very striking. This is of great importance to the officers of medical libraries, who may here find an argument of value for use when they are urging plans for larger and better quarters for their collections.

The history of every medical library is that just as soon as adequate facilities for proper work are provided, there will be a large increase in the number of volumes received from many, often unexpected, sources. In addition, there must be much expenditure of time on the part of a few earnest workers, who will inspire others with enthusiasm to join in the good work.

Interesting features of Dr. Farlow's book are the thirty-one unusually excellent illustrations, showing the exteriors and interiors of the different homes of the Library, and also photographs of the old catalogues.

Dr. Farlow's book is to be commended to all interested in medical libraries, and as one reads it one feels that its preparation has been a labor of love by the worthy successor of Dr. James Reed Chadwick.

Seventh Centennial Anniversary of the Foundation of the Montpellier School of Medicine.—On August 17, 1220, Cardinal Conrad, legate of Pope Honorius III, gave to this institution its first statutes and conferred on its graduates the right to practise medicine throughout Christendom. The seventh centennial anniversary, however, will not be celebrated until November 5, 1921, this date being chosen because of the session of the Tenth National Congress of Students, which is to be held in Montpellier at that time. The local body of students is organizing for some brilliant festivals, among which will be the inauguration of a monument to Rabelais, Montpellier's most famous medical alumnus, in the Botanical Garden. The date given above—1220—makes the faculty of the medical school the most ancient in the world. The festivities will be attended by the President of France and a great body of scientists. But ancient as is the date, it by no means represents the beginning of medical instruction in Montpellier. As early as in the eleventh century students attended a teaching institution in large numbers, and the beginnings of medical instruction can be traced back even to the tenth century.—*La Presse Médicale.*

Medieval Medicine.—Sigerist delivered an essay on this subject last May (*Schweizerische medizinische Wochenschrift*, August 11, 1921, li, 32) in which he discussed the relative parts played

by tradition and observation of nature. He was unable to find any suggestion of independent thinking up to the time of the Salerno School. The latter was secular and not ecclesiastic and goes back at least to the ninth century. The first great original figurehead was Constantine of Africa, an Arabistic physician, who translated the Arabic masters into elegant Latin. There was no break with tradition at the height of the Salernitan renown; evidences of nature study are not lacking, but the time was not yet ripe for the orderly development of the latter. The more old documents which were translated the greater was the basis of tradition.

The age of the Schoolmen was also at hand with its peculiar viewpoint that all could be settled by dialectic. But during the fifteenth century there was discernible the tendency to individual thinking as a part of the Renaissance. It was inevitable that little could be accomplished in nature study until there had been a universal upheaval. On the other hand, during the centuries which preceded the Renaissance medicine became distinctly practical. Medical schools and hospitals sprang up everywhere. It is singular that the Salernitan School required of its students a five-year course with an extra year of practice, which is the spirit of the present age. Surgery as an eminently practical calling was well developed long before the Renaissance. Dissection was required of the student although the author is not certain that human cadavers were used. The Church took over the entire care of the sick. Without this strong foundation the discoveries of the scientific period must have been greatly delayed and handicapped.

Bourreau, Last Dean of the Old Paris Faculty of Medicine.—This worthy has been deemed eminent enough for a biography at the hands of Dr. Mauclaire. He came of a long line of medical men, was born in 1741, received his degree of Master of Arts at the College of Cardinal Lemoine and in 1760 was inscribed as a medical student. He walked the wards of the Hôtel-Dieu, and during the period 1764-6 defended three theses, the last of which was devoted to the subject of urethral sounds. He began practice in 1766 and we next hear of him during 1771-5 when he was serving as the college librarian and published a two-volume catalogue of its 15,000 books. In 1780 he lectured on surgery in the French language and his efforts were published in a volume which made a hit with the profession. In 1783 he took the course in pharmacy. In 1786 he was made Dean of the Faculty, at an extraordinary time when the claims of the physicians, surgeons, barber surgeons, apothecaries, midwives, and dissenting physicians were all active. He worked for harmony, for freedom of teaching, and the use of the French language for examinations. He had as a watchword "Harmony and Constancy will win." But the times were highly unpropitious by reason of the near approach of the Revolution.

In 1792 all teaching bodies were suppressed. Bourreau was evidently out of favor with the revolutionists for such medical honors as they bestowed did not reach him. When the Academy of Medicine was reorganized in 1820 he was made an honorary member. He had been Dean of the College for 6 years (1786-1792) and during this period edited all the Faculty Transactions. His best-known effort in literature was his textbook on venereal diseases. In private life he was nicknamed "the Benevolent" because of his kindness to poor patients. At the age of 82 he died from a second stroke of apoplexy; after the first attack he learned to read and write again and thus overcame the aphasia. This was the man who has been accused of having wrecked the old faculty, but who in reality did everything possible to stem the inevitable tide.

Alien Physicians in Old Montreal.—The tendency at all periods of history for medical men to seek their fortunes in alien communities is well shown in an account of Montreal practitioners of the XVII and XVIII centuries which is now running serially in the *Union Médicale du Canada*. From the August number we select the following: In the year 1718 one Timothy Sullivan, son of a Cork physician, came to Montreal, and, having changed his name to Timothée Silvain, obtained leave to practise from the Royal Physician, Sarrazin of Quebec. He is listed among the physicians of the Hôtel-Dieu from 1725 to 1730. He married a widow of some prominence, and died in 1749. Hotheaded by nature, he engaged in many quarrels, and was often before the magistrate, where he was uniformly fined as the aggressor. Dr. Spagniolini, who was born in Rome in 1704, came to Montreal in 1732 as a troop surgeon. He practised for many years as both physician and surgeon and died in 1764. He married no less than three times in 12 years.

Dr. Feltz was an Austrian by birth, who practised in Montreal between 1740 and 1760 and perhaps longer. He was for a time surgeon to the Hôtel-Dieu and married twice—the second time a few months after the death of the first wife. He assumed the title of "surgeon-major of hospitals," and illustrated the tendency of successful medical men to invest in real estate, by purchasing a piece of land in the Faubourg St. Laurent and cutting it up into building lots after a period of appreciation in value.

Elixir of Garus.—Not much is known of Garus, whose name has come down to us in connection with this preparation. He is variously said to have been a grocer, pharmacist, and physician and was apparently a Hollander. His elixir is thought to have been a modification of the *elixir proprietatis* of Paracelsus. As preserved in the French Codex it contains aloes, myrrh, saffron, cinnamon, nutmeg, clove, alcohol, sugar, etc. It makes not only a good vehicle for medicines but is also useful as a table liqueur. We know that in 1719 the widow of Garus petitioned to be allowed to sell the elixir. The latter was recommended for a host of ailments—almost as a panacea, in fact—and was accused of having caused a death or two, which was most probably due to the complaint from which the consumer was suffering. The only action was doubtless the purgative property of the aloes, in case enough of it were taken. The widow was kept waiting two years for her privilege but received with it a pension of 2,000 livres. Upon her death the formula passed into the hands of one Benoist.—*La Presse Médicale.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 18. Whole No. 2660. NEW YORK, OCTOBER 29, 1921. $5.00 Per Annum. Single Copies, 25c.

Original Articles.

TRANSFUSION IN INFANTS WITH MALNUTRITION.

THE USE OF THE SUPERIOR LONGITUDINAL SINUS.*

BY SAMUEL B. BURK, M.D., F.A.C.S.,

INSTRUCTOR IN SURGERY, NEW YORK UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL SCHOOL,

AND

LOUIS FISCHER, M.D.,

NEW YORK,

CONSULTING PHYSICIAN, WILLARD PARKER HOSPITAL.

Introduction.—A marked diminution in the quantity and quality of blood in infancy or adult life is benefited by transfusion and its use should become an every-day procedure in hospital and private practice.

In the treatment of blood dyscrasias of primary or secondary etiology occurring in adults, transfusion of blood has been widely accepted. In the treatises of diseases of children, many prominent authors whose books have been published during the past ten years, fail to mention transfusion. Among these are Tully,[1] Ruhräh,[2] Birk and Schlutz,[3] Chapin and Pisek,[4] Sheffield,[5] Goodhart and Still,[6] Niemann,[7] Burnett,[8] Whipman,[9] Garrod, Batten and Thursfield,[10] Hutchinson,[11] and Sutherland.[12]

McKee and Wells[13] mention transfusion of blood in a casual manner in connection with the treatment of splenic anæmia.

Kelly[14] gives it passing mention in the treatment of shock, recommending the use of transfusion with Brewer's paraffined tubes, and also in the treatment of hemophilia.

Kerley[15] notes that transfusion may be useful in the treatment of hemorrhagic diseases of the newborn.

Koplik[16] recommends the use of transfusion in the treatment of melena neonatorum and after hemorrhage in typhoid fever.

Morse[17] in discussing the hemorrhagic diseases of the newborn states that "Transfusion is a serious operation for both parties and should not be undertaken lightly but only as a last resort."

In summarizing "The Remote Demands" in the constitutional treatment of hemorrhage, Campbell and Kerr[18] make the following statement: "And lastly, in rare instances, it may become necessary to consider the advisability of blood transfusion."

Graham[19] pleads for popularizing transfusion when he says that "in the hands of the experienced surgeon, it is not as difficult an operation as many may lead us to suppose and recent improvement in the technique has made it more easy of accomplishment."

Fischer,[20] Griffith,[21] Dunn,[22] and Holt[23] strongly advocate the use of transfusion.

After a careful search we were not able to find the use of transfusion *in malnutrition* recorded in any recent textbook on diseases of children.

Indications for Transfusion in Malnutrition—1. Progressive loss of weight and improper metabolization of food resulting in atrophy with a senile expression.

2. Cold extremities; heart sounds feeble; pulse thready and symptoms pointing towards a general exhaustion.

3. Catarrhal or fermentative colitis with dehydration of the blood, feeble pulse, and signs of imminent collapse.

4. Acute infectious diseases such as typhoid, prolonged scarlet fever, diphtheria, influenza or in postpneumonic conditions wherein a secondary anemia follows.

5. General weakness in premature infants following a prenatal disease as congenital syphilis, or a weakness due to improper food given by a tuberculous mother before the latter comes to the clinician.

6. Weakness due to tropical diseases.

7. The presence of avitaminosis in addition to the use of antiscorbutics.

Maternal feeding affords the best known food. Despite maternal milk many infants are underfed. This deficiency can be supplied by giving complementary feedings of cream and carbohydrate—chiefly maltose. If the infant continues to lose weight and the extremities are cold, then we must direct our attention to the circulatory system. In marasmic infants we have tried hypodermoclysis. The injection of four ounces of warm normal saline solution every 24 hours is oftentimes helpful. Warm saline colonic instillations given at a temperature of 105 to 108 degrees F. will in many instances add fluid to the circulation. Hypodermic medication such as adrenalin or strychnin fails to stimulate the heart action in many instances. In this class of cases the recourse to transfusions may be the only means of saving life. Although there have been excellent results in some cases, we have had failures in other cases.

Historical.—The general use of transfusion as a therapeutic measure has not been readily accepted, nor has it received the attention it deserves. We are fully in accord with the views of Ottenberg and Libman[24] who state that "the tendency is more and more to use transfusion not as a means of last resort but as an ordinary therapeutic measure." Moreover, until recently considerable surgical skill was necessary to carry out this procedure.

Various attempts were made to simplify the technic since the time of its earliest reference in medical literature. A new era presented itself with

*Presented at meeting of the Clinical Society of the Infantorium, New York, N. Y., May 10, 1921.

the development of the Carrel[24] technique of vessel anastomosis as practised by Crile and Dolley,[25] Goodman,[7] and others. More rapid strides in popularizing blood transfusion are due to the use of the paraffined glass tubes of Brewer[27,28] and Fauntleroy[30] and the cannulas of Crile.[26] Various instruments were also devised for joining the vessel of the donor with that of the recipient, notably those of Bernheim,[29] Hartwell,[31] McGrath,[32] Kahn,[33] Elsberg,[34] Frank[34] and Soresi.[35]

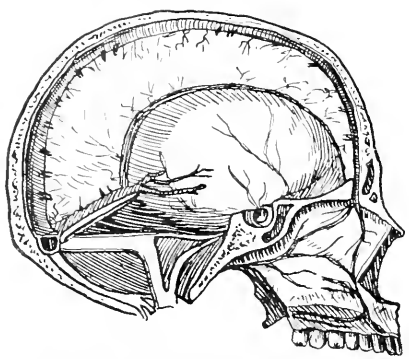


FIG. 1.*—Sagittal section of the skull showing the sinuses of the dura. Note the widening of the superior longitudinal sinus from before-backward. (After Gray.)

The use of the Brown-Kimpton[36] paraffined cylinders and those of Vincent,[37] together with the syringe methods of Lewisohn,[38] Lindemann,[39] Cooley and Vaughan[40] and Abelman,[41] and the apparatus of Miller,[36] Unger[42] and Kush[43] were important progressive steps and increased the value of transfusion. These methods gave an accurate determination of the quantity of blood transfused.

The literature abounds with reports of transfusion since the administration of citrated blood, as advocated in the work of Lewisohn,[37] Weil,[45] Hustin,[46] and Agote.[47]

Hirudin has also been recommended as an anticoagulant by Satterlee and Hooker.[48,49] This agent has been severely condemned because, if used in sufficient quantities to prevent blood clotting, it is so toxic that its applicability for transfusion is out of the question.[7]

Recent reports from the literature indicate an ever increasing number of transfusions in children. Lespinasse[51] reports a blood transfusion in a baby ten hours old, while Woltman[52] records a 60 hour old patient with melena neonatorum who was saved by the injection of 60 c.c. of citrated blood through the median basilic vein. Lewisohn[53] reports a series of seven cases—children ranging from 20 days to seven years—who were benefited by transfusions of citrated blood. He[37] reports an interesting group of cases in infants designated by him as hemophilia neonatorum for want of a better nomenclature. They belong to the same type of cases as reported by Lespinasse. In these excellent results followed the use of citrated blood. Zingher,[54] Lindemann,[55] and Kerley[56] also report favorably on the use of transfusions as a therapeutic agent in diseases of infants and children. Lespinasse[51] reported a series of 14 personal experiences in the treatment of hemorrhagic diseases of the newborn. His results were very encouraging. The patients were referred to him with bleeding from the rectum, stomach, mouth, umbilical cord, and following circumcision. Fischer[57] recommends the use of blood transfusion in the treatment of the severe toxemias of influenza, scarlet fever, and diphtheria. He reports very beneficial results. Moss[58] obtained satisfactory results from the use of transfusion with defibrinated blood.

Sinus Transfusion.—With the use of the indirect methods (syringes, cylinders, apparatus, etc.) great difficulty has been encountered in entering the surface veins in children. There are four places selected for this method: (a) The median cephalic; (b) the median basilic; (c) the external jugular, and (d) the superior longitudinal sinus.

Attempts to enter the veins at the elbow or at the neck are not infrequently attended with great difficulty. Much valuable time may be lost in futile attempts. Exposure by cutting down on the veins subjects a weakened patient to the additional dangers of shock and infection.

In using the superior longitudinal sinus, all objectional factors are eliminated. Up to the age of two years[59] to two-and-one-half,[60] the anterior fontanelle lends itself admirably for this operation.

Tarr[61] was able to puncture the superior longitudinal sinus in a child 3 years old through a cartilaginous anterior fontanelle by using a gold-plated lumbar puncture needle. The same author records a case in which he made 21 entries into the longitudinal sinus during a period of ten days. After the death of this patient, due to a constitutional

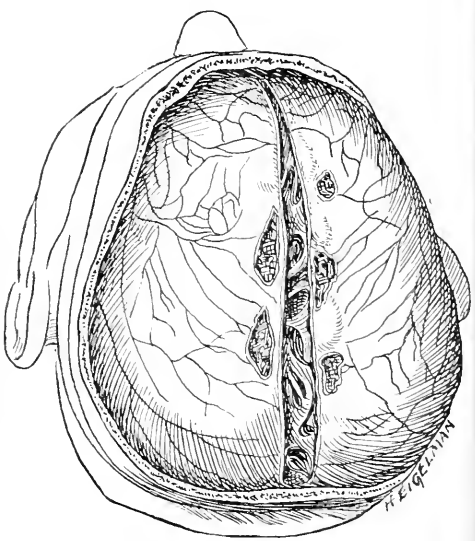


FIG. 2.—Superior longitudinal sinus laid open after removal of the skull cap. Note widening of the sinus in an anteroposterior direction. (Poirier and Charpy after Gray.)

*All the illustrations in this article are taken from the ninth edition of Fischer's *Diseases of Infancy and Childhood*, in press, through the courtesy of the F. A. Davis Company, publishers.

disturbance, autopsy failed to show any visible trauma at the sites of entrance into the sinus.

Fischer,[62] Tarr,[63] Helmholtz,[64] Ratner,[65] Brown and Smith,[66] Goldbloom,[67] Sydenstricker, Mason and Rivers,[68] report the successful use of this route in blood transfusion.

Much of this success is due to the painstaking anatomical studies of Tobler[69] which were inspired by Marfan's[70] use of the sinus for the injection of saline solution. Tobler eliminated all doubts as to the successful use of this method of entering the circulation. In a series of experiments on the cadaver, by the use of colored fluids, he proved conclusively that the sinus could be readily and accurately punctured. In the subsequent study of this subject on the living, he made 50 successful injections of diphtheria antitoxin and gold solutions, the latter for the treatment of lues.

This route has also been used by other observers for the withdrawal of blood for diagnostic purposes (Wollstein and Morgan),[71] and for the treatment of diphtheria (Fischer)[72] and syphilis (Tarr).[73]

Tarr[63] administered dextrose 64 times in 49 infants. He also injected salvarsan and diarsenol in

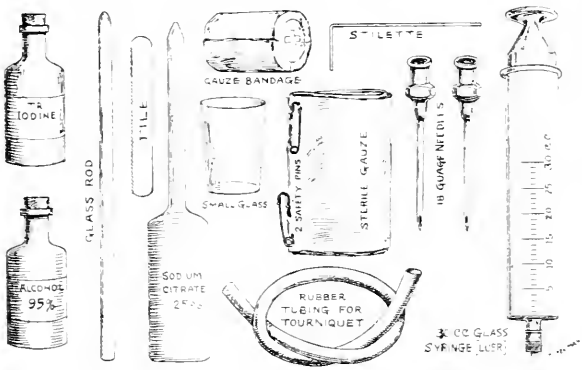


FIG. 3.—Apparatus required for transfusion operation in infants.

8 infants, under two years of age, and in one child less than 28 months old. In 19 patients with so-called acidosis, he had occasion to inject bicarbonate of soda solution and had 15 recoveries.

Fischer[74] has used the superior longitudinal sinus for the abstraction of blood during convulsions in bronchopneumonia and in toxic scarlet fever. He has also administered antitoxin by this route in severe cases of diphtheria and antimeningitis serum for cerebrospinal meningitis.

Many clinicians fear this route for transfusion because of the dangers of injecting fluid into the brain substance. If the usual amount of care is taken, this is avoidable. Several devices have been recommended to overcome this difficulty.

Helmholtz[64] used a combination of the Unger apparatus[42] with a device which steadies the head and supports an ordinary needle introduced obliquely into the superior longitudinal sinus. The objection to this apparatus is that it must be attached to an operating table and is complicated and cumbersome. The needle is introduced through a guide fastened to the child's head by adhesive plaster and set at an angle with the scalp. No provision is made for guarding against penetrating the dura as the needle is fastened in place only after the puncture.

Brown and Smith[66] use an ordinary needle with a short bevel on which is mounted a small amount of solder 2 mm. thick and a quarter of an inch from the tip of a needle. This does not permit any adjustments. Several needles of various lengths have to be kept on hand at all times.

Goldbloom[67] uses a block 3 cm. thick bevelled at an angle of 50 degrees and a needle 4 cm. long with an obturator. A screw is placed through the center of the block to regulate the length of the needle.

Our experience leads us to believe that the more simple the technic, the more readily it is carried out. We make use of the ordinary instruments and containers to be found in a doctor's office.

Apparatus.—One 30 c.c. glass syringe (Record or Luer); several 18 gage 4 cm. needles; 1 ordinary glass jar or drinking glass; 1 glass stirring rod; 1 bandage or rubber tourniquet; 1 tube of sterile 25 per cent. sol. sodium citrate; tr. iodin; 95 per cent. alcohol; sterile gauze.

Donor.—It is well known that the use of indiscriminately selected donors may nullify the value of transfusion or even be disastrous to the recipient. It is therefore necessary to select a vigorous, healthy individual with an approximately normal red blood cell count and hemoglobin content, whose history is negative for lues and whose Wassermann blood test is negative. No one with an elevation of temperature or convalescing from an infectious disease should be used. Moss recommends cardiacs as donors who have a normal blood count and in whom venesection may be indicated.

When the foregoing qualifications have been fulfilled the dangers of incompatibility due to hemolysis and agglutination must be eliminated. Rehling and Weil[75] were among the very early observers in America who laid special stress on the importance of hemolysis tests before transfusion is attempted. Moss[76] showed that the blood group to which an individual belonged could be determined by an agglutination test with his red blood cells and the serums known to belong to Groups II. and III. or with suspension of Groups II. and III. red blood corpuscles and the individual's serum. He found that all individuals fall into four groups as regards the hemolytic and agglutinative qualities of the blood.

..Classification of Agglutination Based on 1,600 Tests (Moss).—Group I. (10 per cent.)—Sera agglutinate no corpuscles. Corpuscles agglutinated by sera of Groups II, III and IV. Group II. (40 per cent.)—Sera agglutinate corpuscles of Groups I and III. Corpuscles agglutinated by corpuscles of Groups III and IV. Group III. (1 per cent.)—Sera agglutinate corpuscles of Groups I and II. Corpuscles agglutinated by sera of Groups II and IV. Group IV. (43 per cent.)—Sera agglutinate corpuscles of Groups I, II and III. Corpuscles agglutinated by no serum.

It is noteworthy that Jansky,[74] working independently, at about the same time, corroborated Moss'

findings. The nomenclature of the grouping is the reverse of that described by Moss. Group I of Moss corresponds to Group IV of Jansky.

The following table shows the relation of the four groups with respect to agglutination (Goodman):

		SERUM.			
		1	2	3	4
Group I	(10 per cent.)	o	+	++	+
Group II	(40 per cent.)	o	o	++	+
Group III	(7 per cent.)	o	+	o	+
Group IV	(43 per cent.)	o	o	o	o

The red cells of Group IV are not agglutinated by any group and therefore it is best to employ only Group IV donors, in which case the recipient's blood does not have to be tested.

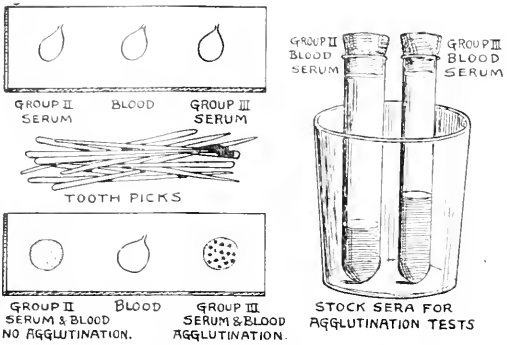


FIG. 4.—Apparatus required for agglutination tests. (See text.)

Moss demonstrated that the absence of agglutination precludes the possibility of hemolysis and described a simple, rapid, and sufficiently accurate method. For our work we followed the technique of Moss as modified by Vincent.[75] The Vincent technique is as follows:

Two prepared sera, a clean glass slide, and a number of clean toothpicks are needed to make the test. One or two drops of Serum II is placed on the left half of the slide, and an equal amount of Serum III on the right half of the slide. The ear or the finger of the person tested is punctured and a small drop of blood is transferred on the point of a knife blade or with a toothpick to each of the sera in turn. The blood is stirred into the serum. The blood should be transferred before the coagulation has commenced and care should be taken to avoid mixing the two sera. Agglutination of the corpuscles is accelerated if the serum is agitated by the slide being tipped from side to side. If the reaction is negative, the corpuscles make a uniform suspension in the serum. If the reaction is positive, the masses of agglutinated corpuscles usually appear in less than a minute and are discernible to the naked eye. Rouleaux formation can be eliminated if the mixture is stirred; agglutination is not broken up in this manner. The reading should be confirmed by microscopic examination.

FIG. 5.—Head being steadied by the assistant with the face upward near the edge of the table.

In order to eliminate contamination in handling the blood and sera a different toothpick or wooden match stick is used in each step of the technique.

After obtaining the proper donor, the front of the elbow region is painted with 3½ per cent. tincture of iodin and a tourniquet applied just below the deltoid region lightly enough to cause the veins to stand out prominently but not so as to obliterate the arterial pulse. The median cephalic or median basilic vein (whichever is more readily accessible) is then punctured, and a predetermined amount of sodium citrate solution is added to make a 0.3 per cent. solution, the assistant constantly stirring the mixture slowly.

Recipient.—The infant is wrapped in a sheet, with the head exposed, and placed flat on the back while the assistant steadies the head with face upward, near the edge of the table. The anterior fontanelle is painted with a 3½ per cent. tincture of iodine and the posterior angle of the fontanelle located with the index finger of the free hand.

FIG. 6.—The anterior fontanelle has been painted with tincture of iodine and the posterior angle located with the tip of the index finger.

Injection of Blood.—The citrated blood is drawn into the syringe with the needle attached. The needle is then slowly introduced into the posterior angle for a distance of one to two cm. parallel to the direction of the inner table of the skull. On entering the sinus, one gets the definite sensation of being within the lumen of a vessel.

This is similar to the experience in piercing the dura in doing a lumbar puncture. The operator steadies the needle with one hand and slowly injects the fluid. There should be no resistance in injecting the fluid if the needle is in the sinus. If resistance is met with, the needle is withdrawn and the procedure is repeated. When in doubt it is always well to withdraw some blood before the injection is begun. The injection of an ounce of fluid should take from 1½ to 2½ minutes. Pressure with a sterile piece of gauze over the site of puncture for a few minutes is all that is necessary for the after-care of the scalp.

Case Records.—In this series of cases the transfusions were performed at the Infantorium in New York City.*

CASE 1. Diagnosis: Malnutrition; Pretubercular Anemia.

Becky W., (smaller and weaker of a premature twin), aged 5 weeks, weighing 6 pounds and 5 ounces. Referred by the New York Hospital Social Service.

Mother died of tuberculosis 11 days after labor.

1st week following admission: Feedings consisted of 5 drams of dryco and three ounces of water, every three hours; patient gained 8 ounces. 2nd week: Gastrointestinal symptoms and cough developed; there was a loss of 3 ounces. 3rd week: Cough, weakness and occasional night sweats; loss of 2 ounces in weight. 4th week: Symptoms persisted; loss of 4 ounces in weight. 5th week: An acute febrile grippe developed and the infant lost 8 ounces; the prognosis at this time was bad.

First Transfusion: Twenty-five c.c. of citrated blood was injected into the circulation through the sinus and 2 c.c. through the jugular vein. During the following two days the food was taken better and there was an increase of 3 ounces in weight. She began to take notice of her surroundings. The stools became normal. During the following 11 days there was a gain of 13 ounces. The weight was now about the same as on admission.

*An institution devoted to the care and feeding of normal and premature infants.

Second Transfusion (two weeks later): Twenty-five c.c. citrated blood injected through the sinus. The face became flushed immediately after the sinus transfusion. The radial pulse was 72. Following the second transfusion there was a definite improvement in the appetite. Patient has steadily gained in weight since the last transfusion. The feedings at present consist of milk, barley water, dextro-maltose and cane sugar. As a diluent, anti-scorbutic, and for the vitamine content, the juice of spinach, carrots, parsnip and celery had been used when prepared by steaming these fresh vegetables in a double boiler. The earthy salts contained in the vegetables have a marked nutritive value as clinically demonstrated by the large number of cases that have improved with this modification of the feedings. No medications had been given this patient.

CASE 4. Diagnosis: Malnutrition; Pylorospasm. Agnes M., aged 17 days, weighing 6 pounds at birth and 5 pounds on admission, was referred by Fordham Hospital. Mother died of tuberculosis when the infant was 11 days old. On admission to the Infantorium infant appeared poorly developed and nourished with a feeble pulse and cold extremities. She was restless, vomited after each feeding, the stools contained curds and mucus, and the buttocks were excoriated. The prognosis was bad. Feedings consisted of 4 drams of dryco and 2 ounces of water every one and one-half hours, of which about one ounce was taken. After the third day, human milk was tried with no better results.

Transfusion: Because of the progressive weakness and loss in weight 30 c.c. of citrated blood were given by way of the sinus, the father acting as the donor. The day following the transfusion, there was a notable improvement in the appearance and appetite of the patient. The feedings which were refused the day prior to the transfusion were readily taken. The stools showed a better digestion of the food. There was less restlessness. The infant gained 6 ounces in one week. During the second week following the transfusion a large quantity of food was taken and well digested. The infant gained 7 ounces during this period. Six weeks later the patient was discharged in a splendid condition.

CASE 6. Diagnosis: Malnutrition; Pylorospasm. John G., aged $5\frac{1}{2}$ months, weighing 7 pounds, was referred by the Brooklyn Department of Charities. Family history has no bearing on the present condition. On admission to the Infantorium the infant appeared prostrated. His skin was dry and his muscles were soft and flabby; the abdomen was prominent and the ribs showed typical beading. There was a thickening of the epiphyses of the long bones. There was sweating of the head and a marked baldness over the occiput. The child was restless, the extremities were cold and he had a poor appetite. The stools were foul smelling and contained undigested food. The infant rarely took more than two ounces at one feeding. Prior to admission a diagnosis of tuberculous meningitis had been made. Examination of the spinal fluid was negative for evidences of tuberculosis or lues.

FIG 7.—The citrated blood is injected slowly.

A Wassermann test of the blood was also negative. A von Pirquet test was negative. In view of the foregoing, a clinical diagnosis of intestinal autointoxication was made. Bulgarian bacilli, buttermilk, and whey with dextro-maltose were included with the feedings. Special care was exercised in connection with the hygiene of the infant and special stress was laid upon the regularity of the feedings. The feedings approximated 65 calories to the kilo. of body weight.

Transfusion. After 2 weeks of careful feedings during which mineral salts were also given, it was noted that no progress was made in improving the condition of this patient and a transfusion was therefore performed. Thirty c.c. of citrated blood were given intravenously through the sinus. This patient had a severe reaction following the transfusion. The radial pulse was small in size, regular in rate and rhythm and 82 to the minute. There was pallor of the face, particularly about the nose and mouth. Lateral and vertical nystagmus and right sided strabismus were observed. On the day following the transfusion the infant showed

improvement. Two days later the appetite improved, the stools became less offensive in odor and a gain of 2 ounces in weight was noted. From this time there was a progressive gain in weight. At present, the infant weighs 17 pounds and is in excellent health.

CASE 12. Diagnosis: Malnutrition; Marasmus. Jane C., aged 1 month, weighing 7 pounds, was referred by the Babies' Welfare Federation. Family history has no bearing on the present condition. On admission to the Infantorium, the infant appeared poorly nourished, was cyanotic and the extremities were cold. Although breast fed, the child did not seem to gain any weight. The stools were green and contained many curds. The weight remained stationary for several weeks.

First Transfusion. Thirty c.c. citrated blood were injected through the sinus. An immediate change in the color of the skin and in the body temperature was noted. The skin, which was cyanotic soon became pink, the cheeks were flushed and the ears assumed a reddish color. The feet felt warmer. The temperature, which had been 97.5°, rose to 98.2° in three hours. On the following day, the appetite improved, the child nursed better, the stools were better in color and the general appearance of the body was improved. On the third day the child showed a gain of two ounces in weight.

Second Transfusion (one week later). After injecting two ounces of citrated blood further improvement was noted. The infant progressively gained in weight, nursed better, slept better, and seemed to have a new lease of life. An apparently lifeless infant was transformed into a very lively one within three weeks after the second transfusion.

4. The time of injection averaged about 90 seconds.

5. Four injections were followed by severe reactions; 7 by moderately severe reactions, and 3 by slight reactions. The severe reactions consisted of a short period of dyspnea which lasted about 25 to 40 seconds. A child who oftentimes cries lustily when the procedure is begun becomes suddenly quiet. Cyanosis of the face and pallor about the mouth appears about this time together with lateral and vertical nystagmus. The radial pulse remains unchanged. The child soon thereafter again becomes noisy and restless. The period of quietude lasts a few minutes.

6. A 0.3 per cent. citrated solution was used in our transfusions without any harmful effects. This amount of sodium citrate facilitated the passage of the mixture through the small caliber of the needle with greater ease than with the 0.2 or 0.25 per cent. solutions.

7. In 4 patients there was a marked improvement following transfusion; in 6 patients there was a slight improvement, and in 2 patients there was no improvement.

8. Feeding should be delayed for at least one hour after transfusion. Children fed before this time

GENERAL SUMMARY
LONGITUDINAL SINUS TRANSFUSIONS

Case No.	Referred by Social Service	Clinical Diagnosis	Date of Birth	Date of Transfusion	C.C. Amount of Blood Transfused	Time of Transfusion	Citrate per 100 c.c. Blood	Reaction Following Transfusion	Subsequent Reaction on General Condition
1	N. Y. Hospital	Pretuberculous Malnutrition Anemia	11-1-20	1-17-21	27	90 sec.	Grains 0.25	Moderate	Excellent
2	N. Y. Hospital	Pretuberculous Malnutrition Anemia	11-1-20	1-30-21	25	90 sec.	0.3	Moderate	Excellent
3	Sloane Maternity	Malnutrition Enterocolitis	11-30-20	2-2-21	30	1 min.	0.3	Slight	Slight Improvement
4	Fordham Hospital	Malnutrition Pylorospasm	1-17-21	2-3-21	28	2 min.	0.3	Slight	Excellent
5	Sloane Maternity	Malnutrition Enterocolitis	11-30-20	2-8-21	30	1 min.	0.3	Slight	Slight Improvement
6	Bklyn. Dept. of Charities	Malnutrition Pylorospasm	8-22-20	2-23-21	30	90 sec.	0.3	Severe	Excellent
7	Dept. of Public Welfare, Bklyn.	Malnutrition Gastro-enteritis	2-1-21	3-27-21	28	2 min.	0.3	Severe	Slight Improvement
8	Babies Welfare Federation	Marasmus Malnutrition	5-1-21	5-10-21	30	1 min.	0.3	Moderate	Slight Improvement
9	Babies Welfare Federation	Atrophy Malnutrition	4-13-21	5-18-21	25	4 min.	0.3	Severe	Slight Improvement
10	Harlem Hospital	Atrophy Malnutrition	4-2-21	5-18-21	30	1 min.	0.3	Severe	No change
11	Kings Co. Hospital	Atrophy Malnutrition	5-7-21	5-26-21	30	70 sec.	0.3	Moderate	Slight Improvement
12	Babies Welfare Federation	Atrophy Malnutrition	5-1-21	5-31-21	30	1 min.	0.3	Moderate	Excellent
13	Babies Welfare Federation	Atrophy Malnutrition	5-1-21	6-7-21	60	1 min.	0.3	Moderate	Excellent
14	Babies Welfare Federation	Malnutrition Enterocolitis	1-29-21	7-15-21	30	90 sec.	0.3	Moderate	None

Summary.—1. Fourteen transfusions were performed on 10 infants.

2. The ages ranged from 9 days to 6 months. Seven were under 2 months of age.

3. The amount of blood injected averaged about 1 ounce.

elapsed vomited.

Conclusions.—1. Transfusion of citrated blood is a simple operation and a recognized valuable therapeutic agent. Its use should become an everyday procedure in hospital and private practice.

2. Transfusion of blood is oftentimes a life-sav-

ing procedure in the treatment of diseases of the hematopoietic system. The so-called hemorrhagic diseases of children are greatly benefited by this operation.

3. Transfusion of blood is valuable in the treatment of malnutrition. It is valuable in treating the cachexias following the acute infectious diseases.

4. Transfusion of blood improves the general condition of patients with gastro-intestinal disturbances who do not improve with formula feedings or with the use of mothers' milk. This is particularly noticeable when marked dehydration is present following failures after the use of hypodermoclysis, rectal instillations and venous infusions.

5. Transfusion improves the prognosis in premature infants.

6. Transfusion of blood is best performed in infants by using the superior longitudinal sinus because of its large caliber and its surficial location.

REFERENCES.

1. Tully, H. E.: The Diseases of Children. C. V. Mosby Co., St. Louis, Mo., 1913.
2. Ruhräh, J.: A manual for the Diseases of Infants and Children. W. B. Saunders Co., Philadelphia, Pa., 1914.
3. Birk, W., and Schultz, F. W.: Diseases of Infancy. Rebman Co., New York City, 1915.
4. Chapin, H. D., and Pisek, G. R.: Diseases of Infants and Children. Wm. Wood & Co., New York City, 1919.
5. Sheffield, H. B.: Modern Diagnosis and Treatment of Diseases of Children. F. A. Davis, Phila., Pa., 1916.
6. Goodhart, J. F., and Still, G. F.: The Diseases of Children. J. & A. Churchill, London, Eng., 1921.
7. Niemann, A.: Kompendium der Kinderheilkunde. S. Karger, Berlin, 1920.
8. Burnett, James: Manual of Diseases of Children. E. & S. Livingston, Edinburgh, 1919.
9. Whipman, T. R. C.: Medical Diseases of Children. Hodder and Stoughton, London, 1913.
10. Garrod, A. E., Batten, F. E., and Thursfield, H.: Diseases of Children (by various authors). E. Arnold, London, Eng., 1913.
11. Hutchinson, E.: Lectures on Diseases of Children. Longmans, Green & Co., New York City, 1913.
12. Sutherland, G. A.: The Treatment of Diseases in Children. Henry Frowde, London, 1913.
13. McKee, J. H., and Wells, W. H.: Practical Pediatrics. P. Blakiston's Son & Co., Phila., Pa., p. 392, 1914.
14. Kelly, S. W.: Surgical Diseases of Children. E. B. Treat & Co., New York, N. Y., pp. 747 and 749, 1914.
15. Kerley, C. G.: The Practice of Pediatrics. W. B. Saunders Co., Phila., Pa., p. 173, 1914.
16. Koplik, H.: The Diseases of Infancy and Childhood. Lea and Febiger, Phila., Pa., pp. 215 and 323, 1918.
17. Morse, J. L.: Case Histories in Pediatrics. W. Leonard Co., Boston, Mass., p. 101, 1913.
18. Campbell, W. F., and Kerr, L. G.: Surgical Diseases of Children. D. Appleton & Co., Phila., Pa., p. 88, 1912.
19. Graham, E. E.: Diseases of Children. Lea and Febiger, Phila., Pa., p. 127, 1916.
20. Fischer, L.: Diseases of Infancy and Childhood. F. A. Davis & Co., Phila., Pa., p. 42, 1919.
21. Griffith, J. P. C.: Diseases of Infants and Children. W. B. Saunders Co., Phila., Pa., vol. i, p. 246, 1919.
22. Dunn, C. H.: Pediatrics. The Hygienic and Medical Treatment of Children. The Southworth Co., Troy, New York, p. 206, 1917.
23. Holt, L. E.: The Diseases of Infancy and Childhood. D. Appleton & Co., New York City, p. 203, 1911.
24. Carrel, A.: Technic and Remote Results of Vascular Anastomosis. Surg., Gyn., and Obstet., Vol. xiv, p. 246, 1912.
25. Crile, G. W., and Dolley, H.: A Method of Treatment of Hemorrhage, *J. A. M. A.*, vol. xlvii, p. 189, 1906.
26. Goodman, Charles: Surgery of the Heart; Blood Vessels; Thrombosis and Embolism, and Blood Transfusion. Reprint: Transactions Fifth Congress of International Surgical Society, Paris, July 19 to 23, 1920. M. Hayez, Brussels, Belgium, p. 9, 1920.
27. Brewer, G. E.: Discussion "Blood Vessel Surgery," *J. A. M. A.*, lii, p. 412, 1909.
28. Brewer, G. E., and Leggett, N. B.: Direct Blood Transfusion by means of Paraffine Coated Glass Tubes. *Surg., Gyn. and Obstet.*, ix, p. 293, 1909.
29. Crile, G. W.: Hemorrhage and Transfusion. New York and London, D. Appleton & Co., p. 290, 1909.
30. Fauntleroy, A. M.: A Simplified Method for the Transfusion of Blood, MEDICAL RECORD, vol. 78, p. 403; 1910.
31. Hartwell, J. A.: A Simple Method of Blood Transfusion without Cannula, *J. A. M. A.*, vol. lii, p. 297, 1909.
32. McGrath, B. F.: A Simple Instrument for Transfusion, *J. A. M. A.*, vol. lxii, p. 40, 1914.
33. Kahn, A.: An Apparatus for the Direct and Continuous Transfusion of Blood, MEDICAL RECORD, Vol. 90, p. 675, 1916.
34. Frank, R. T.: A New Method for the Transfusion of Blood, *New York Medical Journal*, vol. lxxxviii, p. 1023, 1908.
35. Soresi, A. L.: Clinical Indications for Direct Transfusion of Blood with the Author's Technique. MEDICAL RECORD, vol. 81, p. 835, 1912.
36. Kimpton, A. R., and Brown, J. H.: A New and Simple Method of Transfusion, *J. A. M. A.*, vol. lxi, p. 117, 1913.
37. Vincent, B.: Blood Transfusion with Paraffiin Coated Needles and Tubes, *Surg., Gyn., and Obstet.*, p. 621, 1916.
38. Lewisohn, R.: Blood Transfusion with one 20 c.c.m. syringes, *Amer. Jour. of Surgery*, vol. xxix, p. 361, 1915.
39. Lindeman, E.: Blood Transfusion by the Syringe Cannula System, *J. A. M. A.*, vol. lxiii, p. 1542, 1914.
40. Cooley, T. B., and Vaughan, J. W.: A Simple Method of Blood Transfusion, *J. A. M. A*, vol. lx, p. 435, 1913.
41. Abelmann, H. W.: Blood Transfusion Simplified by the Use of New Method and Apparatus, *J. A. M. A.*, vol. lxiv, p. 1315.
42. Unger, L. J.: A New Method of Syringe Transfusion, *J. A. M. A.*, vol. lxiv, p. 582, 1915.
43. Kush, M.: An Automatic Transfusion Apparatus, *J. A. M. A.*, vol. lxv, p. 1180, 1915.
44. Ottenberg, R., and Libman, E.: Blood Transfusion; Indications; Results; General Management. *Am. J. Med. Sci.*, vol. cl, p. 36, 1915.
45. Weil, R.: Sodium Citrate in the Transfusion of Blood, *J. A. M. A.*, vol. lxiv, p. 425, 1915.
46. Austin: Principe d'une nouvelle méthode de transfusion muqueuse. *J. Méd. de Bruxelles*, xii, p. 436, 1914.
47. Agote, L.: Neuvre procedimento para la transfusion del sangre, *Anal. del Instit. mod. de Clin. Med.*, Buenos Ayres, January, 1915.
48. Satterlee, H. S., and Hooker, R. S.: Transfusion of Blood with Special Reference to the Use of Anticoagulants, *J. A. M. A.*, lxvi, p. 618, 1916.
49. Satterlee, H. S., and Hooker, R. S.: The Use of Hirudin in the Transfusion of Blood, *J. A. M. A.*, lxii, 1781, 1914.
50. Lewisohn, R.: A New and Gretaly Simplified Method of Blood Transfusion. MEDICAL RECORD, vol. 87, p. 141, 1915.
51. Lespinasse, V. D.: The Treatment of Hemorrhagic Diseases of the Newborn by Direct Transfusion with a Clinical Report of Fourteen Personal Cases. *J. A. M. A.*, vol. lxii, p. 1866, 1914.
52. Woltman, H.: Transfusion by the Citrate Method in a Sixty-hour-old Baby with Melena Neonatorum. *J. A. M. A.*, vol. lxv, p. 2163, 1915.
53. Lewisohn, R.: The Citrate Method of Blood Transfusion in Children, *Am. Jour Med. Sci.*, vol. 150, p. 886, 1915.
54. Zingher, A.: A Simple Method for the Transfu-

sion of Citrated Blood in Children, MEDICAL RECORD, vol. 87, p. 440, 1915.

55. Lindeman, E.: Simple Syringe Transfusion with Special Cannula. A New Method Applicable to Infants and Adults, Preliminary Report, *Am. Jour. Dis. of Children*, vol. 6, p. 28, 1913.

56. Kerley, C. G.: The Treatment of Secondary Anaemia in Infants by Blood Transfusion, *Am. Jour. Dis. of Children*, vol. xiv, p. 470, 1917.

57. Fischer, L.: The Value of Transfusion in Atrophic and Devitalized Infants and Children. MEDICAL RECORD, vol. 89, p. 223, 1916.

58. Moss, W. L.: A Simple Method for the Indirect Transfusion of Blood, *Am. Jour. Med. Sci.*, vol. 148, p. 698, 1914.

59. Woolsey, G.: Applied Surgical Anatomy. Lea Brothers & Co., New York and Philadelphia, p. 26, 1902.

60. Lewis, W. H.: Anatomy of the Human Body by Henry Gray. Lea and Febiger, New York and Philadelphia, p. 196, 1918.

61. Tarr, E. M.: A Satisfactory Method for Obtaining Blood for Diagnostic Purposes in Infancy, with a Preliminary Report on Longitudinal Sinus Transfusion, *Canada Med. Assn. J.*, vol. vii, p. 226, 1917.

62. Fischer, L.: The Superior Longitudinal Sinus in Infants; Its Value in Transfusion and for Rapid Medication; Its Adaptability in Procuring Blood for Diagnosis, MEDICAL RECORD, vol. xciv, p. 399, 1918.

63. Helmholtz, H. F.: The Longitudinal Sinus as the Place of Preference in Infancy for Intravenous Aspirations and Injections, including Transfusions, *American Journal of the Diseases of Children*, vol. x, p. 194, 1915.

64. Ratner, A. B.: A New Apparatus and Method for Puncturing the Superior Longitudinal Sinus in Infants, *Am. Jour. of the Dis. of Child*, vol. 21, p. 99, 1921.

65. Brown, A., and Smith, G. E.: The Use of the Longitudinal Sinus for Diagnostic and Therapeutic Measures in Infancy, *Am. Jour. Dis. of Child.*, vol. 13, p. 501, 1917.

66. Goldbloom, A.: An Improved Needle for Sinus Therapy. *Am. Jour. of the Dis. of Children*, vol. 19, p. 229, 1920.

67. Sydenstricker, V. P. W., Mason, V. R., and Rivers, T. M.: Transfusion of Blood by the Citrate Method. *J. A. M. A.*, vol. lxviii, p. 1677, 1917.

68. Tobler, L.: Zur Technik der diagnostichen Blutentnahme und der Intravenösen Injection beim Säugling Originalien, *Monatschr. f. Kinderheil*, Bd. 13, S. 384, 1914, 1916.

69. Quoted by Fischer, 62.

70. Wollstein, M. and Morgan E.: Blood Cultures During Life in Infants and Young Children with a Description of a New Technic, *Am. Jour. Dis. of Child.*, vol. 4, p. 197, 1912.

71. Fischer, L.: Personal Communication.

72. Rehling, M., and Wiel, R.: The Avoidance of Hemolysis in Transfusion, *Am. J. Surg.*, vol. xxiii, p. 96, 1900.

73. Moss, J. L.: Studies in Isoagglutinins and Isohemolysins, *Bull. Johns Hop. Hosp*, vol. xxi, p. 63, 1910.

74. Jansky: Jan. Hematologische Studien beim Psychotikern. Klinicky Sbornik, No. 2, 1907, reviewed in the *Jahresbericht für Neurologie und Psychiatrie*, quoted by Moss, 73.

75. Vincent, B.: A Rapid Macroscopic Agglutination Test for Blood Groups, and its Value in Testing Donors for Transfusion, *J. A. M. A.*, vol. lxx, p. 219, 1918.

76. Miller, G. I.: Blood Transfusion. Indications and Technic of Past and Latest Methods, with Lantern Slide Demonstration, *L. I. Med. Jour.*, vol. x, p. 189, 1916.

77. Lewisohn, R.: Blood Transfusion (Citrate Method) in Hemophilia Neonatorum, *Am. J. Obstet. and Dis. of Child.*, vol. lxvii, p. 933, 1918.

78. Elsberg, C.: A Simple Cannula for the Direct Transfusion of Blood, *Journal of the Am. Med. Ass'n*, vol. lii, p. 887, 1909.

969 MADISON AVENUE.

33 WEST SEVENTY-THIRD STREET.

EMPLOYING ELASTICITY.

A CONTRIBUTION TO THE DYNAMICS OF THE SPLINT.

BY DOUGLAS H. STEWART, M.D., F.A.C.S.,

NEW YORK.

ONE single quality of the ordinary surgical splint that is widely and usually employed is rigidity. An apparent exception might be found in the application of plaster of Paris when, for purposes of moulding, a gypsum-mud is spread upon a dressing. Even in this instance, however, the ultimate desirable aim obtained in the "setting" of that mud is an unpliable stiffness in the resultant splint. As to the metal splint in vogue to-day that of course is rigid, since the only thing elastic and expanding about that is its little overshadowing cloud the "size of a man's hand." A non-union cloud as it were, that must be ignored lest its "shadow fill the whole land." As an index finger to that hand-sized cloud Major Elmslie might be quoted thus: "There appears to be a prevalent belief that in fracture of the humerus counter extension upon the lower fragment is necessary; this is a fallacy; many fractures of the humerus should be treated rather by forcing the fragments together than by applying an extension which tends to separate them."

The present writing deals entirely with the employment of elasticity and should that writing prove not to be pioneer in character, then the author is unaware of that particular shortcoming. All he is sure of is that the article itself never can become popular because it deals solely with materials that are, or should be, at hand; consequently while there is nothing here for anyone to exploit, on the other hand there is much that may interfere with the use of rather expensive, though not necessarily satisfactory, apparatus. Furthermore, it would be little or no trouble to furnish authorities, radiograms, and case reports tending to prove conclusively that in the absence of all support the mere hanging of an arm (for instance) or its swinging at the side like a pendulum is apt to bring about non-union of a fractured humerus, owing to the counter-extension evidenced by the mere weight and pull of that arm itself. In short, the fundamental preliminary to satisfactory union of a fractured bone is that the fragments shall be placed in contact, in good position, and then shall be treated with an elimination of any or all detail that tends to make the chances of good union precarious.

When one has splinted a long bone in the usual manner it often happens that some fragment of the bone ought to be moved into a better position; yet this fragment may neither be shifted nor stirred by any conceivable manipulation of the long flat splint, which may really have been applied in a most careful manner. In the very form, shape, and nature of that splint may be a complete lack of differential or elastic pressure. Therefore what is essential to meet the condition described is some small, additional, auxiliary splint to furnish an elastic force that may be controlled in intensity, may be directed in its exertion, and may be localized in the area upon which it shall be expended. Let us suppose that any long bone (*e. g.* the humerus) after being

splinted in the ordinary way shows this very common image upon its actinogram (Fig. 1).

Perhaps this position may be manually corrected a number of times only to resume its malposition after and beneath an application of the

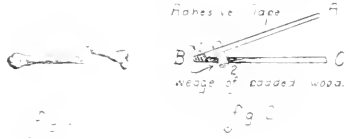


Fig. 2

ordinary splint and bandages. But if one takes a pair of wooden tongue depressors, fastens their left extremities together and thrusts a well-wrapped piece of a third depressor between them, then an engine like the one illustrated in Fig. 2 may be produced.

AB and BC are two wooden tongue depressors fastened securely together with adhesive plaster (1), and separated by a wrapped piece of wood (2). That the ends A and C will tend to spring apart when brought together and in the act will manifest so much or so little resilience as may be desired, needs but trial to obtain a demonstrating conclusion. Let us suppose that a pad be fastened beneath C and that the whole apparatus be applied to a broken bone, such as is shown in Fig. 1, the result might be illustrated as something of the sort shown in Fig. 3.

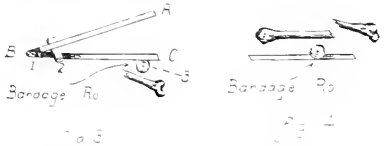


Fig. 3 Fig. 4

In this figure, 3, is a pad attached by adhesive plaster, collodion, or mucilage. Let us suppose again that another depressor be taken, that another pad be attached to its upper surface at the junction of its right and middle thirds (Fig. 4) and that this pad be made to press upon the underside of the bone. Then when all is fastened and bound into place with adhesive plaster strips the result should be about as seen in Fig. 5.

Here A and C would endeavor to spring apart and D and E would tend to reassume the straight line from which they are bent. All of which processes would be attended by motile, non-rigid, resilient or elastic pressures.

The whole could be covered with the usual and fitting padding, together with a compressing roller

Fig. 5 Fig. 6

bandage. After which any ordinary long splint of the rigid variety could be placed on top, or under all, as the case might demand. This simple little mechanism that is here set forth will be found versatile and adaptable in direct proportion to the amount of ingenuity that is displayed by its employer.

The larger sized splints also have elasticity and in making this force available the writer benefits through having two sorts in combination, viz., a rigid one of maple and a flexible one of basswood. But for the sake of simplicity let us here consider the usual thin sort together with everyday roller bandages, wipes, and adhesive plaster. Because if one can use these ordinary means effectively then he can add to those means or can make his utensils as varied or as elaborate as he sees fit, after his experience matures. In any event a good plan is to plot a scheme upon the hospital history chart showing the directions in which the forces are to exert their energies. In this a broad arrow or its conventional representation Λ is a convenient symbol. In Fig. 1, for instance, the preliminary plan would appear thus: $\Lambda \quad V \quad$, so that a very little study would make clear that the broad arrows show the directions in which and the locations on which resiliency is being converted into pressure, after the apparatus is in place, with the plaster strip exercising its restraint and the roller-bandage furnishing the constraint so necessary to a successful issue.

Suppose one wished, for example merely, to exert force according to the following plan:

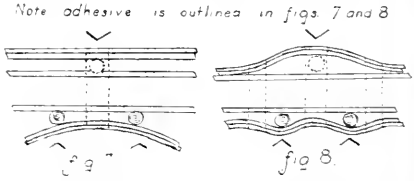


Fig. 7 Fig. 8.

$\Lambda \quad V \quad \Lambda$. Then a firmly rolled bandage must correspond to the broad arrows, in position. Much as though one were to put a triangle of rollers into place. The idea being that, no matter where the broad arrow is on the plan, its place in the bandage must be filled by a roller. (See Fig. 6.)

The elasticity is furnished by thin splints, therefore the outside ones should be doubled, while if the inner ones be left single they will readily adjust themselves to the contour of the limb upon which they are applied. The rolls should be fastened in place by adhesive strips. Then if all were held in proper position and a broad adhesive strip were placed about the center, girth-wise, the desired force would be at once exerted. Because the bent lower double strip would press against the two rollers at its ends while its centers would pull directly down upon the upper roller, as shown in Fig. 7.

Surely it must be quite clear that the bending of the upper double strip into a bow-shape against the roller beneath it, together with traction upon the outer ends of both upper and lower strips, by binding all together, merely increases the force exerted without changing the lines of that force. Because the bow in its endeavor to straighten itself will continue to pull down upon its roller and will pull upward upon the extremities of the lowest double splint.

Whether the elastic splint be employed upon a broken metacarpal bone, or upon the results of an osteotomy that has been performed for a genu valgum, or even upon the non-traumatic spontaneous fractures of tabes, success will depend upon ordinary care in the selection of the right sort and size of material and upon the proper application of that material after selection. The point here emphasized is that the fundamental principles are all the same, the force employed is an elastic pressure; so that mere size or quantity may be varied at will, and may be made to fit any possible set of adverse conditions that may be encountered.

It has been suggested that the value of these observations might be better estimated if it were stated incidentally that they rested upon actual experience in the writer's surgical clinic at the Knickerbocker Hospital (O. P. D.). This clinic is supposedly one of the largest one-man clinics in the world, devoted entirely to acute surgery. At hand are the statistics for last month (June, 1921): Thirteen days' attendance, 510 patients; 15 fractures.

On those fifteen fractures some form of the apparatus above depicted and described was used twenty-two times, if readjustments and replacements are included. This mechanical arrangement for the employment of elasticity has been in use for three years so that omitting all reference to its more or less constant service in dislocations and sprains, to state that it had been applied successfully five hundred times would be but a low estimate indeed and would refer solely to its use in fractures.

128 West Eighty-sixth Street.

ELECTROBIOGRAPHY.*

By ALBERT ABRAMS, A.M., M.D., LL.D.,

San Francisco, Cal.

This term of new coinage suggests the graphic reproduction of organs by aid of the electrical emanations from the latter. The writer has repeatedly demonstrated "the electrical nature of man" by hypersensitive apparatus.

The electrical nature of a nerve impulse has been questioned owing to the fact that its velocity in human sensory nerves is only about 150 feet a second and in motor nerves 190 feet, whereas, electricity travels thousands of miles per second. It is conceded that cold lessens and heat increases the rapidity of a nerve impulse, but no one has seriously considered and this is most important, the nature of the medium conducting an electric current. In gases, electricity is conducted with a velocity approximating 100,000 miles per second, whereas, in liquids the conduction is only about an inch an hour. The ability to conduct electricity varies with the conductor. The relative conducting power of silver is 1,000,000,000 compared with guttapercha 0.000,000,000,004.

When the heart contracts there are electrical variations and when a patient is connected with a sensitive thread galvanometer, the movements of the latter may be recorded photographically. This apparatus is known as electrocardiogram and is the invention of Einthoven. When the writer visited the latter, he found the Leyden (Holland) Physiological Laboratory connected with the hospital by means of telephone wires, so that diagnoses of

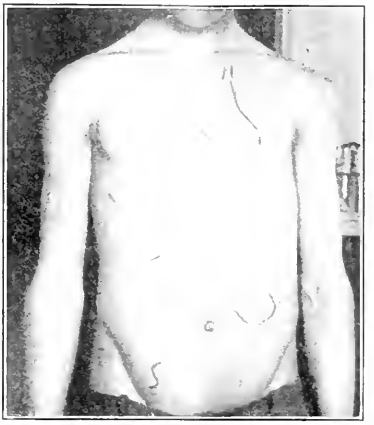


Fig. 1.—Tracing of the heart and blood vessels, lower border of the liver, site of the stomach and appendix (S-shaped).

heart diseases could be made at a distance of a mile without the necessity of seeing the patient.

In 1895, Roentgen, of Würzburg, Germany, discovered, almost accidentally, the *x*-rays which now bear his name. These new rays possessed the extraordinary ability to penetrate many substances quite opaque to light, the degree of penetration being dependent on density. Bone, for instance, is more absorbent than flesh, hence it stands out as dark against the flesh in a shadow cast on a fluorescent screen. At first the application of the

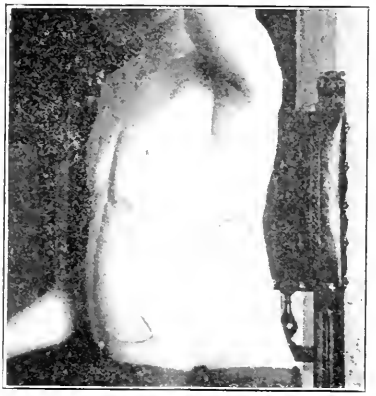


Fig. 2.—Tracing of the spleen. The tracing below on the abdomen is a part of the stomach.

x-ray was limited to medicine and surgery, but its use has been extended to commercial life for the detection of flaws in metals, betrayal of contraband articles, etc. The *x*-rays were of the greatest importance in practical medicine. Estimation super-

*From the "Blanche and Jeanne Abrams Memorial Research Laboratory," San Francisco.

seded "guesstimation" and the organs of the body could be accurately defined.

This is not so, however, with relation to the position of the stomach. The ingestion of a substance opaque to the rays alters the position of this organ and the deduction concerning position and form is necessarily faulty. In the use of these rays, furthermore, we dare not ignore their danger, the expense of the apparatus and the difficulty of transportation, time consumed, etc.

The *British Medical Journal* (Sept. 30, 1916) announced a startling discovery by James Sheaver, relative to the delineation of organs by the electricity generated in the body by aid of elaborate apparatus. Later the same journal repudiated the discovery and since then nothing further has been announced. The present new method suggested by the writer is of the simplest possible character and can be executed by a novice. At the present time of writing the method is necessarily crude, but the use of more sensitive material other than that suggested and further experimentation will elicit better results.

The photographs presented in this article are

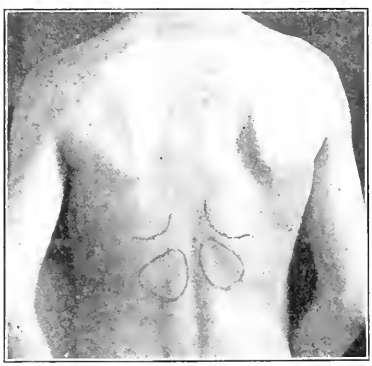


FIG. 3.—Tracing of the lower lung borders and kidneys. The branched tracing in the upper part of the back is presumably the windpipe and its bifurcation.

tracings; but the pith figures could easily be taken directly by an expert photographer.

The tracings (from a 13 year old boy) were made in the presence of the following physicians, who are studying at my laboratory: Mather Thomson, F.R.C.P., Dublin (Ireland) and London (England); Fletcher Sharp, M.D., Canada; W. B. Secrest, M.D., Utah; A. E. Persons, M.D., Buffalo, New York; Z. L. Baldwin, M.D., Michigan; H. W. Danneville, M.D., New Zealand, and Mr. Shipley, a representative of the *Scientific American*. The findings were corroborated by Dr. Mather Thomson, an expert physical diagnostician and consulting physician to the Ministry of Pensions, Great Britain.

Electrostatics.—If a fossil resin (amber) is rubbed, it acquires the property of attracting small bits of paper or wood. This resin was called by the Greeks electron, and later it was called electric by Gilbert, who gave us the word electricity. Practically the whole of electrical science is based on this amber phenomenon of Thales 600 (?) B. C.

It is now known that *any* two different substances rubbed together become electrified.

My investigations show that there is an electric field over every organ of the body and that this generation of electricity is provoked by the incessant activity of the electrons constituting the organ. That the radiant energy evolved is electric is simple of demonstration. In addition, the polarity of this energy may be demonstrated. With a charged pith ball, the borders of the heart and aorta may be accurately defined either by the attraction or repulsion of the pith ball. The left side of the heart is negatively and the right side of the organ is positively charged. When the suspended ball (negatively charged) is held at the proper distance from the heart, it is attracted over the right side and repelled over the left side of the heart. A needle suspended by a silk cord, the point of which is positively magnetized, or another needle negatively magnetized, will act similarly to the pith ball when either is used alone.

Electrobiograms.—By aid of a file, reduce pith to a moderately fine powder (not too fine) and place it in a non-conducting receptacle (glass) with a perforated cover (perforations must be small). Charge the powder by vigorously rubbing a rubber rod with flannel and stirring it in the powder.

The subject is placed in the recumbent posture, with feet to the geographical west (arms and feet separated from his body) on an insulated couch. Rubber under the legs of the couch suffices for the latter purpose. With the skin of the trunk exposed, the charged pith powder is distributed over the organ to be delineated. The skin must be free from fat, and dry to permit the pith powder to move. Distribute the powder evenly and not too thickly. Within one minute the powder shows a clearing around the borders of an organ and when viewed in the proper light this clearing is easily detected.

A fundamental law of electrostatics is that bodies with a like charge repel each other, while bodies with opposite charges attract. It is also a fundamental law in physiology that an active organ is electrically negative to the surrounding parts.

When the negatively charged powder is repelled at the borders of the organs, it is because the latter act like the poles of a magnet and show the greatest activity.

2151 SACRAMENTO STREET.

A PLEA FOR THE RUBBER CATHETER.

BY MAX THOREK, M.D.,

CHICAGO, ILL.

SURGEON-IN-CHIEF, AMERICAN HOSPITAL AND TRAINING SCHOOL FOR NURSES.

IN this article the author wishes to utter a warning against the indiscriminate use of the glass catheter and to urge the employment of an equally convenient and much safer instrument. Our interest in this subject was aroused by a case which came recently under our observation and except for the high degree of honor of the nurse in charge might have resulted disastrously to the patient.

Medical literature is replete with accounts of foreign bodies in the bladder—introduced in many

instances by the patient—but markedly remiss in treating of cases wherein instruments were introduced for therapeutic purposes by the physician or the nurse, and accidentally broken off.

That this occurs all too frequently is our opinion; but either from fear of censure or from failure to recognize the seriousness of the accident no report is made.

The potential danger to both the patient and the physician's ease of mind should indicate the utmost discrimination in the choice of an instrument. The ordinary glass catheter is so generally used in hospital practice because of its convenience and the ease of sterilization that no comment is necessary. Of the several means of sterilization that of boiling is, perhaps, the most frequently resorted to. Glass, unless tempered by special processes for toughening it, is especially liable to fracture under prolonged boiling or when exposed to direct heat. Moreover, the fracture is difficult to detect, especially since the instrument is not permitted to be exposed after sterilization until the instant of its introduction into the urethra. It is not surprising, therefore, that so long as the catheter presents its usual contour, and especially while it is in a moist condition, a quite extensive fracture may pass unnoticed.

The potential danger to the patient from the introduction of a glass catheter which is not perfectly intact, becomes more apparent when we recall that glass fractures in acute angles, leaving points which are quite capable of producing extensive laceration by cutting and even penetrating the tissues with which they come in contact. The sharp cutting edges or sharp points of a broken glass catheter may penetrate the bladder walls and induce peritonitis; or ulceration and perforation into either the peritoneal cavity or the vagina may result.

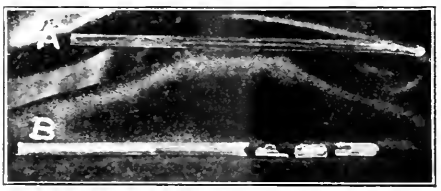
Occasionally a foreign body of this character may remain in the bladder for a long period of time without producing symptoms, but as a rule there are pain, tenesmus, frequent urination, possibly hematuria, and in cases of long standing, involvement of the kidneys, with the consequent renal symptoms. There is nothing pathognomonic to differentiate the condition from calculus and cystitis, hence the diagnosis is usually dependent upon the demonstration of the foreign body within the bladder, unless, as in the author's case, the history is unquestionable.

The treatment is necessarily that of removal, either through the urethra or by cystotomy, supplemented if need be by appropriate medical treatment of the resultant cystitis. If the fragments of glass are small and can be clearly seen through the cystoscope, it is quite feasible to attempt their removal through the uretha, but the operation of choice is generally suprapubic cystotomy.

The only case which we have found recorded which bears a comparatively close resemblance to ours is that of Dr. F. Hawkes, reported in the *American Journal of Obstetrics* in 1914. In this instance the patient had been catheterized; on attempting to withdraw the catheter it broke, leaving a piece in the urethra. The house-surgeon attempted to grasp it, but the remaining portion was broken in two pieces. A No. 12 Kelley speculum was introduced and the fragments removed. There was no hemorrhage or further trouble.

Another case, while not that of a glass catheter, is important in this connection because of the symptomatology. It was reported by Dr. W. C. Danforth in 1918. In this case the patient was a young women seven months pregnant. She was admitted to the hospital on the diagnosis of premature labor. During the preparations for delivery the nurse discovered an object protruding from the urethra. Upon removal it proved to be part of a woven catheter four inches long with a calculus attached, which measured 4 by 1.5 cm. The so-called labor pains ceased and the patient made an uneventful recovery. Cystoscopy at the time and after delivery showed a satisfactory condition of the bladder. The patient had experienced some symptoms of cystitis, but none sufficiently severe to cause her to seek relief. According to the patient's account the only time she had been catheterized was thirteen years before, at which time presumably, the portion of catheter had been left.

Packard, in 1897, reported a study of 222 cases of foreign bodies in the bladder—108 of these were instruments or parts of instruments. That we as surgeons should contribute to this distressing list by the choice of fragile instruments when others



of greater safety and equally satisfactory are at our command, is to be deplored.

We wish to express a positive preference for the use of the rubber catheter on its several merits which may be enumerated thus: (*a*) flexibility, (*b*) greater length, (*c*) choice of caliber, and (*d*) ease of sterilization. Its texture is such that even in unskilled hands no trauma can result. Its length renders the possibility of losing it in the bladder entirely negligible. The different sizes give us a choice which is not possible with the glass catheter, and it can be sterilized with equal facility.

Case Report.—Mrs. T. R., Hospital No. 6899; married; para I; nationality, Italian; admitted May 4, 1921; diagnosis on admission, fibromyoma of the uterus. Family history: negative, other than mother died of pneumonia. Personal history: negative. Menstrual history: 28 day type, three days' duration, until two years ago, when it became irregular. Previous pregnancies: one child five years ago, which died soon after birth from unknown cause. No miscarriages. Previous operations: none.

Chief complaint: during the past five years the patient has had dragging pain in the pelvis and back for two days after the beginning of menstruation, associated with menorrhagia and occasional metrorrhagia. Physical examination: head, neck, chest, and extremities negative. Combined examination reveals a large fibroma of the uterus. Cervix reddened and granular, small amount of mucopurulent discharge coming from the os. Operation, May 6, 1921. Scopo-

lamine-morphine anesthesia; usual preparation for laparotomy. Catheterized prior to leaving for operating room. Catheter glass—usual type—broken during catheterization. Suprapubic cystomy; fragments and broken end of catheter recovered. Closure of bladder. Supravaginal hysterectomy for fibrosis. Closure of abdominal wound; one cigarette drain.

Results: primary union and uneventful recovery.

RADIUM AND RESEARCH—A PROTEST.

By C. EVERETT FIELD, M.D.,

NEW YORK.

DIRECTOR OF THE RADIUM INSTITUTE.

WHEN one has observed and studied the constructive research carried on by the Rockefeller Institute, and has checked up their monthly reports, he feels that truly we have reached a progressive stage of scientific medical investigation. Again a visit to Huntington Cancer Research Hospital at Boston, to witness the intensive efforts there made in the battle against cancer, convinces one that their directors are determined to find some remedy that may materially improve present methods of treatment. The New York State Cancer Research Hospital and the Memorial Hospital of New York are working feverishly to do their part, and their reports are much sought after. Other minor institutions throughout the country are in their way taking up the work with the spirit of confidence and in due season, let us hope it will be soon, a genuine cure for cancer may be found.

During the coming week a well organized educational campaign is being instituted under the direction of the American Cancer Research Society and much good should result. More than 100,000 lives are sacrificed to cancer in the United States each year, and unlike the course of tuberculosis which is showing a declining death rate, cancer mortality is constantly mounting. In 20 years the death rate has increased almost 30 per cent. Surgery, acknowledged by all to be the best weapon at our present command, must be called upon early for favorable result. Radium and the *x*-ray as remedial agents have gained confidence as material adjuncts to surgery. Serums, caustic paste, high frequency, and dietetic measures will be tried according to their special indications. We grant each its place, try hard to use the agent properly, and then often fail to get the satisfactory return.

It is right here that we need the conscientious help of the research worker. The reason for failure with surgery may be known. At certain stages of growth it seems impossible to remove minute islands of cancer cells, invisible to the operator. With radium and the *x*-ray as treatment, the cause of a failure is not so apparent. Radium can destroy a cancer mass, just as surely as does the knife, yet what and why are its limitations? What is its full influence on the tissues, cell structures, and fluids of the body? What is the resistance of adjacent healthy tissue as compared with the malignant structure? What of the metabolic balance that may prohibit further radiation? How can the patient be sustained against the toxic invasion that may be fatal? These are the questions that should be placed before our Research Hospitals. We do not need to be told that radium fails as a cancer cure, but we desire knowledge as to why it fails and to be acquainted with such data as will improve our technic. Those of us who have been working with radium for eight or ten years are enthusiastic in the belief that radiation by radium and the *x*-ray forms today the most important therapeutic measure in advanced cancer work.

The methods of preparation of the element have been greatly improved; the means of application and screenage are rapidly being standardized; the depth of destructive penetration of the rays is being correctly estimated, and consequently during the past two years better clinical results have been attained. That which is now most needed is the aid of real biochemical check-up during the various stages of treatment.

At this time we are constrained to speak in open criticism of a deliberate policy of belittling radium therapy that has been common custom with the Director of the Crocker Cancer Research, Columbia University. During the past eight years periodically there has emanated from this source to the daily press statements that invariably characterize radium as a failure. The same director only four years back, in addressing the graduating class in medicine of Columbia University, stated that "radium was but the weapon of the charlatan and the quack." Such copy found column top space in the daily press from coast to coast and was not responded to by medical men who much dislike debating right or wrong in the papers. This type of publicity in 1916 became so critical as to draw from the pen of Dr. J. Harper Blaisdell, writing to the *Boston Herald* of December 2, 1916, a just rebuke, part of which we quote:

> Briefly stated, your summing up of the findings of the Crocker cancer commission of Columbia University unqualifiedly placed radium in the discard as a "cure," damned it with faint praise as a palliative, and noted with the cheerful abandon of "life" opportunity given the medical profession to make "the patient's condition worse than if he had been left alone." Such is the pessimistic side of the picture based on truth but, unfortunately for your readers, only half the truth. Simply because radium cannot act as a "cure" in inoperable or hopeless cases of systemic cancer is no reason why readers should be instructed to regard it as a discarded fad to the utter disregard of countless cases of early malignant disease that this remedy has saved.

Early in the present month the editor of one of the daily papers requested of us a statement relative to a report as to the merit of radium internally administered for certain types of cardiovascular degenerations. My opinion was desired to offset what was said to be a statement by Dr. F. C. Wood. In this interview (New York *Tribune*, October 14, 1921) Dr. Wood representing the Crocker Cancer Research, is reported to have affirmed that "radium does not increase red blood corpuscles nor prevent hardening of the arteries—it does not have a stimulating effect on the appetite—if anything it kills the red blood cells. All these qualities have been proven in experiments made on human beings. As for *radium in cancer work*, it effects very few cures, *perhaps one out of every thousand.*"

The author since 1913 has made over 7000 intravenous injections of radium element, in dosage of from 10 to 100 micrograms and has invariably witnessed remarkable increase in the red cell

count—with only one exception to the contrary. Furthermore, radium markedly increases appetite and all digestive functions. In early cardiovascular degenerations it has been favorably reported for twelve years back. Probably three score of careful radium therapists here and abroad will bear witness to such facts. As for the statement that perhaps radium would cure one case in a thousand of cancer, we might justly query "How comes even the one case?" What does it all mean? We confess we are entirely in the dark as to the purpose of any policy that permits such statements to emanate from a research institution.

If Dr. Wood is right and radium is to be classed as a failure let us have the truth with reasoning. England today has eleven radium hospitals municipally owned; Japan is doing remarkable work at the Imperial Institute with three grams of radium; France and Germany have notable equipments; even India has recently received her first radium and the Philippine Islands have $90,000 worth of government owned radium. Six South American republics have secured radium equipment. New York State recently purchased $250,000 worth of the rare element and needs more. Bellevue Hospital has voted its urgent needs. Millions of capital is tied up in the four great radium producing companies of America, and they are all trying to increase their output to meet the demand. If it be true that radium is of so little value we might well ask these people to junk their mines and devote their money to a better use. Who of us would have the heart to hold out to the cancer victim a hollow mockery that radium would "perhaps cure one case in a thousand." No! such is not the case. Radium has a mission for the support, relief, and possible cure of the cancer case that makes all the danger of its manipulation and study worth while. Even in the hopeless and inoperable case, it is the one remedy, together with the *x*-ray, that will bring a measure of relief and comfort that nobody would withhold. We will repeat a favorite personal quotation, "Radium is today the most remarkable therapeutic agent emanating from the laboratory of the Almighty."

205 West Seventieth Street.

DIATHERMY IN THE TREATMENT OF TUBERCULOUS KIDNEYS

By CHESTER TILTON STONE, M.D.,

BROOKLYN, N. Y.

In October, 1918, a male Italian, age 37, was referred to me. He complained of pain in the left side which was referred to the tip of the ensiform and to the penis. He also complained of burning urination with marked bleeding and passage of clots at times. During his 18 years of married life he had become the father of ten children. For over a year he had been unable to do any work. His family history was negative. Up until this present attack, which started with pains and frequency, he had been well. Venereal history was negative. Physical examination showed fine râles at the left apex, no loss of weight, abdominal tenderness to deep pressure, both front and back, over the region of the left kidney; no vomiting. The urine microscopically was cloudy and milky, giving in a 6 oz. sedimentation glass 4 oz. of pus. There was 10 per cent. albumin, strong indican, urea 9.6 per cent., sugar negative. Bacteriologically, numerous tubercle bacilli were found. His prostate was tender and boggy and his seminal vesicles distended.

Cystoscopy showed a congested urethra, bladder normal capacity with walls congested and marked hyperemia of the mucous membrane. The trigone was covered with bullous edema. There was no residual urine and no evidence of a growth. The prostate was enlarged and congested. The ureteral orifices were obscure. On being found the left one was seen pouting. The sphincter was hyperemic. The verumontanum was large and congested. On catheterization the left kidney gave 20 per cent. albumin; the urine was loaded with pus and tubercle bacilli; the right gave 10 per cent. albumin, but no tubercle bacilli were found. The functional tests showed the right functioning well, with practically little functioning in the left.

I placed him in the hospital for a week's observation. At the end of this time he was prepared for operation, my intention being to remove his left kidney. To make more sure of my ground, however, I again cystoscoped him, finding tubercle bacilli present in both kidneys. Upon being informed that an operation was unwise, both he and his family pleaded that I use some method to try to restore his health and spare him for the family, as he was their sole support.

At that time I had been reading some interesting articles by Philip Geyser on diathermy and as a result had been doing some experimental work on the kidneys along that line. Among other experiments was the impregnation of meat with live tubercle bacilli cultures and determining the strength, dosage, and size of electrodes necessary to kill the bacteria with the least damage to the meat.

I, therefore, resolved to put the test to practical proof. At the beginning of our experiment his weight was 137 pounds, and he was so weak that he had to be carried into the office. This was in May, 1919, the interval being used to try to build him up and to prepare him for the treatment. The initial treatments were at weekly intervals. The D'Arsonval current was employed with a four-inch lead electrode anteriorly and a six-inch lead electrode posteriorly. These were so placed that the hot point or center of the rays focused in the left kidney. The initial dosage was 500 ma. for a period of one-half hour. This was later increased to 1000 ma. for 10 minutes. The treatments were continued over both the left and right kidneys to December, 1919. At this time no tubercle bacilli could be found in his urine, no microscopic pus could be found, and but a faint trace of albumin showed. He then returned to work. During 1920 he took six treatments for a slight attack of pain. On January 29, 1921, I again examined him. His weight was 157 pounds. He was working every day and was free from pain. The urine was negative, cystoscopic examination was negative.

We may not say that this is an absolute cure; only time will tell us that. He is, however, relieved of all the symptoms of which he complained and is again able to work and support his family.

62 Pierrepont Street.

THE MEDICAL ASPECTS OF WORKMEN'S COMPENSATION.

By THE PUBLIC HEALTH COMMITTEE
OF THE NEW YORK ACADEMY OF MEDICINE.*

I. The Problem.—Recognition by society of its obligation to the worker in certain hazardous occupations has taken form in workmen's compensation laws. New York State passed such a law in 1913, which, according to competent opinion, stands favorable comparison with that of any other state in the Union or any foreign country for the liberality of its provisions.

The New York Compensation Law covers nearly 80 per cent. of all the wage earners in the State. A conservative estimate places the number of industrial accidents in this State at 350,000 a year, or approximately 1000 a day, of which 60 per cent. occur in New York City. Of these about 18 per cent. are compensable, that is, cause disability of more than two weeks' duration, and about 2000 result in death. The amount paid out each year for compensation is estimated at twenty million dollars.

For some time the feeling has been growing that society has not discharged its debt to the injured workman when it pays "compensation" and leaves him, maimed or ill or mentally unfit, to fend for himself with his additional handicap. He becomes a liability to the community in proportion to his incapacity for productive labor and it is, therefore, to the interest of the community to restore him as completely as possible to his normal condition of living.

The success of this idea with war cripples has undoubtedly given stimulus to such work among industrial groups. Not only have great strides been made in traumatic surgery, but the study and treatment of the neurotic conditions known as "shell shock" have shown the possibilities for preventing and curing similar industrial neuroses. It has been estimated that about 10 per cent. of all compensable cases are cases of such neuroses. Prompt recognition and immediate treatment are essential to arrest the development of this condition.

The war has also shown the possibilities of vocational reeducation and the value of occupational therapy for men still in hospitals.

II. The Provisions of the New York Law.—A brief summary of the Workmen's Compensation Act of New York State will indicate the extent to which New York is endeavoring to meet the problem. Employers of labor in hazardous occupations—and this affects the 80 per cent. of all wage earners mentioned above—are made directly responsible for the payment of certain fixed compensation for accidents and for supplying needed medical attention for sixty days. The scope of this law has recently been extended to cover so-called "occupational diseases," arising directly out of the conditions of labor, but not due to a specific injury. The burden of this compensation is through the industry ultimately shifted on the consuming public.

To safeguard the employee, should his employer go into bankruptcy, the employer is required to insure himself either in a stock or mutual insurance company, or in the State Fund; or he must furnish evidence that he will be able to pay any compensation claims made against him. Employers so bonded are termed "self-insured."

The law allows compensation in accident cases as follows: for the "waiting period" of fourteen days, no compensation (unless the disability lasts more than seven weeks); for each week of disability thereafter, two-thirds of the weekly wage, not to exceed $20 nor to be less than $8. In case the weekly wage is less than $8, the whole amount is paid. As 70 per cent. of industrial accident cases recover in the first week and 12 per cent. in the second, these compensation provisions affect only 18 per cent. of all injured workers.

For the loss of a member compensation estimated at the rate of $20 a week for a specified number of weeks is paid. Examples of these specific awards are shown in the tables given below. These sums are paid in weekly installments, the intent of the law being to pay compensation in lieu of wages. For facial disfigurement and head and back injuries a lump sum is paid in settlement.

Comparison of some of these awards with the schedule formulated in 1917 by the Committee on Statistics of the International Association of Industrial Accident Boards and Commissions is shown in the following tables. The schedule of the committee, while not intended as an ideal basis for compensation awards, but as an attempt to obtain a more accurate measure of industrial hazards, furnishes a certain standard of comparison. It will be seen that the New York State law, liberal as it is when measured by other existing laws, must be made still more liberal in order to furnish really adequate compensation for injuries.

	Standards of International Committee	Provisions of the New York State Law	Percentage of adequacy of New York's schedule
Permanent total disability..	1,000 wks	Life	100%
Loss of arm (at shoulder)...	750 wks	312 wks	42%
Loss of hand.....	500 wks	244 wks	49%
Loss of thumb.....	100 wks	60 wks	60%
Loss of index finger.....	50 wks	46 wks	92%
Loss of leg (at hip).....	750 wks	288 wks	38%
Loss of foot	400 wks	205 wks	51%
Loss of great toe.....	50 wks	38 wks	76%
Loss of sight of one eye....	300 wks	128 wks	43%

If the International Committee's schedule is taken as 100 per cent. adequate, the New York schedule appears low. Omitting the figures for permanent total disability, the adequacy of the New York schedule for an average of all the injuries given is 56 per cent. of that of the committee; for an average of the major injuries (*i.e.* loss of arm and leg)

*This study was made by Dr. Ransom S. Hooker and approved by the Committee. The membership of the committee is as follows: John S. Billings, M.D., Nathan E. Brill, M.D., Samuel A. Brown, M.D., Robert J. Carlisle, M.D., James B. Clemens, M.D., Rufus I. Cole, M.D., Charles Loomis Dana, M.D., Arthur B. Duel, M.D., Haven Emerson, M.D., Lewis Fox Frissell, M.D., Arpad G. Gerster, M.D., S. S. Goldwater, M.D., John A. Hartwell, M.D., Ward A. Holden, M.D., L. Emmett Holt, M.D., Walter B. James, M.D., James Alex. Miller, M.D., Charles E. Nammack, M.D., Walter L. Niles, M.D., Bernard Sachs, M.D., Thomas W. Salmon, M.D., Charles Hendee Smith, M.D., Frederic E. Sondern, M.D., M. Allen Starr, M.D., Howard C. Taylor, M.D., W. Gilman Thompson, M.D., Philip Van Ingen, M.D., Karl M. Vogel, M.D., George B. Wallace, M.D., Cassius H. Watson, M.D., Herbert B. Wilcox, M.D., Linsly R. Williams, M.D., E. H. Lewinski-Corwin, Ph.D., Executive Committee.

it is 40 per cent.; and for an average of the minor injuries it is 62 per cent. This schedule refers only to time. The percentage of adequacy is reduced by the provision in the New York law, allowing only two-thirds of the wages. The following table illustrates a comparison in money benefits for a man earning $20 a week:

	International Committee	New York State	Percentage of adequacy of New York's schedule
Permanent total disability..	$20,000	$13,333a.	67%
Loss of arm (at shoulder)...	15,000	4,160	28%
Loss of hand.....	10,000	3,253	33%
Loss of thumb.....	2,000	800	40%
Loss of index finger.....	1,000	613	61%
Loss of leg (at hip).....	15,000	3,840	26%
Loss of foot.....	8,000	2,733	34%
Loss of toe.....	1,000	507	51%
Loss of sight of one eye....	6,000	1,707	28%

a. New York gives a life benefit, but this sum is calculated on the 1,000 weeks provided in the Committee's schedules.

Again omitting the figures on permanent total disability, the adequacy of the New York schedule for an average of all the injuries given is 38 per cent.; for an average of the major injuries it is 27 per cent., and for an average of the minor injuries it is 41 per cent. Below is a table of these average percentages.

	All Injuries	Major Injuries	Minor Injuries
New York time benefits....	56	40	62
New York money benefits..	38	27	41

It will be seen from the foregoing table that the relative adequacy of compensation in time and money benefits is much less for major injuries than for minor injuries, in spite of the fact that the major injuries have a much more deleterious effect on earning capacity than have the minor injuries, and, therefore, a more lasting effect on industry.

At present the law does not allow compensation for the period of disability concurrently with the granting of specific awards. That is, if a man receives compensation for sixty weeks for disability as a result of complications arising from the loss of a thumb, his claim for the specific award of sixty weeks' disability—the award allotted to such injury—is disallowed on the ground that he has already been paid sixty weeks' compensation. An amendment to the law has been suggested, making it possible to grant both awards for the same injury.

In case of death compensation is paid to survivors of the workman on a weekly basis, the amount varying according to the number of dependents, but the total must not be more than two-thirds of the weekly wage nor exceed $20 a week. Widows or widowers receive compensation for life unless they remarry, children until they are eighteen years of age. The average death case costs the insurance company about $4000.

If the worker dies without dependents, $1000 is appropriated by the insurance carrier and paid into two state funds, $100 to a special fund to pay compensation in case of the loss of a second member, and $900 to the vocational re-education fund. The first fund referred to is used in the case of a one-armed man, for example, who loses a second arm. The employer pays compensation for the loss of the second arm only, the additional compensation to the worker being paid out of this special fund.

III. The Administrative Machinery.—Under the reorganization of the State Department of Labor this year, the administration of workmen's compensation laws rests with the State Industrial Commissioner, appointed by the Governor for a term of four years. The judicial duties connected with workmen's compensation are performed by an Industrial Board of three members, also chosen by the Governor. This Board determines all claims for compensation, all claims for medical service or attorney's fees and enforces the provision of proper medical attention for injured workers. A number of referees are appointed by the Commissioner, whose duty it is to conduct hearings and to determine claims for compensation. Their decisions in compensation cases stand as the decisions of the Industrial Board, unless altered by the Board itself.

A compensation case is considered closed when the final award is made or compensation disallowed, but as a matter of fact it may be reopened at any time on application of the claimant, the insurance company or the Industrial Board, the Chairman of the Board deciding whether or not a new hearing may be granted. Cases may be appealed, within a limited time, to the Appellate Division of the State Supreme Court on a question of law only. The finding of the Industrial Board on a question of fact is final.

According to the Workmen's Compensation Act, the employer is required to provide a maximum of sixty days' treatment for any industrial injury, but the Industrial Board may, where the nature of the injury or the process of recovery indicates a longer period of treatment, require the same from the employer. This provision, by a liberal interpretation of the law, affords practically unlimited treatment.

If an employer fails to provide a physician, or if the employer's physician is rendering inadequate or improper treatment, the employee has the right to select his own physician at the employer's expense.

Before a final award is made, the claimant is sent to a physician for an examination and report as to the extent of his injury and the necessity for further medical treatment. In some of the upstate districts this examination is made by a member of the Medical Department of the Compensation Bureau; in other districts to which no member of this Department has been assigned, a physician is selected by the Referee holding the hearing and is present to examine the claimant at the hearing; he is paid by the insurance company involved. In New York City there is a staff of full-time physicians belonging to the Medical Department of the Compensation Bureau who make the examination. The physician of the claimant and the physician of the insurance company may be present at these examinations. The duties of the medical staff of the Compensation Bureau include the physical examination of claimants, the review of medical testimony at hearings, the examination and medical analysis of claim papers, the giving of testimony and cross-examination of witnesses at hearings, and the recommendation of specialists at the request

of the Commission. They make something over 20,000 physical examinations a year. Considering the importance of the work done they are absurdly underpaid, as are all doctors connected with the Bureau, especially as they give their full time service. The salaries paid are as follows: The Chief Medical Examiner, $6,000; one assistant medical examiner, $3,250; three assistants, $2,500 each and one assistant, $2,250. The Medical Advisor of the State Insurance Fund receives $3,500 and three medical inspectors of factories $2,500 each.

It is sometimes difficult to decide whether a disability is the result of the injury as claimed, or whether the condition existed prior to the accident. In such cases, the workman is sent to a specialist for examination. For example, a man may receive an injury to an eye and sustain thereafter partial loss of vision. His natural conclusion is that the injury caused the blindness, but it may be that the loss of vision is due to a cataract which existed before the injury. In cases where the cause of disability cannot be determined by the specialist, the presumption is always in favor of the employee. Charges of the specialist for such examination are forwarded through the Medical Department of the Compensation Bureau to the insurance companies and payment returned by the same route.

In Ohio much "red tape" is eliminated by having the attending physician file a report of his estimate of disability. If this report is in accordance with usual findings in such cases the estimate is accepted without further examination. It is only in unusual cases that a special investigation is made by a medical claim examiner acting under the Industrial Commission. In unusual cases, the local medical examiner makes a prompt examination, so that his report reaches the Commission before the first compensation payment is due. The "waiting period" is only one week, after which compensation is allowed. If the examiner's report differs from that of the attending surgeon, the decision is left to a specialist agreed upon by both, and the Commission pays for the examination. By reason of this direct settlement of medical questions, less than 1 per cent of all compensation claims come up for hearings before the Commission.

The State of Washington provides for local medical aid boards, each board to consist of a representative of employers and employees to administer the medical service under workmen's compensation. These boards must provide care for the injured and are responsible for reporting data concerning all accidents to the State Medical Aid Board, and for certifying physicians' bills.

The Workmen's Compensation Bureau, one of the largest bureaus of the New York Department of Labor, is financed, nominally, by an appropriation from the State Treasury. As a matter of fact, all expenses of this Bureau are refunded to the State Treasury. Each year the State Insurance Fund, the insurance companies and the self-insurers submit a statement of awards, excluding medical service, paid by them during the year, and a pro rata percentage of these awards is assessed on each, to cover the expenses of the Compensation Bureau. The cost of the operation of this Bureau is a very small item in the running expenses of insurance companies, being only about one-half of one per cent. of the value of premiums paid.

IV. The Choice of Physician.—All injuries, no matter how slight, are required to be reported by the workman, and the employer must in every case, whether or not the injury is compensable, furnish medical attention. This requirement gives rise to much controversy concerning the rights of employer and employee to select the physician. The employer holds that since he must pay the bills he has a right to select the physician or surgeon employed. The principal arguments in favor of this plan are, briefly:

1. That it is to the interest of the employer to return the worker to industry as quickly as possible, and he will, therefore, endeavor to provide the best medical aid obtainable to insure the speediest and most complete recovery;

2. That his judgment is better in selecting the surgeon for any given type of injury than that of the workman who may be illiterate, ignorant of hygienic principles, and often not even able to speak English;

3. That many accident cases must be sent to hospitals having their own staff of doctors for treatment of various types of cases. If the patient were to insist upon calling in his own physician, much confusion would result and the patient, furthermore, would often suffer the disadvantage of being treated by a man not experienced in the treatment of his particular injury. It is not yet generally recognized that traumatic surgery is a specialty requiring special training, after a solid foundation in general surgery;

4. That the employer's physician would do his utmost to prevent malingering or simulated traumatic neurosis. He should, if properly selected, be sufficiently skilled in the treatment of accident cases to prevent to a very large extent the creation of a real neurotic condition arising from the shock of the injury and the workman's worry about himself and his family, and

5. That the employment of a plant physician, as is the practice in many large establishments, encourages the workman to report minor injuries for treatment. If, on the other hand, he waits to consult his own physician the injury often becomes septic through neglect and develops into a serious case.

The arguments favoring the selection of the physician by the injured employee may be thus summarized:

1. That the free selection of one's own physician is conceded to be one of man's inalienable rights. The relation between patient and physician is private and personal, and a man naturally desires a physician who can understand him and in whom he has confidence. It is this feeling of confidence in the physician that is one of the most important factors in insuring the patient's peace of mind and hence hastening his recovery, and

2. That physicians selected by the employer or his representative, the insurance carrier, are often employed on a contract basis. This means, often, inefficient treatment and a tendency to minimize the injury and rush the employee back to work as quickly as possible.

Many conscientious employers exceed the re-

quirements of the law in providing medical, surgical, prophylactic, and nursing care, but unfortunately there is an increasing tendency among others to employ physicians on a contract basis. In New York City, there has grown up a very large demand on the part of employers for an organized medical service which will reach all parts of Greater New York, and this demand has been met largely by a number of commercially organized services, not always of the highest type. The largest and most comprehensively organized of these services has no chemical or *x*-ray laboratory facilities, and the men connected with it lack adequate surgical training. These services, however, present certain advantages.

A compromise between the two courses is the so-called "panel system" which has been employed in California. In that State physicians and surgeons competent to treat industrial accident cases are nominated by the State Insurance Fund, and from this panel the injured workman may select the doctor by whom he wishes to be treated. In practice the workman has virtually free choice of his physician, as only the rank incompetents have been eliminated from the panel. This scheme is much discussed in other States, but it scarcely offers a solution of the problem, for in the preparation of the "panel" the State Fund hardly possesses the competence to draw sharp lines of distinction between practitioners, except perhaps in small localities. It must needs be very liberal and that means that the average man with insufficient training in traumatic surgery and no adequate office equipment to treat these cases to a conclusion, would receive official sanction. The system, moreover, is open to abuse and political interference with the practice of medicine.

V. Compensation for Medical Services.—The question of medical and hospital fees has, from the beginning, proven a stumbling block to the smooth operation of the law. The law in New York required that all fees and other charges for medical and surgical treatment "shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living." Before the passage of the Workmen's Compensation Law, physicians and hospitals frequently treated injured workmen free of charge or for a nominal fee, because of their incapacity to pay the ordinary charges. Many insurance companies interpret the law as meaning that hospitals and physicians should continue to treat injured workmen at a low charge as before, while the doctors are of the opinion that the insurance companies should pay reasonable charges for services rendered.

In order to avoid such controversies, many of the larger industrial plants have established their own hospitals and employ their own physicians. Whereas a great many very good men have started as company or contract physicians, using the experience as a stepping stone from which to advance, they very often cannot afford to stay in the work long on account of the inadequate scale of remuneration that has prevailed.

Twenty-eight States authorize their Compensation Commissions to fix schedules for medical and hospital services. New York is one of these, but in this State the problem is yet to be adjusted. Directly after the passage of the Workmen's Compensation Act, the Compensation Commission drew up a minimum fee schedule as a basis of charges. The insurance companies, however, insisted upon regarding the rates agreed upon as a maximum, and the controversies arising from this difference of opinion caused so much trouble that the State Medical Society has since repudiated the fee schedule.

Practice of determining the schedules varies in different states. In Massachusetts, for example, and for that matter in New York, the reasonableness of the fee is determined by the charge which would ordinarily be made to the injured man in his locality and by the standing of the physician in his profession. Ohio, on the other hand, regards the whole question as an industrial accident problem and compensates medical services on the basis of treatment given, regardless of locality.

British Columbia has been particularly successful in arranging a fee schedule for medical service. This was done by collecting a mass of data as to the fees commonly charged and then in cooperation with representatives of all the medical men of the Province, arriving at a schedule of charges that seems to give entire satisfaction.

The rates in the fee schedule are uniformly somewhat lower than the rates charged for the same service in private practice, but the greater certainty of payment and the fact that no compensation cases are treated free offset the difference in charges. In several States an inquiry has been made to determine the effect of workmen's compensation on physicians' incomes. In general the answers have indicated little change, or a slight increase in income, and very little dissatisfaction was found among physicians on this score.

VI. Measures for Industrial Rehabilitation.—One of the first effects of the Workmen's Compensation law was a marked decline in the number of industrial accidents. Employers found that the use of safety devices was not merely a humane measure, but that it had sound money value in that it secured a lower rate of premium in workmen's compensation insurance. The second most important development under Workmen's Compensation is that of individual rehabilitation.

New Jersey is among the leaders in assisting its industrial cripples to find places in industry. A Rehabilitation Commission was organized in 1919, which cooperates with the Compensation Bureau and with the Employment Service in reeducating the disabled man to new work and in finding him employment in this new field. A compensation case is not considered closed until every effort has been made to improve the injured man's physical condition. To this end rehabilitation clinics are being established throughout the State, the principal ones at Newark and Jersey City, and smaller ones in cooperation with local hospitals. Where it is possible the insurance companies are required to pay for rehabilitation treatment, but if such an arrangement cannot be made, the State pays.

Plans for vocational reeducation are under way in New York State. In 1920 Congress authorized a grant of $75,000 to any State which would

appropriate a like amount for the vocational re-education of industrial cripples, and New York has accepted the provisions of the grant, and will carry out the program under the State Board of Vocational Education. Funds must also be supplied to maintain the worker while he is undergoing vocational training. Money for this purpose is to be obtained from the $900 referred to above paid in by the insurance companies for each worker killed in industry who dies without dependents. It is estimated that these payments will amount to over $200,000 a year. The usual compensation is, of course, paid the injured workman, but additional compensation up to ten dollars a week is also paid to enable as many as possible to take advantage of this opportunity. The State Department of Education is also authorized to provide artificial limbs at cost to maimed workers.

The Industrial Commission of California has made arrangements with the special industrial accident hospital which is conducted under the auspices of the University of California at San Francisco. Although there is no official connection between the University and the Industrial Accident Commission or the Compensation Fund, the work of the University Hospital has been planned with particular reference to the needs and problems of industrial medicine and surgery.

Summary and Conclusions.—The New York Workmen's Compensation Act, though liberal in its provisions, is yet defective in several regards, particularly in its medical aspects.

Only by a generous interpretation of the law has the late Industrial Commission been able to insure to the injured workman medical attention for a period in excess of the statutory limitation of sixty days.

Supervision of the medical and surgical care given is almost entirely nonexistent, even in cases insured with the State Fund.

Organizations of a purely commercial character for the treatment of industrial injuries have been allowed to develop without supervision as to the character and adequacy of the services rendered.

Many of the neuroses resulting from accidents have not been given the treatment necessary to restore the sufferers rapidly to productive usefulness.

The matter of functional reeducation and occupational therapy in connection with the treatment of injured workers has not received the attention which the modern development of this work demands.

The right of the free choice of physician being denied to the injured man under the law, the moral responsibility for insuring to him proper medical treatment rests with the State authority.

The procedure for obtaining the necessary medical testimony from practitioners or hospital authorities needs to be improved and simplified.

The full time requirement for service in the medical positions of the Labor Department and the low compensation paid do not make the positions attractive to the highest grade of physicians which the nature of this work demands.

This survey, which is of a preliminary character, was undertaken at the request of the State Industrial Commission, who realized the deficiencies in the medical and surgical organization for the treatment of industrial accidents. Because of the lack of adequate funds, the Committee could not pursue the study in the detailed and intensive way which this whole subject urgently demands.

Medicolegal Notes.

Expert Testimony as to Permanence of Injury.—The Missouri Supreme Court holds, citing cases from various jurisdictions, that, "while an expert may express his opinion as to whether or not an injury is permanent, his answer, in order to stand the test of judicial criticism, must show that the result which he has indicated will follow to a reasonable degree of certainty. In other words, his opinon is incompetent if based upon a mere possibility as to what may occur in the future." And in a personal injury case, the admission of opinions given by a medical witness to the hypothetical questions propounded to him by plaintiff that a limp the latter suffered from possibly might be permanent, assuming in good faith the party was not putting the limp on, was prejudicial to the defendants and should have been excluded.—Mahany v. Kansas City Rys. Co., Missouri Supreme Court, 228 S. W. 821.

Privileged Communications Between Physician and Patient—Waiver—Burden of Proof.—In a personal injury case, where the injury was to plaintiff's eyes, the Circuit Court of Appeals, Ninth Circuit, holds that for the plaintiff to testify that a doctor treated him and put drops in his eye was not to testify concerning communications made by him to the doctor, and it did not amount to waiver of the privilege conferred by the Arizona statute as to privileged communications, since "testimony that does not recite the communication works no waiver." The question whether the testimony was privileged was held to be a question for the trial court, and it was proper for that court to hear testimony preliminary to determining it. It has been held that, upon a conflict of evidence, the decision of the trial court upon the question of the existence of the privilege must be deemed conclusive, and that the discretion exercised by that court is not the subject of exception. The general rule is that the burden of proof to establish the existence of the privilege rests on him who claims it. But although the burden was on the plaintiff to establish the privilege, and the trial court found the evidence evenly balanced, the exclusion of the testimony was held not erroneous, since there is a presumption that where a physician makes an examination of an injured person the relation of physician and patient exists with regard to the examination. (Citing Munz v. Salt Lake City R. Co., 25 Utah; Hager v. Shindler, 29 Cal., 47; Sharon v. Sharon, 79 Cal., 633; Moore v. Bray, 10 Pa., 519; McIntosh v. Moore, 22 Tex. Civ. App., 22.)—Phelps Dodge Corp. v. Guerrero, 273 Fed., 415.

Medical Evidence as to Cause of Tetanus.—In a proceeding under the Michigan Workmen's Compensation Act for compensation for a death, it appeared that the deceased while at work on December 19 stepped on a steel shaving, which entered his foot near the little toe. He worked until December 25, when he became ill and died on December 29 of tetanus. It developed during the hearing in the proceeding that the deceased had on December 1 punctured his foot with an old nail while working in his cellar. It was argued that this might as well have caused tetanus as the later injury. The medical witnesses testified, however, that the deceased died from acute tetanus, and that acute tetanus usually develops in six or seven days after the injury and not longer than nine days. If this were so, the court said that his death must have been caused by the subsequent injury, as the first injury occurred over three weeks before the disease manifested itself. It was shown by cross-examination of the medical witnesses that the nail injury might have produced chronic tetanus, and, had it not appeared by positive testimony that the deceased died from acute tetanus, the argument might have had some force. In view of the evidence, the Accident Board's award was affirmed.—Bresee v. Clark Equipment Co. (Mich.), 183 N. W., 19.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, October 29, 1921.

THE THERAPEUTIC UTILIZATION OF SHOCK.

THIS is the title of a section of the monograph by Madinaveita on the subjects of anaphylaxis and colloidoclasis, which has recently been published in Madrid. The author accepts Widal's theory of the colloidoclastic nature of the anaphylactic shock. The term proteinotherapy is somewhat vague and susceptible of different interpretations, but in all forms there is an introduction into the blood of heterologous albumin. The quantity and quality of the protein as well as the route of administration are susceptible of much variation. An intravenous injection of a certain amount of peptone will tend to render the blood incoagulable, but injected hypodermically, the opposite result is obtained. A massive intravenous injection will cause shock, while small amounts injected slowly may be made to immunize against shock. Proteinotherapy, however, is only a chapter of the much larger subject of colloidotherapy, and is not specific. It comprises the prevention as well as the therapeutic production of shock. Proteinic shock may be provoked by injecting the patient's own serum. A short latent interval is followed by the so-called hemoclastic crisis of chills and fever, low tension pulse, and tachycardia, which soon passes off. If a few injections of dilute serum are first practised the shock is much less intense. But the same result may be obtained with colloidal metals, peptone, milk, human plasma, specific antitoxins, and bacterial vaccines. The results in occasional experiences are striking and in bacteriemias the blood may clear up for the time and even in rare instances without recurrence. No such results as these have ever been obtained in medical practice. Seemingly specific through the promptness of the action, it has been learned that this promptness and efficiency are bound up in the colloidal nature of the phenomena; for colloids do not behave like the usual crystalloids of the pharmacopœia.

These results, even if rare in practice, are thought to be so important that the future may witness a pharmacopœia made up very largely of colloids. And since there is rather a colloidal state of all matter than a distinct class of colloidal substances, we are looking forward to a colloidal form for our old crystalloidal remedies and explaining therapeutic results—for example, those of arsphenamine—by a colloidal hypothesis.

These substances which induce colloidoclasis are also regarded as nonspecific antigens which induce the formation of antibodies and make immunity possible. In artificial bacteriemias we may see a rapid bacteriolysis the nature of which is not yet entirely clear. It may be an exaggeration of ordinary leucocytosis in which much lytic material escapes from the white corpuscles or it may be due to adsorption of the bacteria to the colloidal particles injected. But despite the brilliancy of the occasional result we are as yet quite unable to control the treatment by selecting the optimum conditions of colloid, dose and precise manner of exhibition.

ARTHROPATHIES FOLLOWING FRACTURES NEAR THE JOINTS.

A JUXTAFRACTURAL arthropathy is occasionally the consequence of too prolonged immobility and it is always increased by an exaggeration of this necessary treatment. The condition is a serious matter in elderly subjects, arthritics, alcoholics and in all persons infected by the gonococcus, staphylococcus, or tubercle bacillus. The prognosis of the fracture itself becomes a secondary matter when the juxtafractural arthropathy develops into ankylosis. Hydrohemarthrosis is the natural initial lesion of this morbid process. The intraarticular exudates therefore present less importance than plastic infiltration of the tendons, fibrocartilage, and dense cellular tissue which reinforces them in the entire circumference of the joint. Sclerous transformation of all these fibrous structures will invariably end in the so-called fibrous ankylosis. In these same periarticular areas the osteoblasts extend beyond the bone surfaces and form stalactites whose grouping will set up a definitive osseous ankylosis.

Pain rarely attracts attention at the onset of a juxtafractural arthropathy, and for this very reason the joint should be attentively examined before the patient complains of pain. A hydrohemarthrosis is usually painless, as it causes but a slight distention of the articular synovial membrane. The infiltration of the fibrous tissues can be recognized by the effacement of the regular form of the parts, the doughy consistency of the structures involved, and, above all, by the decrease in the amplitude of all the movements of the joint.

Juxtafractural arthropathies can be forestalled if immobilization of the limb be interrupted every four to twelve days, according to the case, in order to intercalate, with all necessary precaution, a séance of systematic mobilization by very few maneuvers. When a fibrous ankylosis has formed, it can be somewhat improved by energetic massage and the application of rubber band compression of short duration and local in its effects. The adhesions can be broken up by forcible maneuvers, fixing the root of the limb and taking all necessary

care for avoiding rupture of the callus. The séances of rupturing the adhesions are to be followed by immediate immobilization of short duration. The adjuvant measures consist of methodical massage of the muscle masses connected with the joint involved, as well as by hot douching, local hydromineral baths, and vapor baths. It is always proper to resort to gymnastics and mechanotherapy. A juxtafractural arthropathy ending in bony ankylosis is usually looked upon as a definitive condition; it is this complication which constitutes a real infirmity and it is on this account that fractures near the joints have a really serious prognosis.

ARE DOCTORS EASY MARKS?

THE attitude of those individuals known as "business men" toward physicians is somewhat ambivalent. On the one hand, men of affairs bring their most intimate problems, physical and psychical, to the family physician and are guided by his advice, not only in the regulation of their individual economy, but often even in their domestic relations. On the other hand, when it comes to business affairs, this same wise counsellor is presumed to be either too good-natured or too imbecile to take care of himself; no one in his senses, for example, would think of making a physician executor for an estate. Now and then the name of such a one is found on a list of bank directors, but only because its owner is well-known in the community and his name adds a dignified touch to the stationery.

Any practising physician knows that if he were to read carefully the investment circulars which reach him through the mails he would have time for little else, and if he could realize only one-tenth of the promises made therein, implied or otherwise, he could give up his practice entirely. We can imagine the promoters of any new wild-cat scheme gathering about the mahogany, planning their sucker list. "Well," says one of them, "we have around 150,000 to start with, anyway," and he pats the medical directory close at hand.

As an instance of the schemes which are considered sufficiently plausible to persuade a physician to part with his funds, we note the recent experiences of some of our British colleagues with a certain enterprising young man. This individual represented himself as an insurance agent, but added to the usual line of patter a broad hint that if the doctor took a policy in his company he, the agent, would be able to give him a number of examinations to make. Some physicians were too busy to listen to this siren song, and were saved, a few were suspicious and held off, but many fell a prey to the glib "agent" and paid the first premium on a policy which never arrived. One physician learned of the deception only when he was hurt in an automobile accident and wrote to the company for compensation. The only compensation he received was the knowledge that it is dangerous to pay out cash to smooth-tongued strangers.

If we come to analyze this popular estimate of the physician as an easy mark; it would seem to be based on three things: First, his income is somewhat vaguely regarded by the thoughtless as coming under the category of easy money; secondly, he is supposed to have at least sufficient money to have some to invest, and thirdly, he is regarded as essentially unbusinesslike.

Possibly there is some justice in this last indictment. If so, it is probably due to many causes which are perhaps too familiar for repetition here. Not the least of these is the confusion which exists in the minds of certain of the laity, between regard for ethical standards and lax business methods. While it is unfortunate that the practising physician's unwillingness to adopt the measures of a cheap credit store should be exploited by unscrupulous patients, it is probably better in the long run to hold to the old standards. There is no necessity, however, for him to become a prey to swindlers. If he would take each $500 or $1,000 or $10,000 to his banker and invest it exactly as the latter advises he would soon lose his reputation as an easy mark. Until he does so, let him not ridicule the layman who buys patent medicines instead of consulting a physician.

HEMOCLASTIC SHOCK AND THE CUTIREACTION.

A FEW years ago some American authors, notably Walker, brought the cutireaction into association with anaphylactic asthma. Thus the sensibilizing substance of the asthmatic crisis could be ascertained by means of cutireactions. Jacquelin and Richet, junior, of France then took up this line of investigation and wrote of cutireactions and subcutireactions in this connection. At present the subject is under investigation in the Medical Clinic of the University of Geneva, and Schiff of this clinic has reported on it briefly in the *Revue médical de la Suisse romande*, for August, 1921, xli, 8. The French authors adduce the fact that merely practising the cutireaction may cause, in addition to the local manifestation, a general one in which asthma, edema, diarrhea, or other anaphylactic phenomenon may be produced. In such cases one speaks of "asthma without asthma," etc. The introduction of an infinitesimal quantity of the sensitizing substance is sufficient for this purpose. The intolerance of the organism to the special substance is not extinguished by infinitely small amounts. The reaction due to the entrance of this substance is manifested incidentally in the blood by the hemoclastic picture which is set up. It enters the blood during the act of scarification in practising the cutireaction. One may suppose that the protein matter which is responsible passes at once into aminoacids as the result of a pseudodigestive process. If the subject is fasting at the time of the test the reaction in the blood is more pronounced. As the writer had finished his short article, he learned that the cutireaction had already been introduced into therapeutics by Pasteur, Valary, Radot, and Hagenau, who sought to desensibilize an anaphylactic subject by varying the act of cutireaction. The antianaphylactic inoculation must be repeated at short intervals.

Autosterilization of Flies.

Ambroise Paré and Mercurialis, two of the greatest medical men of the post-medieval period, believed that the fly disseminated the virus of the plague. Before the germ theory, Raimbert and Davaine accused it of transmitting anthrax. But it was one thing to accuse the fly and another to "get the goods on him." Cao fed germs to maggots and found them in the adult flies, but this and many other researches were interesting rather than convincing. The insect has a very varied flora, and to make researches which will withstand all criticism it becomes necessary to breed a race of aseptic flies. This kind of work is being done at present by Wollman of the Pasteur Institute, according to a note in *La Presse Médicale* for August 31, 1921, xxix, 70. It was shown that the larvæ when contaminated by the ordinary pathogenic germs of human stools, became sterile again with development. Both the pupa and mature insect were found free from contamination. The early experiments in this direction are therefore discredited. The adult fly after contamination with the same bacteria remained infected for a short time—not over three weeks. Apparently they become free from contamination much sooner under natural conditions. This autosterilization comes about by ordinary mechanical means—regurgitation and defecation. Hence in each of its three stages of development the fly can sterilize itself after a short interval. Naturally during its 8 or 10 days of contamination the adult fly may theoretically be dangerous to its human entourage. The doctrine that the fly is dangerous because microorganisms are borne about by its feet is not mentioned in this connection, for the possibility of food contamination in this way has been amply demonstrated.

News of the Week.

Child Health Exposition in France.—The American Red Cross "Child Health Exposition," covering practically every department of child welfare, which has been touring the larger cities of devastated France since May, closed its season the week of October 10 at Valenciennes. During the past five months it has "shown" for periods of two to three weeks in six French cities, Lille, Roubaix, Tourcoing, Cambrai, Douai, and Valenciennes, besides a month in Paris. The attendance at the exposition has averaged about 5,000 persons daily. Several French and American organizations joined with the American Red Cross in providing the various specialized departments. The American Committee for Devastated France, the Bordeaux Training School for Nurses, the French Red Cross, and the Jardin des Enfants, were among the cooperating organizations. A feature of the exposition was the enthusiastic and unanimous support it received from the French medical profession in every city. Every local physician gave his services without charge, and most of them were occupied for nearly half their entire day throughout the period of the exposition, in the arduous work of lectures, examinations, consultations, measurements, and the judging of babies. Ample quarters for the exposition were furnished in each case by the municipal authorities—usually in a public school building or municipal exhibition hall. Each morning hundreds of school children were taken through the exposition by their teachers. It is expected that the exposition will be continued next summer under the exclusive management of the French child-health organizations.

Beer and Wine for Medicinal Purposes.—The Secretary of the Treasury has issued regulations for the manufacture and sale of beer, ale, stout, and porter for use as medicine. No more than a case of twenty-four bottles can be ordered on one prescription, but the prescription can be renewed as often as the physician deems necessary. Wine also may be furnished in amount not to exceed two quarts, but there is no limit as to the frequency of renewal of such prescription. The wine and beer can be prescribed only by a physician licensed to prescribe alcohol, and can be sold on prescription only by retail pharmacists licensed to sell alcoholic liquors.

Sir Harold Stiles at the Philadelphia Medical Club.—A reception in honor of Sir Harold Stiles, Regius Professor of Clinical Surgery in the University of Edinburgh, was held on the evening of October 21. The guest of the club advocated a system of intereducation between the United States and Great Britain, through an interchange of professors and students in the universities of the respective countries.

Smallpox in Wake of Cholera.—A despatch from Riga to the *Associated Press* reports that smallpox has appeared in the wake of cholera, typhus, and famine at Tsaritsyn, in the Russian Volga region. A serious epidemic is raging and compulsory vaccination has been resorted to.

Haiti Passes New Vaccination Law.—A law has been passed in Haiti requiring that the doctor or other person attending the birth of a child shall cause his vaccination within one to three months after birth. Free vaccination is to be provided by the National Public Health Service and the hospitals and dispensaries subsidized by the State. Certificates will be given to those who have been vaccinated successfully and to those who have been vaccinated six times without result. Vaccination must be repeated every seven years.

The First Public Surgical Operation Under Ether.—Exercises to commemorate the seventy-fifth anniversary of the performance of the first surgical operation under ether in the Massachusetts General Hospital, were held in Boston on October 16. The first demonstration of a surgical operation under ether was given in the Massachusetts General Hospital on October 16, 1846, when Dr. William T. C. Morton administered the anesthetic and Dr. John C. Warren operated.

United States Marine Hospital in Seattle.—Fort Lawton military reservation on Magnolia Bluff will be recommended by Surgeon General Hugh S. Cumming as the site for a $1,000,000 marine hospital in Seattle. It is proposed to erect an institution that will accommodate about three hundred patients.

Child Relief Exhibit in Vienna.—The American Child's Relief, which is still feeding 400,000 Aus-

trian school children, is giving an interesting survey of its work in an exhibition in the Belvedere Palace in Vienna. Models and photographs show how the work of feeding this large number of children was carried on, and maps and schedules indicate the results of the first medical examination made under American supervision and of subsequent ones.

Bonesetter Must Have License.—In Massachusetts a bonesetter to practise his profession legally must have a license from the State board of registration in medicine. This decision was handed down by the full bench of the Supreme Court of Massachusetts on October 12, in overruling an exception that had been taken by Henry J. Dragon, who was found guilty in Hampden County Superior Court of practising medicine without a license.

Art Exhibit of New York Hospital.—The Society of the New York Hospital, which celebrated its one hundred and fiftieth anniversary with exercises in Trinity Church on October 26, is giving an exhibit of its art collection in the New York Public Library, at Fifth Avenue and Forty-second Street, during the week following the celebration. More than fifty portraits will be exhibited, several by well known colonial artists, besides a large number of prints and numerous early medical books. Among the portraits which will be publicly shown for the first time are those of Dr. Samuel Bard, Dr. Valentine Mott, Dr. David Hosack, Dr. John Cummings Cheesman, and Dr. Samuel L. Mitchell, all of whom have been prominently associated with the hospital.

The New York Electrotherapeutic Society will hold its next meeting at the New York Academy of Medicine on Wednesday, November 2, at 8.30 P. M. Dr. G. Betton Massey of Philadelphia will read a paper on "Rhythmic Electric Waves in Gynecology," and Dr. Barton Cooke Hirst of Philadelphia on "The Uses of Electricity in Conditions Peculiar to Women." All physicians are invited.

Chilean Scientist Claims to Have Discovered the Smallpox Germ.—According to a despatch from Santiago de Chile to the *New York Times*, Dr. Atria, chief bacteriologist of the Chilean Institute of Hygiene, claims that he has discovered the pathogenic microorganism of smallpox.

Open Clinic Day in Brooklyn.—National Homeopathic Clinic Day, set apart by the American Institute of Homeopathy as an occasion when the public is invited to see what the doctors are doing in their clinics, was celebrated on October 18. This idea had its inception in Brooklyn and was celebrated by several Brooklyn hospitals. In the evening there was a mass meeting to which the public was invited and addresses were made by Drs. Royal S. Copeland of New York and H. L. Northrup of Philadelphia.

Hale and Hearty at 106 Years.—Robert Barnabe of Ottawa, Canada, was 106 years old on October 10, and performed his chores about the house as usual. His mother lived to be 110, he has a sister 93, and a brother 94 years of age, both hale and hearty.

Comparative Mortality Rates of New York and Large Cities of Europe.—The New York Health Department has made this statistical study which shows that of the cities of western Europe Florence, Italy, has the highest death rate, 20.48 per 1,000 population, as compared with a rate of 11.07 for the city of Amsterdam, Holland, with a population more than two and one-half times as great as that of Florence. The second highest death rate is that of Vienna, 18.56, due to the exceedingly high death rate from pulmonary tuberculosis and the high death rate among infants under one year of age. Death rates of other cities are as follows: Liverpool, England, 16.44; Berlin, 16.04; Hamburg, 13.83; Düsseldorf, 13.20; Cologne, 14.11; Leipzig, 14.17. The English cities of Birmingham, Bradford, and Manchester show the low rates of 12.54, 13.31, and 12.99, respectively. Paris shows the rather high rate of 14.83. New York and London approximate each other very closely, these being, respectively, 12.93 and 12.65.

American Pharmaceutical Association Makes Research Grant.—The annual grant of the American Pharmaceutical Association has been awarded to Professor David I. Macht of Johns Hopkins University, Baltimore. The grant is the income of $20,000, to be used by Professor Macht for the continuation of his researches on certain synthetic compounds which have a sedative action and have successfully replaced opium. Dr. Macht will give special attention to the study of the benzyl compounds as related to the production of local anesthesia.

Hospital Notes.—The maternity department of the St. Francis Hospital, San Francisco, housed in a new addition to the building, was formally opened on October 5. The new department provides sixty-five beds.

Work will be started at an early date on the new Robert H. Crozer Hospital at Chester, Pa.

Construction of the Shriner's Hospital for Crippled Children in San Francisco, recently authorized by the Hospital Committee of the order, will begin within a few weeks. The edifice will cost $225,000. It is one of five similar institutions to be erected in various cities.

The Beebe Hospital at Lewes, Del., was formally dedicated on October 20.

Ground will be broken for the new Jamaica Hospital in the Borough of Queens, N. Y., in the latter part of October. The new building will be erected on Van Wyck Avenue, where it will be centrally located for the convenience of Woodhaven and Richmond Hill as well as Jamaica.

Dr. Clyde LeRoy Deming has been appointed assistant professor of surgery in charge of the urological department at the Yale Medical School.

Dr. George Herbert Ramsey, formerly of New York, has been appointed deputy commissioner of health in Michigan.

Professor A. Lorenz of Vienna expects to visit America at the end of the present month. His proposed visit is intended to mark his appreciation of what America has done for the children of Vienna. He states that he intends to offer his personal professional services to the children of poor parents who may require his attention and surgical help.

Dr. F. F. Williams of Canton, N. Y., has been elected president of the St. Lawrence County Anti-Tuberculosis Society.

Dr. Stephen Smith of New York will receive a gold medal on November 14, when the American Public Health Association meets. The medal will record Dr. Smith's active participation in the affairs of the society which he founded fifty years ago.

Dr. C. E. Beeman of Grand Rapids, Mich., has sailed for India for the purpose of studying cataract in that country where this condition is very prevalent.

Gifts and Bequests.—The new Fifth Avenue Hospital, New York, has received a gift of $20,000 from Mrs. E. C. Converse of Greenwich, Conn., and one of $60,000 from an anonymous donor.

By the will of the late Emily Dutilh of Philadelphia bequests are made as follows: Episcopal Hospital, $10,000 for the endowment of two beds and $500 for the erection of two tablets as memorials for the testator's father and mother; Woman's Hospital $5,000, American Oncologic Hospital $3,000, Home for Incurables $3,000, Visiting Nurse Society $3,000, Children's Seaside Home at Atlantic City $3,000, Seaside Home for Invalid Women at Atlantic City $2,000, Children's Hospital $1,000, Home of the Merciful Saviour for Crippled Children $1,000, Christ Home for Children at Angora $1,000, Frederick Douglas Memorial Hospital $500.

Vacancies for Physicians at Jewish Memorial Hospital.—At a meeting of the Board of Directors of the Jewish Memorial Hospital, New York, on October 10, it was decided to increase the staff of the hospital. An opportunity is presented to physicians residing in the Washington Heights and Inwood sections to affiliate themselves with this institution. Physicians desiring to become associated with the institution should address the Jewish Memorial Hospital, 2076 Fifth Avenue.

Lecture Course for Montclair Physicians.—The Associated Physicians of Montclair and its vicinity, who conducted lectures and meetings last season, announce that they propose to continue these meetings during the coming season. The dates of these meetings are November 28, December 19, January 23, February 27, March 27, April 4, and May 22. A number of well known men are scheduled to speak on these occasions.

Obituary Notes. — Dr. CHARLES L. MCCANN of Brooklyn, N. Y., a graduate of New York University Medical College in 1871, died of heart trouble on October 19, at the age of seventy-four years.

Dr. FRANCIS PELEG SPRAGUE of Boston died suddenly on October 6, at the age of eighty-seven years. He was graduated from Harvard University in 1857. During the Civil War he served as acting assistant surgeon in the United States Army. He was surgeon at the Massachusetts Charitable Eye and Ear Infirmary, a member of the American Ophthalmological Society, and of the Boston Society for Medical Improvement.

Dr. C. ALANSON PALMER, for twenty years a practising physician of Brooklyn, died of pericarditis in Passaic, N. J., on October 17, at the age of forty-nine years. He was graduated from the Baltimore Medical College in 1895.

Dr. MARCUS C. KERR of Wilkinsburg, Pa., died in a local hospital, on October 9, of injuries sustained in an automobile accident. He was a graduate of Starling Medical College, Columbus, Ohio, in 1892. He was fifty-eight years of age.

Dr. ELI DENNY of Nassau, N. Y., a graduate of the Eclectic Medical College of New York in 1888, died suddenly of heart disease on October 4, at the age of sixty-five years.

Dr. JOHN L. JONES, a graduate of the Louisville Medical College in 1872, died suddenly of heart disease in his office in Los Angeles, Cal., on September 29, at the age of seventy-five years.

Dr. FRED C. PURCELL of Jamestown, N. Y., was killed in an automobile accident near Blasdell on October 12. He was a graduate of the University of Buffalo Medical College in 1903, and was forty-four years of age.

Dr. HERMAN A. BRAY of Philadelphia, a graduate of the Medico-Chirurgical College, Philadelphia, in 1898, died on October 12, at the age of fifty-one years. He was a Fellow of the American Medical Association and a member of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society.

Dr. CHARLES MILLER FOSS, a graduate of Hahnemann Medical College and Hospital, Philadelphia, in 1868, died of Bright's disease at his home in Bangor, Me., on October 9, at the age of seventy-four years.

Dr. ISAAC DARR of Morley, Mich., a graduate of the Medical College of Fort Wayne, Ind., in 1880, died suddenly on October 15, at the age of sixty-seven years.

Dr. GUSTAVUS A. ASCHMAN of Wheeling, W. Va., a graduate of the University of Zurich, Switzerland, in 1884, died on October 2, at the age of sixty-one years.

Dr. GEORGE E. WASHBURN of Augusta, Me., a graduate of Bowdoin Medical College in 1898, died of pneumonia on October 14, at the age of forty-six years.

Dr. DANIEL S. GROSSMAN of Leighton, Pa., a graduate of the University of Pennsylvania School of Medicine in 1877, died suddenly on October 6, at the age of seventy-two years.

Dr. JOHN F. HARRIS of La Crosse, Wash., died in a local hospital on October 6, at the age of sixty-nine years. He was graduated from the Medical Department of the National University of Arts and Sciences, St. Louis, Mo., in 1882.

Correspondence.

THE RED CROSS TEACHING CENTER FOR THE INSTRUCTION OF DIABETICS CONCERNING DIETS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The object of this communication is to inform physicians of New York concerning the activities of the Red Cross Teaching Center for diabetics, at 24 Fifth Avenue, corner of Ninth Street. The chief aim in the treatment of diabetes mellitus is to secure for the patient a diet suitable to his individual requirements. And the prime difficulty in this endeavor is the instruction of the patient so that he can carry out explicitly the directions of his physician. This instruction of the patient in the execution of his physician's orders is the func-

tion of the dietitian of the Teaching Center. For all cases of diabetes, excepting the milder types of the disease, it is necessary not only to prohibit some foods entirely but also to place definite restrictions on the amount of all food eaten. A restriction in amount requires a method of measurement and it also requires a knowledge of the chemical composition of foods of which most patients, and many physicians, are ignorant. Few physicians except specialists command the services of dietitians and few patients are able to pay for these services. This is the need the Teaching Center is endeavoring to supply.

The way in which the Center actually functions in practice is illustrated by our methods in the wards of the New York Hospital. After the initial steps necessary to free the urine of sugar and reduce the blood sugar, we commence the process of building up gradually a suitable diet. The patient is then sent to the Center daily for a few elementary instructions necessary, because the majority of patients are completely ignorant. As the time for the patient's discharge from the hospital approaches, the dietitian of the Center is informed of the patient's tolerance and the composition of his present diet. The diet is prescribed like a drug, for example: Protein 60 g., Fat 100 g., Carbohydate 40 g. The dietitian at the Center instructs the patient how to transform this prescription into a daily food allowance. Scales are not used; instruction is all carried out in units of cupfuls and tablespoonfuls. In this way, when the patient is discharged he is fully informed, not only as to the character of the food which he may eat, but also the amount of food which is permitted. The patient then may be referred back to his physician or, if he have none, the course of his disease may be observed by having him report back to the hospital periodically in the Follow-Up Clinic.

A small number of physicians in the city have availed themselves of the services of the Teaching Center for their poorer patients, but not as many make use of it as should. The largest number of diabetics are treated, of course, by the general practitioners and the services of a dietitian would be to them an especial advantage. In a few instances patients have been sent to the Center with very vague directions from the physician as to the diet which he desired the patient to have. Of course it is not sufficient to indicate that the patient needs a diabetic diet; this meant something fifty years ago but it does not today.

In handling new cases, or cases that have not been adequately treated, a physician's first desire is to free the urine of sugar, if that can possibly be done. The Teaching Center may be of great service in aiding the physician to do this. He might, for example, prescribe a relatively low diet in respect to carbohydrate and fat, leaving the protein ratio adequate only for the weight of the patient—the usual allowance, a gram per kilo. The dietitian would teach the patient how to make this restricted diet and the doctor could observe the result for the next few days or weeks, as he saw fit. If he desired, it might be interpolated by fast days, or a period of fast, or if he wished a sharp curtailment of the diet in respect to protein, this could easily be effected by eliminating certain articles of food for a definite period. It is probable that by manipulation of the diet in this way the majority of patients would be free of glycosuria after a brief interval. The physician could then direct the dietitian to increase the diet in respect to some one food ingredient, either carbohydrate or fats, for example. In this way the patient would be correctly treated in the first place and the physician would be constantly conversant with exactly what the patient was receiving in his diet. Very few physicians have the time or the interest to write out laboriously a list of diets representing variations in carbohydrate, fat, and protein and the caloric values of these diets. By an intelligent use of the Teaching Center the necessity for this is done away with.

In the case of a few very severe diabetics it probably will not be possible for physicians to conduct the initial steps of the treatment in the way outlined above, although the attempt might be made. Such cases usually can be handled only in the hospital during the first few weeks of their treatment.

The functions of the Teaching Center are not confined to the teaching of patients, or relatives of patients, suffering from diabetes, but includes all forms of dietetics. I have put the emphasis on diabetics because the treatment of that disease is in a large measure standardized. There is no dissent among intelligent physicians as to the ultimate aim to be sought and, in general principles, the methods of treatment.

NELLIS B. FOSTER, M.D.

NEW YORK.

A CASE OF MONKEY GLAND TRANSPLANTATION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In justice to the New York Diagnostic Clinics and Dr. I. Mufson, who made an electrocardiographic examination of Mr. Irving Bacon at the request of Dr. Thos. W. Edgar, we trust that you will give publicity to the following facts:

Upon Oct. 15 Dr. Edgar phoned the clinic requesting that we make an electrocardiographic examination of one of his patients. The patient's name was not mentioned. Later the above named patient, accompanied by Dr. Edgar, appeared for an electrocardiographic examination. This was performed, but the report had not been sent, when the following day there appeared in the Sunday edition of the *New York American* an article relative to the operation upon Mr. Bacon, in which it was stated that "Dr. I. Munson of the New York Diagnostic Clinics, on West 72d Street, would prepare the cardiogram." It was Dr. I. Mufson, not Munson, who made the examination.

Upon the appearance of this undesired and what we consider unethical publicity, a letter was sent to Dr. Edgar, of which a copy is enclosed.

Dear Dr. Edgar:

Enclosed please find check for $6.00, being refund of the fee for an electrocardiographic examination made of Mr. Irving Bacon.

These instructions are being followed inasmuch as an unauthorized and what is considered an unethical use of the names of both this institution and the physician making the examination, has been made.

Had we been informed that newspaper publicity

would be given this examination, we would have refused examining the patient.

We believe further comment on the case is unnecessary.

S. UNDERNDORFER,
Secretary, New York Diagnostic Clinics.

OUR LONDON LETTER.

(From Our Own Correspondent)

LONDON, Oct. 6, 1921.

Post-Graduate Medical Education in Great Britain.—The report of the Post-Graduate Medical Committee appointed by Dr. Addison, the Minister of Health, is issued now in pamphlet form. The report begins by summarizing the provision made for post-graduate medical education in the past. It may be said that Sir Jonathan Hutchinson, that man of remarkably original mind, was the pioneer in this matter in the early nineties, he established the polyclinic in London, and as is well known more recently the Fellowship of Medicine has attempted to carry on the good work and to render the necessary facilities more accessible. However, the report makes it perfectly clear that the present organization is far from satisfactory and that much more must be done ere suitable provision can be said to exist. Attention is rightly drawn to the fact that the continent of Europe, and Vienna in particular, has for a long time been regarded as the place where medical graduates can most easily secure what they need in the way of general and specialized instruction. The report lays emphasis upon the fact that an opportunity now presents itself for providing in this country a center at which students from overseas, whether from our own colonies, from America, or from foreign parts may find facilities for post-graduate medical instruction and that London, with its unique supply of clinical material and its 38,000 beds seems singularly well placed to provide such a center. Another interesting feature of the report is the suggestion somewhat emphatically put that cottage hospitals should be used to a greater extent than at present for increasing the experience and efficiency of general practitioners. The report states that it is desirable that all practitioners within the area served by a cottage hospital should have the facilities, if they wish, to bring their own cases into the wards and to attend them there. In this way better treatment would be secured for the patient, while the general practitioner would have an opportunity of consulting with his professional colleagues. The main recommendation made in the report, however, is for the establishment of a Central Post-Graduate Hospital and School which should be devoted to post-graduate work. It is not recommended that a new hospital should be built. The hospital should be one equipped in an up-to-date fashion with at least 300 beds, with a fully developed out-patient department. Associated with this central hospital and school would be the great special hospitals of London. It is suggested that one of the existing undergraduate schools might be converted into such a center. The committee also recommend the institution of a central office, which would link up post-graduate study in Great Britain, and in due course with that of the continent of Europe and America. This central office should be in charge of a whole-time principal officer and its committee of management should be responsible for the organization of the system as a whole. Attached to, and as part of, the central office, there should be provided social facilities in the shape of reading rooms, a restaurant, and a library of periodicals. A hostel for the convenience of medical men attending the courses from a distance would also be desirable. The suggestion is further made that public health postgraduate work should be concentrated in an Institute of State Medicine connected with the University of London and under its administration. The institute, in addition to providing instruction in public health, would furnish courses in forensic medicine, in toxicology, and in industrial medicine. It would accommodate students from overseas and foreign countries and create a link between them. The scheme proposed and sketched above would involve an annual charge of £28,000. Support from local rates will not be expected. Inasmuch as the School and Institute are proposed as constituent parts of the University of London, they will be eligible for inclusion in the list of grant-aided university institutions for which money is already provided by the National Treasury through the University Grants Committee. If this scheme were carried out in its entirety quickly there would be a chance of London becoming a great or even the great European medical postgraduate center. But, while schemes have been put on paper not very much has been done to bring them to fruition. For longer than two years the matter has been discussed and still lags in a disappointing manner. There appears to be a lack of enthusiasm among the bulk of London practitioners with regard to the scheme and also no doubt a lack of money to forward it to completion. But when one hears that Vienna, notoriously the poorest large city of Europe, is again becoming established as the chief European postgraduate center and that Americans are flocking thither to put a coping stone on their medical and surgical knowledge, one cannot but fear that London will miss the opportunity of being regarded as the Mecca of overseas postgraduate medical students.

Opening of the Medical Schools.—Westminster Hospital Medical School opened for the winter session on Sept. 30 last. Dr. Adolphe Abrahams, assistant physician to the hospital, gave the introductory address, dealing with advantages and drawbacks of a small medical school and with the question of coeducation in medicine. The speaker thought that one feature of large medical schools which tended somewhat to detract from their value was the great attention paid to athletics and to the social aspect generally. The smaller schools not having many distractions of this kind were able to concentrate more thoroughly on medical study and training. But the part of the address of the greatest interest was that in which he discussed the problem of women medical students. It was pointed out that on account, mainly, of the great rush of students to the larger schools few women were admitted and for the most part the large schools had not yet opened their gates and offered the same conveniences for

study to women students. On the other hand, the smaller schools were not in the same position as the larger schools, with the privilege of picking and choosing, and if the latter had had to refuse admission to women students these had naturally turned to the smaller schools. Dr. Abrahams was unable to make up his mind as to whether co-education in medicine was desirable and drew attention to the fact that, teachers of profound experience had not hesitated to express their conviction that it was not possible to lecture, or demonstrate with equanimity on certain subjects to a mixed audience, although no embarrassment occurred if the class at one time were wholly young men or young women. He had no intention of proceeding with a discussion of this nature, but it was clearly necessary to mention it as one particularly affecting the smaller school, whose male entries might in consequence be prejudiced.

At the opening of King's College Hospital, on Sept. 30 last, the Dean of the Medical School, Dr. H. Willoughby Lyle, in his annual report referred to the closing of 160 beds, and pointed out that in spite of this they had 241 unqualified students, the largest number they ever had. Included in this number were ninety-three women.

The opening of the winter session of the London Royal Free Hospital School for Women took place on Oct. 3 last. The Dean, Miss Aldrich-Blake, who presided, welcomed the sixty new students and said those of them who read the newspapers might be feeling a little anxious as to the prospects of women in the career they were adopting. The admonitions, which largely came from men, seemed to take the line that if there was a great deal that wanted doing women might come and do it, but if the work were less in amount or less pressing, then women should retire to the domestic or other occupations. The workers of the world might roughly be divided into two classes, those who did some sort of productive work and those who served the producers. Undoubtedly, in medicine they were among those who served, and it appeared to her to be the part of the public alone to choose by whom they would be served. So far as her own experience went, she rarely found that those who were good and industrious lacked opportunities to develop their talents. Dr. Louisa Martindale delivered the inaugural address and referred to recent criticisms in the press and elsewhere as to the need for women doctors, their capabilities, and the attitude of the public toward them. Dr. Martindale dealt with several points in the recent report of the principal medical officer of the Ministry of Health, and pointed out to the students that unless there was a very radical change during the next few years, some of them would later on find their life work in service connected with national health insurance. She believed many of the students of to-day would be the radiologists of the future, having under their care many cases of cancer that to-day they were attempting to treat surgically. It was there in the treatment of cancer that women doctors would be most useful, and, if for no other disease than this, the existence of the woman doctor seemed justified. Their only check was their inability to get appointments on the honorary staffs of some of the more reactionary of the general hospitals. This had necessitated the establishment of women's hospitals, but with the further development of the modern hospital they might hope that this disability would die a natural death, and that gynecology would fall more and more to the woman doctor. In conclusion, Dr. Martindale said that the present-day student would never reach anything like her ideal of being an efficient and useful doctor unless she knew something of the world in which she and her patients lived. She must read widely and keep in touch with current politics, literature, and municipal life. She must remember the importance of good manners and suitable and pretty clothes, for it was unnecessarily annoying to a patient to have to look at slovenly things. Character, in the end, would carry further than brains. She had no doubt that the next few years would see many developments in the modern hospital, but whatever the development might be, she was sure there would be ample opportunities for the woman doctor.

Reduction of Infantile Mortality.—Dr. Amand Routh, consulting obstetric physician at Charing Cross Hospital, delivered, on Oct. 3 last, a lecture on "Antenatal Hygiene" in Morley Hall, Hanover Square, London, in which he paid a tribute to the work of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy under the supervision of its secretaries, Dr. Eric Pritchard and Miss Halford. He said in part that the National Association for the Prevention of Infant Mortality, with the financial assistance which the Ministry of Health had given, had been the main agency in achieving the great reduction in infant mortality and the better health of infants which was the feature of the past decade. In 1920, of 76,552 infantile deaths, rather less than in the previous year, nearly 10,000 occurred in the first twenty-four hours of life and 11,000 in the next six days. It amounted really to 20,900 deaths in the first week or over one-fourth of the infantile deaths for the whole twelve months. In the first month there were 33,600 deaths or well over one-third of the total for the year. In order to lessen that great loss to the nation he suggested that every expectant mother should get medical advice and that the state should help in necessitous cases, so that the expectant mother might be able to cease industrial work and have financial help as well as medical supervision.

Anthrax from Shaving Brushes.—There has occurred recently a death near London from anthrax contracted from an infected shaving brush. The infected brushes are believed to come from Japan, and, although the importation of such brushes was forbidden by the Government more than a year and a half ago, it is feared that there still remain in the hands of retailers large numbers of shaving brushes of Japanese origin. The Ministry of Health advise the following method of disinfection. The brush should be (a) thoroughly washed with soap and warm water containing a little washing soda and then allowed to stand for half an hour in warm water containing a little soda; (b) placed in a warm solution of formalde-

hyde for half an hour; (c) allowed to dry. However, complete sterilization of the brushes is impracticable, and this method of sterilization does not affect spores imbedded in the handle of the brush.

Obituary.—Dr. Wallis Chapman, the first woman doctor of Lincoln, has died after a prolonged illness in her fiftieth year.

Dr. John Ward Cousins, a well-known medical practitioner, died in Portsmouth on Sept. 22 last. In 1853 he entered as a medical student at St. Thomas's Hospital. In 1856 he gained the Cheselden medal and qualified M.R.C.S. Eng. and L.S.A. In 1858 he graduated M.B. at the University of London, taking the degree of M.D. in the following year. In 1859 he became F.R.C.S. Eng. After residing in London for a short time, in 1863 he was appointed to the staff of the Royal Portsmouth Hospital and to the Portsmouth Eye and Ear Infirmary. In medical politics Dr. Cousins took an intense interest. He was for many years honorary secretary of the Portsmouth division of the British Medical Association and was president of the association on the occasion of its visit to Portsmouth in 1889. He wrote on a wide range of medical and surgical subjects and invented a large number of surgical instruments, for which he was awarded a British Medical Association prize and a gold medal at the International Inventions' Exhibition.

Capt. Robert A. Flynn, F.R.C.P.I., of Dublin, gynecologist to Drumcondra Hospital, died recently in Dublin after a painful illness. He accepted a commission in the beginning of the war in the British Royal Army Medical Corps and accepted re-engagement after the armistice. He had suffered for some time from heart disease, but his sudden death came as a shock to the large circle of friends in Dublin.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 13, 1921, clxxxv, 15.

1. The Interest of the Public in Medical Education. Charles F. Painter.
2. Report of the "Schick" Test Campaign. Joseph Garland
3. Mortality in Placenta Prævia for the Last Twenty-five Years at the Boston Lying-In Hospital. Foster S. Kellogg.
4. The Operation for Prolapsus Uteri. Weller Van Hook.
5. Procidentia Recti. T. Chittenden Hill.
6. Pituitrin in the Third Stage of Labor. Roy J. Heffernan.
7. Sarcoma of Bone. Torr Wagner Harmer.

2. Report of the "Schick" Test Campaign.—Joseph Garland presents the results of the campaign that has been carried on by the Committee on Public Health of the Massachusetts Medical Society, in the interests of diphtheria prevention and control. The committee decided that it would be of value in furthering the Statewide control of diphtheria to carry on a series of demonstrations of the Schick test, with an explanation of its value and that of the subsequent administration of toxin-antitoxin to persons in whom the Schick test showed susceptibility. The writer undertook this campaign. Three hundred and eighty Schick tests have been performed and demonstrated before groups of physicians and nurses in fourteen of the large cities of the State. Of these tests 52.8 per cent. were positive, 47.2 negative, 7.1 per cent. combined, and 22.1 were pseudoreactions. These tests have therefore shown that there exists, among the more educated classes, at least, a greater susceptibility to diphtheria than has been previously supposed. In order to effectively control diphtheria, all persons over six months of age in the community should be immunized (if under six years of age), or should have their susceptibility to diphtheria determined by the Schick test, and, if proved to be susceptible, should be immunized.

3. Mortality in Placenta Prævia for the Last Twenty-five Years at the Boston Lying-In Hospital—Foster S. Kellogg has analyzed 218 cases, including complete, partial, and marginal prævias, considering them in groups for the five-year periods. The maternal mortality in these five-year periods was 17, 15, 24, 20, and 6 per cent., respectively. He concludes that they have improved their personal statistics in placenta prævia by a more frequent resort to conservative methods of delivery, especially Braxton Hicks' version and the uses of the bag, and that, while other factors have contributed to their better results, this is the most important one, and that one or the other of these methods should be used, to the exclusion of manual dilatation and extraction. He feels that these conservative methods of treatment are still insufficiently regarded by the physicians in the community. During the last five-year period bags and Braxton Hicks' version were used in 57 per cent. of the cases. Since some 20 per cent. of hospital cases get to full dilatation by the time they are seen, Kellogg feels that during the next five-year period 70 to 75 per cent. of placenta prævia cases should receive this treatment, and that with this change will come still further improvement in results. Six per cent. mortality he considers too high; it is still higher than the old German figures with bipolar version.

6. Pituitrin in the Third Stage of Labor.—Roy J. Heffernan gives the results of his experience with 100 patients observed at the Sloane Hospital for Women, New York City, to whom 1 c.c. of obstetrical pituitrin was administered hypodermically immediately after the delivery of the baby. He concludes that pituitrin administered at the beginning of the third stage of labor is effective in aiding a prompt and complete detachment and expulsion of the placenta and membranes. Tetanus uteri with incarceration of the placenta does not occur from the careful use of pituitrin in the third stage of labor. Pituitrin tends to prevent relaxation of the uterus and post-partum hemorrhage during and after the third stage of labor. Manual removal of an adherent placenta should not be attempted until at least three doses of pituitrin have failed to produce attachment. Rarely one sees a case of adherent placenta which will not respond to pituitrin. In this type of case its use obviates the danger of hemorrhage until the placenta can be removed by other methods. It was thought advisable to give ergot after the third stage to only 20 per cent. of the patients who received pituitrin, whereas in 45 per cent. of the control cases it was thought necessary.

Journal of the American Medical Association.

October 15, 1921, lxxvii, 16.

1. The Symptomatic Treatment of Pneumonia. J. H. Means and A. L. Barach.
2. The Value of Drugs in Ophthalmology. W. H. Wilmer.
3. The Use of Drugs in Neurology and Psychiatry. C. Macfie Campbell.
4. Treatment of Arthritis: Chemical and Clinical Studies with the Salicylates and Cinchophen and Neocinchophen. Arthur F. Chace, Victor C. Myers and John A. Killian.
5. Plastic Repair of the Eyelids by Pedunculated Skin Grafts. George H. Cross.
6. Radium Therapy of Teratoid Tumors of the Testicle. E. S. Barringer and Archie L. Dean, Jr.
7. Bilateral Globular Detachment of the Retina in Renal Retinitis. F. Phinizy Calhoun.
8. The Causes of Unfavorable Symptoms Following Gastroenterostomy. Logan Clendening.
9. Diagnostic and Therapeutic Aspects of Late Sequelæ of Gastric Surgery: Observations Based on Six Thousand Four Hundred Operations for Chronic Gastric and Duodenal Ulcers. George B. Eusterman.
10. Observations on Bacillus Botulinus Infection of Canned Spinach. S. A. Koser, R. B. Edmonson, and L. T. Giltner.
11. Schick Test and Active Immunization with Diphtheria Toxin-antitoxin: Observations on Young Adults. F. W. Mulsow.

1. The Symptomatic Treatment of Pneumonia.—H. J. Means and A. L. Barach assert that in spite of the more brilliant results obtained with specific remedies, it cannot be denied that symptomatic treatment has met with no small measure of success. The rational symptomatic treatment of pneumonia must be based on a clear understanding not only of the morbid anatomy

but also of the morbid physiology of the disease concerned. In pneumonia the outstanding feature is the respiratory battle. A great strain is thrown upon both respiratory and circulatory mechanisms. The respiratory strain results from the circumstance that the pneumonia patient is simultaneously confronted with a necessity for a greater pulmonary ventilation than under normal circumstances, and a pulmonary bellows of reduced efficiency with which to accomplish it. He has a greater ventilatory demand and at the same time a decreased ventilatory supply. A number of factors contribute to this vicious state of affairs. Increased metabolism, acidosis, deficient circulation, and anoxemia may increase the demand for ventilation. At the same time, decreased vital capacity due to consolidation, edema or pleural pain, or abdominal distention may decrease the capacity of the pulmonary bellows. We can directly meet some of these indications. Acidosis, if present, we can correct by alkali administration. Alkali administration also may be hoped to help the nonacidotic case because it raises the bicarbonate level of the blood, which in turn makes it possible for the patient to get along with a reduced pulmonary ventilation. Anoxemia, which is frequently present and which has a variety of injurious effects, may be corrected or relieved by oxygen administration. Both these measures—alkali administration and oxygen administration—must be carefully and intelligently controlled. Bicarbonate should be given only in amounts sufficient to turn the urine alkaline to litmus. If pushed further than this it may do harm by producing alkalosis. Oxygen should be given with one of the modern types of apparatus and often nearly continuously by a specially instructed nurse. Its continuation is to be governed by the effect on the cyanosis and the comfort of the patient. These measures are supplementary to specific therapy. When used, however, they may be expected to spare the patient several avoidable burdens and leave him free to devote his entire energy to the fighting of his infection, thus, theoretically at least, improving his chance of recovery.

4. Treatment of Arthritis: Chemical and Clinical Studies with the Salicylates, Cinchophen, and Neocinchophen.—Arthur F. Chace, Victor C. Myers, and John A. Killian have studied the influence of these drugs in a series of more than 50 cases, in about one-fourth of which the patients were suffering from arthritis. The clinical deductions are based partly on the observations in these cases and partly on observations in a large series in the private practice of one of the writers. They find that in general the salicylate and cinchophen groups of drugs show comparatively little difference in their analgesic, antipyretic, and "uric acid eliminating" effects. It should be noted, however, that this latter term is not sufficiently inclusive, since these drugs also stimulate, to a lesser degree, the elimination of other waste products. There appears to be no relation between the therapeutic efficiency of these drugs in infectious arthritis and their influence on the blood uric acid, a statement which is not generally regarded as applying to gouty arthritis. In the series of cases here reported cinchophen and neocinchophen seem to have a more specific effect in the severe cases of infectious arthritis. The salicylates have the distinct disadvantage of producing marked proteinuria and casts when given in large doses. On this account cinchophen and neocinchophen are the drugs of choice when, for any reason, it seems desirable to favor the kidneys. Furthermore, the latter drugs appear to produce their therapeutic effect through smaller doses. The salicylates have the advantage of being better assimilated by rectum. Cinchophen and neocinchophen, particularly when given with alkalis, are better tolerated by the stomach than salicylates. Since neocinchophen is an ester instead of an acid, there is less need of using alkali than with cinchophen. In fact, when given without alkali, neocinchophen does not seem to irritate the stomach. Although a few cases of marked idiosyncrasy to the salicylates (acetylsalicylic acid), in the nature of an allergic reaction, have been reported, the experience of the writers is that patients are more liable to have vasomotor disturbances of the urticarial type from cinchophen. No serious instances of the latter have been observed.

9. Diagnostic and Therapeutic Aspects of Late Sequelæ of Gastric Surgery: Observations Based on Six Thousand Four Hundred Operations for Chronic Gastric and Duodenal Ulcers.—George B. Eusterman states that out of a total of 6,402 operations of all types for chronic benign ulcer failure to achieve cures made 228 secondary operations necessary. There were 4,793 posterior gastrojejunostomies alone. The causes underlying the recurrence or continuation of painful symptoms are those which Moynihan gives as the chief reasons for failure. Eighty-eight per cent. of those in whom the operation failed, including those who experienced no relief from the operation, had a recurrence of symptoms within one year following the operation. In more than half the patients the pain was left-sided and lower than before the operation. Carcinoma developing on benign gastric ulcer for which a previous gastroenterostomy alone had been performed was found at secondary operation in 23 cases. The writer's experience with the end results of several hundred well-executed pyloroplasties, many performed under favorable circumstances, has not been encouraging. His answer to the charge that gastroenterostomy is an unphysiological procedure is that at least 15 per cent. of all pyloroplasties eventually prepare a rich soil for a highly successful gastroenterostomy. He believes that time and a large experience will temper the present laudable enthusiasm for pyloroplasty. The nihilism with regard to therapeutics manifested by the surgeon in the past is not a flattering chapter in the annals of achievement in the domain of gastric surgery. In more recent years this attitude has changed. Medical management has been discredited, not because the principle is wrong, as the capacity for healing in ulcers is variable, but because the effort was inadequate and the cooperation of the patient was not sufficiently cultivated. Consistent medical management is often superior to poor surgery, and the mortality is practically nil. There is necessity for friendly cooperation between the physician and the surgeon. Unquestionably the best interests of the majority of ulcer-bearing patients are conserved by such combined efforts. In the Mayo Clinic the surgeons leave to the clinicians the preoperative preparation and the details of the immediate and later postoperative dietetics, alkaline therapy, removal of foci of infection, and regulation of the future life of the patient.

10. Observations on Bacillus Botulinus Infection of Canned Spinach.—S. A. Koser, R. B. Edmonson, and L. T. Giltner summarize their observations on 174 samples of canned spinach, taken from suspected lots, as follows: *Bacillus botulinus*, Type A, is able to multiply and to produce its characteristic toxin in canned spinach, although the development of the organism in this food product was found to be somewhat irregular. A temperature of 37° C., as contrasted with room temperature, accelerated the development to a certain extent. When multiplication had progressed readily, 0.5 c.c. of the spinach juice per os proved sufficient to kill guinea-pigs, usually within 18 hours. The growth of *B. botulinus* in canned spinach is accompanied by the evolution of gas as well as by the elaboration of the specific toxin. In only one instance had toxin formation advanced to such a stage as to produce a fatal result, while at the same time gas production either had not occurred or was insufficient to produce bulging of the can. In the 174 samples of canned spinach taken from suspected lots, *B. botulinus* or its toxin was found in six. In every instance the organism was of the A type. These six toxic cans were all "hard swells," and, when opened, the odor was distinctly offensive. The destruction of foodstuffs deemed to be abnormal, either by appearance of the containers or by the odor, should prevent the greater number of outbreaks of botulism.

The Lancet.

September 24, 1921. cci, 5117.

1. The Milroy Lectures on Respiratory Efficiency in Relation to Health and Disease. Martin Flack.
2. The Present Position of Psychotherapy. Millais Culpin.
3. On the Value of Apparatus and Technique in Medical Research. Almroth Wright.
4. An Experimental Study of Prophylactic Inoculation Against Scarlet Fever. (Preliminary Communication.) I. Takahashi.
5. X-Ray Treatment of Two Cases of Otosclerosis. J. H. Douglas Webster.

6. Studies from the St. Andrews Institute of Clinical Research. III. A Scheme for the Investigation of Disease in Childhood. Andrew Rowand.
7. A Case of Poisoning by Cantharidin. C. H. Andrews.

4. An Experimental Study of Prophylactic Inoculation Against Scarlet Fever.—I. Takahashi presents this preliminary communication in which he describes experiments made on five of his own children. His observations seem to show that prophylactic inoculation against scarlet fever with the blood of a patient, taken before eruption appears and given subcutaneously in an amount of 0.0001 c.c., causes not only no local or general symptoms in man, but protects him from infection. Even an injection given 50 days after inoculation with the blood, and smearing the children's throats with a mixture of blood and throat secretions 115 days after inoculation, did not give rise to the disease. It has been claimed by some investigators that one-third of human beings have a natural immunity against scarlet fever, and perhaps these children had this immunity. Moreover, it has not yet been proved that the dose of blood given in the infection experiments was enough to infect the children. Taking these facts into consideration, the writer says he cannot claim that these results are flawless; but, considering the results which Dr. Kusama obtained with typhus fever, the fact that the experimental objects were of the most susceptible age, and the control monkeys showed the presence of the virus in the material used for the smearing, it seems not an over-statement to say that the experiment strongly suggests the efficiency of prophylactic inoculation against scarlet fever. The writer expects to report later on the effective period of immunity and its time of appearance after inoculation.

7. A Case of Poisoning by Cantharidin.—C. H. Andrews reports the case of a medical student who, out of misplaced curiosity, took at least as much as one-fiftieth of a grain of cantharidin. Three hours later he noticed pain in the left lumbar region, and two hours later noticed blood in his urine. The signs and symptoms were those of a glomerular nephritis. There was no edema, no great reduction in the fluid output. There was hematuria with large numbers of leucocytes in the urine, and moderate numbers of casts, soon disappearing; normal blood urea; normal diastase output; blood sugar on the lower limits of normal at first with a urinary sugar on the upper limits of normal. There was absence of vesication in the mouth and the relatively slight damage that ensued suggests that it was not all absorbed. A remarkable feature of this case was the rapidity with which the condition cleared up after the sixth day. The urine six weeks after taking the drug showed no albumin, no casts, and no red or white cells. His blood pressure, which had risen to 140 in the course of a few weeks, fell to 112. The writer can find no record of any other case in which cantharidin itself has been taken, and reports the case because he thinks it throws a little light on inflammations of the kidney.

British Medical Journal.

September 24, 1921, No. 3169

1. Introductory Remarks by the President of the Section on Venereal Disease. L. W. Harrison.
2. Treatment of Syphilis in the Male. Robert W. MacKenna.
3. Syphilis in Women and Children. Walter C. Swayne.
4. Treatment of Gonorrhœa in Men. David Lees.
5. Standard of Cure in Gonorrhœa. E. R. Townley Clarkson.
6. The Sensations as Reflex Manifestations of Disease. P. T. Herring.
7. Some Points in Abdominal Diagnosis. Peter Daniel.

5. Standard of Cure in Gonorrhea.—E. R. Townley Clarkson asserts that most practitioners fail to realize their responsibility as to the necessity of subjecting every patient who has suffered from gonorrhea to the most exigent tests. In the application of tests no selective treatment should be meted out to the married man or the bachelor. When the practitioner believes that his patient is cured he should cease therapeutic treatment for at least ten days. During this time provocative treatment should be administered. About five days after the patient is believed to be cured the prostate and vesicles should be massaged. This procedure is sometimes followed by a discharge the result of autoinfection. The provocative measure fully deserves the importance assigned to it by Dr. Malcolm Simpson. During the time that treatment is suspended the patient should consume alcohol, stone ginger beer, or ginger ale; both of the latter beverages possess provocative value, and the patient should be instructed to apply himself to a diet which is highly seasoned. If at the end of the provocative period no untoward results have accrued, a large sound should be passed and the anterior urethra massaged over it. After the removal of the sound the prostate and vesicles should be massaged, and the patient should pass urine. An instillation of silver nitrate, 10 grains to 1 ounce, should be administered and the urethra painted with silver nitrate, 10 grains to 1 ounce. These provocatives will generally oust any lingering organisms. In obtaining specimens for examination massage should be thoroughly done, the vesicles being massaged from above downward. Neglect to massage as much of the prostate as possible will go far to account for those variations in reports which are received from bacteriologists. No one excepting an experienced practitioner should be allowed to undertake the task of procuring specimens for final tests. Clarkson is inclined to think that if a thorough series of efficient clinical, bacteriological, and microscopic examinations are carried out there is no necessity to use the complement fixation test, since in his experience the results of this test cannot be compared to the comprehensive ones of the foregoing in respect to efficiency; in every case it should be regarded as an adjuvant, and not in any sense as a principal means of determining whether a patient is still suffering from gonorrhea. In cases of metastatic gonorrhea he believes it is of greater value. In women the general procedure in respect to provocative treatment is of a nature similar to that which is carried out with regard to men. Both the cervical and urethral canals should be dilated. The patient should be subjected to the provocative application of silver nitrate to the cervix, urethra, the glands of Bartholin, and Skene's tubules. If there is no tubular involvement, then vaccines may be administered, although if the introduction of silver nitrate, etc., has been efficiently carried out they are probably superfluous. In obtaining specimens for examination massage should be applied to both the urethra and the vagina, and the cervix should also be subjected to some form of massage. More tests should be applied to women than to men. It is not advisable to discharge a woman as cured after two or three tests. If she passes the first series of tests a second series should be made after three months.

6. The Sensations as Reflex Manifestations of Disease.—P. T. Herring recalls that in a recent communication, Sir James Mackenzie has put forward the thesis that the early symptoms of disease reveal themselves in a disturbance of the normal reflexes. This hypothesis, arrived at by the members of the St. Andrews Institute for Clinical Research, involves a wider conception of what is meant by "reflex" than the term is usually held to denote. According to this theory the body is regarded as a highly complex and efficient mechanism, the actions of which are coordinated and controlled by innumerable reflexes. In a state of health the reflexes are nicely balanced and in constant play one with another. Symptoms of disease show themselves by a disturbance of balance which in the initial stages may be similar to that occurring in normal physiological conditions, the difference being that in the case of disease the physiological stimulus is absent or is insufficient to account for the altered condition. The most common of the early symptoms of disease are sensations, especially those of exhaustion and pain. The ordinary physiological conception of the reflex finds no place for these sensations, but from a clinical viewpoint they may be regarded as reflex provided one adopts a wider conception of what the reflex really signifies. In the case of sensations the effector organ is the cerebrum, which is to be looked upon as a distinct organ with very definite functions, not the least of which is the translation of afferent impulses into sensations. The cerebrum responds to the impulse and in this case is the effector organ; its response is the sensation of pain, or whatever sensation the afferent impulse evokes. The response by the cerebrum is, as a rule, only one of the results of an afferent impulse. The cerebrum

can act as a receptor; that is to say, it can, in response to an adequate stimulus, initiate a reflex. The perception of a sensation excites a number of special processes, including, it may be, memory, judgment, or other phenomena associated with cerebration. Such activity may result in an impulse which, from the point of view of the present argument, must be regarded as afferent in that it goes to the reflex centers. It is there coordinated and distributed to the effectors. In this sense the conditioned reflex of Pavlov is a double reflex. In the first the receptor is at the periphery and the effector is the cerebrum, in the second the cerebrum acts as the receptor and the impulse passes through the reflex centers to bring about the final response in a peripheral effector. This theory of the central nervous system exalts the importance of the reflex centers. The theory is being tested at St. Andrews Clinical Institute, and is found to be of great value in the elucidation of the early symptoms of disease. It enables the drawing up of a rational classification of symptoms, and gives a clue to their relative importance.

Bulletin of the Johns Hopkins Hospital.

September, 1921, xxxii, 3671.

1. Determination of the Basal Metabolism from the Carbon-Dioxide Elimination. With a Statistical Note by Raymond Pearl. John T. King, Jr.
2. The Localization of Bacteria in the Upper Air Passages: Its Bearing on Infection. Arthur L. Bloomfield.
3. The Ice-Box Modification of the Wassermann Test in the Diagnosis and Treatment of Syphilis. Albert Keidel and Joseph Earle Moore.
4. The Inability of Staphylococci to Form Indole from Protein, Peptone and Tryptophane. S. Bayne-Jones and Pauline Zinniger.
5. Hemolytic Exudates and Transmissible Bacterial Autolysis. Jules Bordet.
6. Pregnancy Following Implantation of the Outer End of the Only Remaining Fallopian Tube into the Uterine Cornu After Resection of a Cornual Pregnancy. Henry N. Shaw.

1. Determination of the Basal Metabolism from the Carbon Dioxide Elimination.—John T. King, Jr., cites as advantages of using carbon dioxide elimination instead of oxygen consumption as an index to basal metabolism that (1) the apparatus needed to collect and weigh carbon dioxide is simple and stable. (2) The method is "open," thus preventing danger of possible respiratory infection for which the closed methods have been criticised. (3) By weighting the carbon dioxide output one needs to make no corrections for temperature and barometric pressure, such as becomes necessary in using volumetric methods of oxygen consumption. (4) The psychic effect upon the patient is favorable in that he may be assured that he is breathing fresh air and he is not subjected to the annoyance of the moving spirometer and buzzing fan, often a part of the closed apparatus. (5) Statistical studies upon protocols of two groups of experiments with the Atwater chamber calorimeter show a somewhat higher coefficient of correlation between carbon dioxide and measured calories than exists between oxygen and measured calories. (6) An analysis of 157 published observations upon gas exchange showed that carbon dioxide is either not "washed out" during the practical application of the basal metabolism test, or else it is "washed out" in negligible amounts. (7) Results of measurements of carbon dioxide obtained by the writer's method corresponded closely with those published by Bendict and his associates. (8) The practical application of the proposed method has been satisfactory in several hundred observations upon all types of patients. The method should not be used in diabetes because of the altered respiratory quotient in that disease. The apparatus employed consisted in the older United States Army gas mask, which was used to deliver outside air to the subject and to carry expired air to tubing leading to three jars, identical in construction to those which formed a part of the original Benedict "portable" apparatus. Resistance to the passage of air through the jars was measured by inserting a water manometer between the subject and the first jar. The writer concludes that carbon dioxide elimination seems to be at least as accurate and possibly a more accurate index to heat production than is oxygen consumption.

2. The Localization of Bacteria in the Upper Air Passages.—Arthur L. Bloomfield studied eight clinically healthy persons, in whom topographical cultures confirm his previous observations with reference to the normal flora. *Staphylococcus albus*, diphtheroids of various sorts, Gram-negative cocci, and variable transient organisms were widely and more or less uniformly distributed throughout the mouth and pharynx. The *Staphylococcus aureus* is not a normal inhabitant of the upper air passages. It was encountered under two conditions: (1) As a transient in nose or throat, and (2) associated with chronic focal infection. Beta hemolytic streptococci were found associated with acute tonsillitis or acute infections, such as influenza and scarlet fever, in chronically diseased tonsils, and occasionally as transients. The general bearings of these studies on the question of the mechanism of respiratory infection seem to the writer to be as follows: (1) Aside from the normal flora, bacteria do not as a rule grow free on the mucous surfaces of the upper air passages. (2) Special conditions are necessary to account for the presence of foreign organisms—either a local infection or a transient invasion.

3. The Ice-Box Modification of the Wassermann Test in the Diagnosis and Treatment of Syphilis.—Albert Keidel and Joseph Earle Moore have examined by the ice-box method 300 cases in parallel series with Wassermann tests performed according to the original technique. In performing the two series of tests identical "set-ups" were employed and the series were done with the same preparations on the same days, except that on account of the longer incubation in the ice-box the second incubation for completing these tests was performed the next day. Although the series was small for such a purpose, it has demonstrated to the writer's satisfaction an important superiority in its selection of uncured treated syphilitics. Although they favor its employment for diagnosis, they say they do so guardedly, and accept no positive results without careful scrutiny of all available data in the case.

Il Policlinico.

September 12, 1921, xxviii, 37.

Hunger Syndrome of Italian Prisoners in Germany.—Bolaffio writes at much length on this subject. Two German prison camps, at Rastadt and Halle, are specially considered. Generally speaking, there was a triad of symptoms—bradycardia, polyuria, and edema. The two first named were regarded as due possibly to some intoxicating substance acting alike on the myocardium and renal cells. The polyuria was regarded as due to the heightened accumulation of the water of catabolism. This hunger syndrome, according to the author, has no connection whatever with any avitaminosis. In the two camps, at least, no xerophthalmia developed which would seem to show that the fat soluble vitamine was not responsible by its absence; and, as a matter of fact, there was no evidence that any vitamine was absent from the diet despite the shortage of fats. Bradycardia in this syndrome might, of course, be regarded as akin to that of hibernation in animals and myxedema in mankind, in both of which conditions nutrition is notably slowed. It is very evident in professional fasts. Polyuria seems hard to explain unless we regard it merely as the result of a peculiar type of edema or hydremia in which nature endeavors to get rid of some of the retained water. An explanation of edema is still more difficult, and, as already stated, the action of some unknown substance directly on the function of the renal cell seems the most plausible.

Mortality in Italy.—During the triennium before the war the mortality of this country averaged 18.28 per 1000. In 1915 it rose to 19.53 (which figure does not include the earthquake victims). In 1916 it was 19.66, but in 1917 it fell slightly to 19.20. In 1918, including war victims, it mounted to 35.39, but without these the immense mortality of influenza would have added 12 deaths per 1000 to the normal. In 1919 the figure had dropped to 19.01, which may be regarded as only slightly above normal. If we add the victims of war and earthquake the death rate of 1915 was 22.28; that of 1916 23.32, and that of 1917 was 26.20. This figure, through the influenzal deaths, as stated above, increased in 1918 to a maximum of 35.39.—*Il Policlinico.*

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Forty-third Annual Congress, Held in Atlantic City, May 30-June 1, 1921.

THE PRESIDENT, DR. HARRIS P. MOSHER OF BOSTON, IN THE CHAIR.

(*Concluded from page 744.*)

Aspergillosis of the Maxillary Sinus.—Dr. Ross HALL SKILLERN of Philadelphia reported this case in a man about 50 years of age, who presented himself with vague symptoms referred to the left maxillary sinus. There was some unilateral apparently non-fetid nasal discharge, a feeling of fullness over the left antrum, vague head pains, entirely atypical of sinusitis. There were no periods of congestion or depression and no post-nasal discharge. At times there was cacosmia, but never marked. Examination revealed a slightly congested lateral nasal wall, but was otherwise normal. A needle puncture of the maxillary sinus was made. Considerable resistance was offered to the ingress of normal saline solution. Mindful of the fatalities reported by Gordon following needle puncture in which there was difficulty in forcing the irrigating fluid into the sinus, the irrigating fluid was injected with the utmost caution. Finally fluid returned from the nostril on that side. It appeared slightly turbid but no free pus was observed. After the injection of at least sixteen ounces, there appeared in the washings small white inspissated masses which resembled cottage cheese. Lavage was continued until the antrum was free, the injected fluid returning clear. The patient expressed himself as greatly relieved. He did not return for nearly a week when further needle puncture and lavage were negative; the patient was feeling quite well. He was to report should any of the old symptoms appear. Several months had elapsed and there was apparently no recurrence of the trouble. The pathological examination by Dr. Case showed that the specimen was small, soft, and possessed no characteristic appearance that might have suggested the diagnosis. As the specimen had been placed in formaldehyde solution a cultural study was impossible. Sections imbedded in paraffin, stained with hematolin and eosin and examined histologically under the microscope were found to contain a close myselial network with an occasional conidiaspore surmounted by a fanlike arrangement of conidiaspores. The hyphae took a faint pink stain but the fructifying bodies were yellowish in color, apparently resisting the penetration of the dye. The diagnosis was aspergillus, probably of the species *fumigatus*.

Dr. LEE MAIDMENT HURD of New York related the case of a woman, 50 years of age, who came to him for some obstruction of breathing. She had a deflected septum and the usual signs of chronic nasal catarrh. Transillumination showed the left antrum to be dark. He washed the antrum out. The fluid showed aspergillus with *B. pyocyaneus*. He washed the antrum with saline and injected it with silver. He then instituted intranasal drainage, but all with no effect. He tried many different antiseptics without effect. At length he inflated it every day with equal parts of boric acid and aristol, and within a week it cleared up.

A Case of Intranasal Ethmoid Exenteration Accompanied by Uncontrollable Hemorrhage. Death.—Dr. DUNBAR ROY of Atlanta, Ga., reported this case, which occurred in a male, 18 years of age, who had a supurating ethmoiditis with numerous polypi. He was operated upon on the left side with uneventful recovery. Four months later the right side was operated upon. Four days afterward there was hemorrhage from that side which was readily checked. Two days later a severe hemorrhage occurred from both sides for which the nose was tightly packed. Ten days later there was free bleeding from both nasal cavities. The blood always clotted freely. As the greatest bleeding seemed to be from the left side, the left common carotid artery was tied under anesthesia. Five days after this hemorrhage occurred from the neck incision, and again on the following day. It was decided to open the incision in the neck and tie the bleeding vessels. The patient took a few whiffs of gas and stopped breathing. No autopsy was allowed, but the incision in the neck was opened and all the neck muscles and fascia were undermined and an immense cavity was found filled with clotted blood. No blood examination was made as the blood clotted freely and it was expected that the hemorrhage would be controlled. Evidently a slow bacteremia had been progressing for some time, due to the absorption for years of pus from the ethmoid cells and this had undermined the coats of the blood vessels as well as the integrity of other body tissues. While the immediate cause of death was the general anesthetic, this would not have produced death had there not been such excessive loss of blood and the whole system in an abnormal state. This unfortunate termination emphasized the great danger of these extremely severe cases of ethmoiditis.

Neuralgias of the Trigeminal Tract and Facial Neuralgias of Other Origin; Impressions Derived from a Survey of 535 Cases.—Dr. CHARLES H. FRAZIER of Philadelphia read this paper. In order that there might be no misunderstanding as to what he implied he described the characteristic features of major trigeminal neuralgia, stating that it appeared suddenly and without any apparent exciting cause, and with few exceptions after middle life. A sharp, shooting, stabbing, lancinating pain was experienced first in one of the three divisions of the trigeminal nerve, usually the second or third. The distribution of the pain without variation was referred to the terminal distribution of the nerve involved to the lips, gums, tongue, teeth, nose, forehead. The attacks were of varying duration, a week or two at first, and two or three in a year, but as time went on they were of longer duration and greater frequency. The pain was not controlled by morphine. It would seem that peripheral infections, including sinus disease, played no part in the etiology. For a hundred years or more the etiology had been a matter of speculation and we were today as far as ever from any clear-cut conception or any convincing data as to the prevailing cause. There were other neuralgias of the trigeminal nerve that had a specific cause. In regard to the treatment of major trigeminal neuralgia, Dr. Frazier restricted his remarks chiefly to experience with the major operation. In the series of cases analyzed there had been 204 avulsions or sections of the sensory tract, five complete excisions of the ganglion, and five partial excisions of the ganglion. The major operation had long since been robbed of its terrors; the mortality once five per cent. had been reduced to less than one per cent. There had been but one operative fatality in the last 177 cases of this series. The vast majority of the patients expressed complete satisfaction with the results. At one time or another certain variations in the operation were introduced. For a while section of the root was substituted for avulsion but to no advantage. In a few instances he had left intact the inner fasciculus of the sensory root, when the ophthalmic division was not involved, in the hope that by so doing trophic keratitis might be avoided. He was now awaiting the results. Should there be any recurrences this modification would have to be abandoned. Latterly he had been able to conserve the motor root and thus prevent the atrophy of the temporal muscles which hitherto had interfered with a perfect cosmetic result. This modification made it possible to operate on both sides in bilateral cases. All the technical difficulties had been mastered and the operation was now one of the most satisfactory the neurosurgeon was called upon to perform.

Dr. GREENFIELD SLUDER of St. Louis, Mo., said that in the course of his paper Dr. Frazier spoke of the sinuses of the perinasal space as, in all probability, not being the cause of trigeminal neuralgia. He has seen three cases which he thought were such cases. Dr. Cushing in a paper last summer explained a case in which the pain was from the major neuralgia of the trigeminus. In conversation with the speaker he had expressed the opinion that these cases were all spilled over and he put in his text that there was no reason to assume that the second division of the fifth nerve was the origin of the pain, and that it was spilled over. It was difficult for him to understand how these cases could be spilled over from the trigeminus from his own experience and that of Dr. Cushing. He had a dozen

ophthalmoplegic migraines in which the sphenoid was operated upon with relief. To his mind these cases were explicable by virtue of thin bone, which separated not merely the optic nerves, but also the third, fourth, and sixth nerves. If these cases, then, were of sphenoidal origin, and explicable by the thin separation of the lining nerve trunks, they could readily recur for the same reason that established it in the beginning. Dr. Frazier spoke also of pain that was stopped by cocainization of the palatine or nasal ganglion. The fact of pain transmission then arose in his mind. The question of the sympathetic came in; and it seemed to him that as no other nerve connection was available, it must be assumed that the sympathetic became capable of afferent transmission. The literature on the subject of the possible sensory attributes of the sympathetic was very extensive.

Dr. Ross Faulkner of New York City stated that some years ago Dana, writing on tic douloureux, mentioned the fact that a case of two years' standing could be cured by castor oil. He thought there might be some truth in it and had tried it. To his surprise some of the patients were relieved of pain for quite a long time. The method employed was almost as severe as operation. He gave it every night. It was by all means worth trying. The etiology of this condition was very much of a mystery; he had never been able to get any light on the solution of it. The method he used for the injection of alcohol he had practised for a long time on the cadaver. By using a good deal of cocaine and a needle with an abrupt bevel to it, he was able to determine whether the point of the needle was in the nerve. He used three or four drops of cocaine for anesthesia. Not more than ten drops of alcohol was used for that sort of injection. He had six cases at least that had never come back. The majority came back within a year or even six months. In the second division of the nerve he had not had satisfactory results. One could not get into it but must put the alcohol around the nerve. In the third division one could work easily and get complete anesthesia with the injection of alcohol. The good results obtained with this method justified its being tried in all cases in the third division. All the cases should be treated with castor oil first; and if this failed alcohol should be injected into the nerve. With the first and second division of the nerve it was difficult to get a result unless one injected the ganglion. This he could not recommend because if the direction was not right, one might get into the cavernous sinus or the carotid artery.

Dr. Charles H. Frazier of Philadelphia, Pa., said he agreed with most that had been said in the course of the discussion. He took exception, however, to Dr. Sluder's reference to his remarks on a case of low-grade tic. In his opinion there was no such thing. A correct diagnosis of tic douloureux presupposed a violent, excruciating pain, a pain of great intensity and severity. With regard to tic douloureux, or major trigeminal neuralgia, there should be no conflict of opinion as to its recognition. It was quite distinct from sphenopalatine neuralgia to which the discussion had been chiefly devoted. That the latter might be of sympathetic origin was not unlikely. Alcoholic injection of the sphenopalatine ganglion for obvious reasons was not comparable to the injection of the gasserian ganglion or its divisions. In his address he had not touched upon the subject of alcohol injection because the subject was too big. In the management of patients he never urged one or the other method, but after laying the facts before the patient left the choice with him. In nine out of ten cases, if the patient had suffered for only a year or two, he would choose the injection; if for a longer time, and he had already had several injections, he elected operation. He did not agree with Dr. Faulkner as to the variations in the period of relief following injections of the second and third divisions, nor did he agree with him in his prohibitive attitude towards injection of the ganglion. In very old people, in the exceptional case in which there might be some contraindication to operation, when the ophthalmic division was involved, and in cases of inoperable carcinoma of the face, he had not hesitated to recommend and practise ganglion injections, and he had found these injections welcome.

Nasal Tuberculosis.—Dr. William B. Chamberlin of Cleveland, Ohio, presented this paper, in which he stated that nasal tuberculosis was rare, but the primary form not as rare as ordinarily supposed. There was still some confusion in the use of the terms lupus and tuberculosis. Zerinko's classification into proliferative and ulcerative types was probably simplest and best. He thought the term lupus should be dropped though Killian still clung to this term on account of the attenuated form of the infection and the chronicity of the involvement. The symptoms were usually those due to nasal obstruction with increased secretion. Pain was rare. Bleeding and crust formation were occasionally present. The places of predilection were usually the cartilaginous septum, inferior turbinate, nasal floor, and lateral nasal wall, in the order named. Bone involvement was secondary. Infection might be due to inhalation or to a direct lesion from an infected finger nail. The tubercle bacilli were always rare and might not be found at all. The presence of giant cells in fields of epithelial and lymph cells established the diagnosis, even though typical tubercles or tubercle bacilli were not found. Typical miliary tubercles with centers of cheesy degeneration were pathognomonic. The essayist brought out the differential points between lupus, syphilis, malignancy, and foreign body with granulation. The treatment was surgical removal, with subsequent application of lactic acid or superheated air.

Dr. Emil Mayer of New York said he was one of those who still felt that they should retain the term lupus, because there was a great deal of difference between tuberculosis and the attenuated form of tuberculosis that we called lupus. Why not consider finger-nail infection? These were cases in which the disease appeared in an area that could be reached easily by the finger-nail on entering the nose. There was another form of lupus that could not be classed with either the ulcerative or the tuberculous. There were lymph exudative forms. He had seen cases of tuberculosis of the nose in which the only symptom was repeated attacks of laryngeal spasm. Examination showed yellow exudate which eventually showed miliary tuberculosis. The importance of making a diagnosis between lupus and tuberculosis was that in case the patient had lupus you could assure him that he did not need a change of climate, and in the second place it relieved him of the fear of conveying contagion. Why not treat these cases with the galvanocautery? That could be done safely in the nose and the condition eradicated as thoroughly as anywhere else, and with less danger of having an open wound.

Dr. Lee Wallace Dean of Iowa City, Ia., stated that he had been making a study of chronic suppuration of the paranasal sinuses in patients suffering from pulmonary tuberculosis and also of chronic otorrhea in this class of patients. He found that many of the mastoids were tuberculous. To his surprise he found that tuberculosis of the paranasal sinuses was rare unless it was secondary to bone tuberculosis in the neighborhood of the diseased sinus. He had not found a single case of tuberculosis of the paranasal sinuses unless it was secondary to bone tuberculosis.

Dr. B. Alex Randell of Philadelphia mentioned a case of tuberculosis, which more or less completely involved the nasal chambers themselves. Many of the teeth were loosened. These were all removed and curettement of the alveolar processes carried out with removal of much of the nasal mucosa by Dr. Harrison Allen. The patient survived for twenty years or more.

Dr. Lee M. Hurd of New York reported several cases of mistaken diagnosis. One of these was a case of so-called lupus—lupus of the lip and vestibule. Sections were found by one pathologist to be tubercular. The case cleared up under mixed treatment. Other cases that were diagnosed as tuberculosis all cleared up under antisyphilitic treatment. They were all in the anterior part of the nose.

Dr. William B. Chamberlin of Cleveland, Ohio, said that personally he could not see any great justification for the term lupus. Dr. Mayer did not hear his remark about the finger-nails being the most probable cause of infection. Air-borne infection was the form most insisted upon, though the finger was the most probable cause of infection. His suggestion in regard to treatment was *à propos*. He thought one should be careful

in the use of the galvanocautery not to carry the cautery so deep that the cartilage became involved. In many cases he had made a probable diagnosis of tuberculosis, which was ultimately confirmed by the pathologist. In regard to Dr. Dean's reference to tuberculosis in sinus cases, he would say that he had not found it in such cases.

Some Observations on Localized Pulmonary Suppuration, Treated by Endobronchial Irrigation.—Dr. CHARLES J. IMPERATORI of New York contributed this paper, in which he said that lung abscesses might be divided into three classes: (1) Those caused by aspiration; (2) those caused by embolism, and (3) a type that was possibly tuberculous cavitation with a secreting lining of infecting organisms. Observations were conducted on seven cases, two being alive and still under treatment. Of the five deaths, one resulted from a carcinoma of the bronchus, in one a pneumectomy was performed elsewhere, the patient succumbing on the table, and three died from an intercurrent pneumonia. Of the five cases dying, four were autopsied and proven beyond doubt to be tuberculous. All of these cases were repeatedly examined and careful sputum analyses made; they were fluoroscoped and radiographed, and it was decided that they were probably not tuberculous. The remaining two cases had the same clinical characteristics as the other five. Simple bronchial irrigations in the control and treatment of lung abscesses of this type were of little use. It was possible that with the spiral irrigating tubes of Lynah better results might be obtained and this method pursued in subsequent cases. Various medicaments were used in some of the early treatment of these cases, all with negative results. Warm saline solution and the injection of olive oil, impregnated with five per cent. bismuth, seemed to be as efficacious as anything. Idiopathic lung abscess, by which was meant a type or abscess other than that directly traceable to aspiration of trauma of some foreign substance, or the embolic abscess following some surgical procedures was possibly a tuberculous cavitation with a lining area of pyogenic organisms. This was not given as a definite conclusion but was merely suggested as a result of personal observations and must be proven by a larger series of cases.

Dr. EMIL MAYER of New York said that anything that could be done for these patients was of such value that it should receive every bit of recognition possible. He called attention to the need of a certain amount of care in not making irrigations too frequently. These patients received, as a rule, a hypodermic injection of morphine and required a fairly strong solution of cocaine to render the bronchus as free from cough and irritation as possible. It must be borne in mind that while they had a dreadful disease with which to deal yet they had no right to inflict the cocaine habit on these poor individuals.

Dr. GEORGE H. RICHARDS of Fall River, Mass., asked what objection there was to making a direct opening into the lung, resecting one or two ribs, and establishing direct outward drainage. He related a case in which this procedure was employed. The patient continuously got well and was back at work at her occupation. Was there more risk from the surgical operation of making an opening directly into the lung?

Dr. HENRY L. SWAIN of New Haven, Conn., replying to Dr. Richard's question, said that an opening on the outside presupposed that one could readily discover where the abscess was and could get at it from the outside. He had met a few cases in which that was not easy, even after the injection of bismuth. The abscess could not always be located with any degree of safety or accuracy. Dr. Swain asked Dr. Imperatori how much trouble he had in getting his patients accustomed to the dosage. He spoke as though he always operated on the recumbent patient. He thought that if one could get the patient to sit up the injection would stay in better than when he was lying down.

Dr. WILLIAM B. CHAMBERLIN of Cleveland, Ohio, cited a case of his in which removing granulation tissue and plugging one branch proved beneficial. This boy, 18 years of age, gave a history of purulent expectoration since he was six years old, probably produced by a foreign body, though no evidence of it could be found. Subsequent to the injection, the purulent discharge decreased decidedly, and the odor almost entirely disappeared. There was marked improvement after such treatment, no bismuth being used.

Dr. R. B. CANFIELD of Ann Arbor, Mich., reported a case of pulmonary abscess similar to one described by Dr. Imperatori. It occurred in a child of 11 years who had a pulmonary abscess of two years standing of unknown etiology from which she expectorated about six ounces of foul pus at intervals of five or six days. Bronchoscopy, aspiration, and the use of compound tincture of benzoine secured a satisfactory recovery after several treatments. The satisfactory result of treatment was confirmed by the *x*-ray which showed a steady diminution in the size of the abscess and its ultimate obliteration.

Dr. CHARLES J. IMPERATORI of New York, in closing the discussion, said the point was whether he was correct in his assertion that these lung abscesses might be caused by any other means than by straight aspiration and embolism. Answering Dr. Mayer's question, the patient never got more than ¼ of a grain of morphine, measured in minims. Usually he got six or seven minims of magendie solution. The amount of cocaine was never more than a dram. The method of cocainization was with a Cohen applicator. The application was made to the base of the tongue and then to the cushion of the epiglottis. With an applicator syringe, at the same time, the larynx was touched and a drop of cocaine was injected. After waiting five minutes this was repeated. Then the trachea was sprayed with three or four sprays of a ten per cent. cocaine. Then as the bronchoscope was passed one application was made to the carina. In reply to questions that had been asked, Dr. Imperatori said that he knew of one case in which outside drainage was employed, and of several cases in which iodine and olive oil were used by the general surgeon. He always bronchoscoped the patient in the reclining position and usually employed a 7 mm. tube. He did not believe that the solution stayed in the bronchi, but the reason for injecting the saline solution was to soften and liquify the pus that one was not able to suck out with the aspiration appartus. Following Yankauer's technique he injected eight ounces and then sucked it out. Knowing that Dr. Lynah was injecting these abscesses and radiographing them, he had decided to use bismuth. At first he used bismuth subnitrate, but later changed to bismuth subcarbonate. He had never used iodine. In regard to the danger of hemorrhage in tuberculous cases, when working at the Riverside Hospital he had irrigated a number of lung abscesses with negative results. If any case showed a tendency to bleed he discontinued the use of the bronchoscope indefinitely.

Group Head Surgery.—Dr. B. B. SHURLY of Detroit, Mich., read this paper, in which he declared that if efficiency and humanitarianism were not sacrificed by greed, disloyalty, lack of harmony and cooperation, the group system was sure to win. The advantages to the patient were self-evident. He realized fully the necessity of laboratory, *x*-ray, dental examinations, and hospital observation at a fair fee. There was the danger in the group system of machine diagnosis and repair shop methods. Group head surgery must be affiliated with, or control a head hospital and teaching opportunities to be scientifically progressive and efficient. In their specialty at the beginning of the war, regular medical officers who were often without interest or training in the work, were assigned to duty as eye, ear, nose and throat specialists. The committee of this society had changed this. Group head surgical units were organized and successfully performed enormous labor in this country and abroad. The original estimate of 200 beds for head surgery in a 1000 bed hospital devoted to army hospital work was approximately correct. The advantages of group practice were better diagnosis and scientific work, cooperation, mutual interest, conservation of effort, quick service to the profession and the public, the division of labor, specialization along lines particularly interesting to the individual, the pleasure of working among the sick where no man thought he owned a case, cooperative system in buying instruments and general equipment, conservation of office space, the use of team work night or day, the practical value of an office and hospital together that could be operated by the same staff for the mutual advantage of the patient and the practitioner.

If state and industrial medicine with health insurance were to absorb private practice it would be necessary to adopt a feudal group system to protect the practitioner and the public who demanded private service. It would be of advantage in case State medicine and State hospitals increased to combine with other groups for personal protection and existence. The disadvantages of group practice were that the personal equation between the physician and the patient was lost, and machine and dispensary methods prevailed unless carefully guarded against. It was difficult to obtain a group of men who were temperamentally fitted to associate in harmonious endeavor. It was difficult to obtain men who did not overestimate their personal value and who entertained sufficiently broad and humanitarian views to handle patients properly.

Report of Cases of Cancer of the Esophagus, Treated by Radium.—Dr. D. C. GREENE of Boston made this presentation. He said it was remarkable that cancer in the esophagus was in the majority of cases well advanced before patients began to be troubled with difficulty in swallowing, and this accounted in part for the unsuccessful results in a curative way. Esophagoscopy had rendered the diagnosis of the site and nature of the lesion a relatively simple matter, but it was usually impossible to determine accurately its size and extent. The surface application of radium by means of bougies loaded with radium tubes had in his hands been productive of only discomfort and aggravation of symptoms without any beneficial results. This method was at best inaccurate and apt to cause burns of the normal epithelium on account of the dislodgement of the applicator from the original position in which it was placed. The technique of the method which he now employed was as follows: Under ether a medium-sized Mosher esophagoscope was passed down to the growth, the field cleared by suction, and a radium seed inserted into the most prominent portion of the growth to a depth of about a centimeter. The trocar for this purpose was of sufficient length to be passed through a seventeen inch esophagoscope, and sufficiently heavy and rigid to make possible the accurate placing and insertion of the point when the instrument was held at its proximal end. The usual dosage was about five millicuries in a single tube or distributed in two or three tubes. An element of danger that must be recognized in placing the tubes was the possibility of perforating the wall of the esophagus into the aorta or into a bronchus, which might result from an implantation too close to the outer wall. After citing a typical case, Dr. Greene said that in a general way it might be stated that patients could be given a moderate degree of relief for two or three months by this method. It had been possible to give this degree of palliation with relatively little discomfort from the treatment. Of eighteen cases treated by this method by the writer, fifteen were males and three were females. The tumor was located in the upper third of the esophagus in six, in the middle third in three, and in the lower third in nine. The youngest was 45 and the eldest 65 years of age, the average age being 57 years. The average duration of life after beginning treatment was three and a half months. Four patients were still under treatment. Only one of these was showing definite improvement in the local condition and in general health. Another who had been under treatment for five months was gaining weight, but the local process in the esophagus was still active. In nearly every instance the patient was able to swallow liquids up to the end and gastrostomy was advised only twice.

Report of a Case of Carcinoma of the Larynx, and One of Sarcoma of the Nasopharynx Treated with Radium.—Dr. JOHN R. WINSLOW of Baltimore, Md., reported these cases. He said the first was a male, 56 years of age, with a large lobulated intralaryngeal tumor without ulceration, apparently attached to the left arytcartilage with a tongue-like projection into the hypopharynx. Examination of a specimen showed the growth to be carcinoma. Preliminary tracheotomy was followed by seven hours of radiation, externally screened by three millimeters of lead, and held at a distance of one centimeter from the skin. This was followed by immediate dysphagia and a bad skin burn. In about two weeks all symptoms relative to breathing or swallowing had disappeared and within a month all trace of the growth had vanished. The second patient was that of a white boy, 19 years of age, with a voluminous tumor in the epipharynx. Examination of a specimen showed sarcoma. Tracheotomy with subsequent removal of the growth was followed by recurrence within two months. This was treated by radium partly by direct contact but mainly by needles inserted into the growth. Because of unavoidable interruptions treatment was extended over more than two years. The patient had now been free from symptoms of growth for about a year.

Radium Emanation: Its Advantages Over Radium for Use in the Upper Air Passages. A New Way of Applying It.—Dr. OTTO T. FREER of Chicago made this contribution, in which he stated that the treatment of malignant laryngeal disease with radium rays required a comparatively large dose of emanation, from 100 to 200 millicuries applied at each sitting, in order to reduce the time of raying to a minimum in the irritable laryngeal region and to flood the territory under treatment to its utmost pathological limits with rays sufficiently close together to destroy all microscopic carcinomatous implants. Small doses of radium could not do this. The writer's method of applying radium was as follows: The applicator was passed into the larynx with the aid of the laryngeal mirror as in ordinary swabbing of the larynx. The larynx was anesthetized with a five per cent. spray of cocaine followed by swabbing the interior of the larynx with pure cocaine flakes upon a moist swab. The clamp was then put on with the aid of an assistant. Anesthesine powder was then puffed into the pharynx and larynx. This itensified the action of the cocaine and quieted the retching caused at times by cocaine in certain throats. The applicator was now introduced, the screen being placed exactly upon the growth in the glottis, upper larynx or fossa pyriformis where it was wanted, while the assistant guided the vertical stem of the applicator into the open jaws of the clamp, which were closed when the screen was in the right place. The saliva pump was then started and the patient left in the assistant's care. Should retching occur anesthesine powder or a little cocaine spraying would usually stop it without removal of the applicator, but if it became violent the applicator was taken out, cocaine sprayed into the throat, and the applicator replaced. Some patients quietly endured the applicator for an hour or more; others needed it taken out once or twice during the hourly session. For nasal application a headband was used upon the forehead of which four small clamps were fastened. By proper bending of the wire stem the screen might be made to fit into any desired place in the nasal cavity, or pernasally, in the nasopharynx, where it was held in place by closing the clamp. Six laryngeal and four pharyngeal carcinomas were treated in this way. So far no patient had shown a local relapse, but in one the larynx had been invaded from without by rapidly growing glandular tumors. In the extrinsic cases the appearance of the larynx became normal in from four to eight weeks after the last treatment. In the intrinsic cases patients permitted the use of a large three or four case screen in the larynx as long as needed. In the worst of these cases, three weeks after the last of four intralaryngeal treatments of 100 millicurie hours each, the patient recovered his voice which had been hoarse for six months, and all trace of the carcinoma disappeared.

Radium in the Treatment of Laryngeal Carcinoma, with a Review of the Literature.—Dr. FIELDING O. LEWIS of Philadelphia, Pa., read this paper, in which he reported his experience in the treatment of sixteen cases of carcinoma of the larynx with radium since January, 1917. One patient in whom total laryngectomy had been performed, had a recurrence in the thyroid gland and died six months after operation. Another patient in whom a complete laryngectomy was performed two weeks ago had had large doses of radium within the larynx, and radium plaques applied externally for the past year. While the patient was doing nicely it was too early to record results. Another, in whom thyrotomy had been performed, with recurrence of the disease in the external wound, was treated with radium needles, and died eight months after thyrotomy. One with early involvement on the right side of the larynx was treated by radium needles

inserted directly into the growth, and early regression ensued. The patient was still living and there was no evidence of recurrence after four months. The remaining twelve cases which were considered inoperable were tracheotomized and treated vigorously by introducing needles into the growth and radium applied externally. In two cases there was marked regression of the growth, but after several months recurrence developed, and in spite of the use of radium, death occurred about a year after their first treatment. Out of 109 cases recorded in the literature, ten were living at the time the reports were published, showing a mortality of about 91 per cent. From reports Dr. Lewis was of the opinion that more recent improved technique in the use of radium, as practised at the Memorial Hospital in New York, offered more encouraging results. From his own experience, and from published reports, it would seem that radium was indicated only in the so called inoperable cases of carcinoma of the larynx, meaning those cases in which there was marked involvement of the cervical glands, epiglottis, base of the tongue, and the esophageal wall. Its analgesic effect in moderate doses constituted one of its most important benefits. It was valuable for those patients who refused operation. It perhaps exercised a beneficial effect in blocking the lymphatics before a radical operation upon the pharynx. Such brilliant results had been obtained in early intrinsic malignancy of the larynx by thyrotomy that in these cases radium should not be thought of except possibly as a postoperative measure. In the more advanced type of intrinsic cancer of the larynx, laryngectomy had prolonged the lives of many. Here again radium should not be considered a means of treatment except before or after operation.

Dr. HENRY L. SWAIN of New Haven, Conn., asked whether radium emanations should be used in laryngeal fibromyomata.

Dr. HENRY L. LYNAH of New York asked Dr. Freer whether he had made pathological sections of any of these cases.

Dr. NORVAL H. PIERCE of Chicago declared that without equivocation the last case that Dr. Freer reported was one of carcinoma. If this patient recovered his enthusiasm for radium treatment would be greatly increased.

Dr. CORNELIUS G. COAKLEY of New York stated that clinically he had seen similar lesions which had all the appearance of being carcinoma, and in these cases he felt that it was unwise to regard the condition as carcinoma. One should remove a section for examination, for it was surprising how often one might be mistaken.

Dr. ROBERT CLYDE LYNCH of New Orleans, La., asked what Dr. Freer thought necessary in order to screen the normal half of the larynx while exposing the diseased side.

Dr. HENRY L. SWAIN of New Haven, Conn., asked whether the flat container could be made to screen one side more than the other.

Dr. FREER of Chicago said that perhaps he had spoken a little too optimistically about sarcoma, but his experience had been that these growths yielded readily to radium, and this was confirmed by the literature. Most men spoke of nasal sarcoma as singularly good natured under radium treatment; they were better natured than sarcomata elsewhere. Even when Sir Felix Semon was writing about laryngology it was regarded as a dangerous thing to cut a piece off from a carcinoma in the larynx. When a thing appeared to be carcinoma he did not like to cut a piece out, unless he intended to take the whole thing away, larynx and all, if it proved to be such. If one intended to treat it with radium to cut into the growth might spoil one's purpose because the cells traveled fast. Regarding Dr. Coakley's thought that the cord was intact in one of the cases, he wished to say that he cut a piece out of the center of the cord with the elastic fibers; leaving the elastic fibers was a bad thing. The appearance of the growth and the symptoms justified him in considering it carcinoma. As to screening, they did not want to screen anything in the neighborhood of a carcinoma. The carcinoma was simply an evidence of widespread infection, and one wanted to reach all of it that he could.

Dr. D. BRYSON DELAVAN of New York expressed the belief that it would take a number of years to give us a definite established knowledge of radium treatment in these cases. Patience was the watchword in this matter. We could not tell much about it in a year or in five years. He had no doubt it would take ten years to establish very much regarding it. In the meanwhile it would be a good plan to hold our minds open and view judiciously the situation.

Dr. HARMON SMITH of New York stated that radium had more effect on sarcomata than on carcinomata, and particularly lymphosarcomata. Those in the nasopharynx yielded more quickly than did carcinomata in that region. As to the application of radium before or after operation, in view of the fact that radium shut off the channels by which the growth was disseminated, he thought it should be used before operation. A low order of carcinoma of the larynx that disappeared with the application of radium was likely to make one draw the wrong inference. Unless one had more definite evidence than the clinical observation, he could not determine the effect of radium on these growths.

Dr. CORNELIUS COAKLEY of New York expressed surprise that the method employed by the institute in New York was not more generally known. They used a pharyngeal tube of which the proximal end was just external to the lip. The distal end passed over the epiglottis and the arytenoid, and the whole pharynx was packed with gauze. This did just what Dr. Winslow's technique did, but it saved the patient from tracheotomy. The whole tube could be easily taken out at any time, if there was respiratory obstruction, but he had not seen that occur even during a long anesthesia when given in that way. The use of radium emanations was preferable to the use of radium salts. Dr. Coakley questioned the necessity of such an apparatus as that exhibited to them by Dr. Freer. He said Dr. Janeway had devised a method by which the radium could be kept in the larynx for two hours by simply cocainizing the larynx and using a suitable curved applicator.

Dr. HENRY L. SWAIN of New Haven, Conn., referred to an experience he had had with a case of apparent lymphosarcoma of the neck. The growth had originally been in the tonsils, and had been subjected to massive doses of radium within and *x*-ray without. An improvement had resulted and cure had apparently occurred. The man had since died of metastases in the abdominal glands, the liver, and the lung. The question came up whether the massive dose had anything to do with "driving the thing in," as the laity would put it, or whether the metastases started before the radium was applied. The latter was probably the solution, but we must consider whether the absorption of the products when so much living tissue was devitalized had anything to do with the future life of the patient. Dr. Coakley had objected to calling the growth which Dr. Freer had treated carcinoma. It really did not make so much difference what it was. It seemed to be carcinoma, was treated, and got well. Dr. Lewis spoke of making radium applications to the severe cases. He presumed he meant inoperable ones. He should prefer to hope that very early use of radium might cure the epithelial changes and render operation unnecessary.

Dr. ARTHUR W. WATSON of Philadelphia said he thought it might be of interest to the Association to know that the patient he had reported a few years ago as having been treated with radium, a case of carcinoma of the larynx, was still living and perfectly well. In regard to fibrosarcoma of the nasopharynx, it had seemed curious to him that in nearly all cases of fibroma of the nasopharynx that he had seen, and he had seen quite a number, the pathologist's report on a portion removed was sarcoma or fibrosarcoma.

Dr. JAMES A. LOGAN of Kansas City, Mo., expressed the opinion that Dr. Freer's method of applying radium emanations to the interior of the larynx was very interesting and instructive. Dr. Winslow's report of a case treated by extralaryngeal application of radium, in which a severe burn followed and a subsequent marked improvement resulted, might open the way for the external applications of radium or its equivalent; it was a method easy of application but much remained to be learned before they could determine what method

was best. Of course they had all removed nasal growth with the electrolytic needle and also by galvanocautery without recurrence, so he took it that they were at least progressing. Recurrences had been prevented by the use of radium in tumors in other parts of the body, suggesting that surgical interference in the first place should be followed by the use of radium, or, as suggested by Dr. Smith, they might use radium first, then surgery, and then radium.

Dr. Norval H. Pierce of Chicago said he rather antagonized the view that Dr. Coakley put forward in regard to always substantiating the laryngoscopic diagnosis of cancer of the larynx by microscopic examination. This was an old and much discussed question but he believed it was a dangerous formula to have such extensive credence among laryngologists. Whenever one could escape cutting into a carcinoma of the larynx he should do so.

Dr. Charles G. Coakley of New York stated that two or three times a year cases were referred to him for an opinion, in which other men, whose opinions he regarded as most valuable, had made a diagnosis of carcinoma of the larynx. He invariably in these cases removed a section if he was not frankly able to confirm that diagnosis. If one carried out Dr. Pierce's idea he could not put anything into the larynx, such as a swab, which was going to bruise it. He did not believe Dr. Freer had a technique by which he could remove the larynx without bruising it and squeezing the epithelial cells. Neither must one put radium in it for one was bruising the larynx by this procedure. He did not think it was wise to subject a patient to such a serious operation without being sure of one's diagnosis. No man should have a section taken unless he was willing to go on with the surgical means necessary in the case.

Dr. H. H. Forbes of New York said that if it was possible a section should be removed. One was then able to treat the case and to watch it. He had discarded entirely the so-called tubes or capsules in esophageal or laryngeal work, and was using the needles. It seemed to him that those who were using the emanations were getting better results than those who were using simply the needles. To avoid any possibility of infection they had a thoroughly aseptic method of preparing the patient, with alcohol and iodine used over the surface of the growth before using needles. However, he did not believe that infection was entirely the fault of their method of treatment. With regard to the question of screening, he felt that it had not been sufficiently emphasized that with an element as active as radium we should be guarded in exposing normal tissue to it as yet. He could not feel, in his own mind, that radium was going in to destroy simply the abnormal tissue, and not to destroy a certain amount of normal tissue also. He felt that the reaction was going to be on normal tissue as well. He felt, from the advanced cases that had come to them, among which they had had a number of deaths, that if he were to see those cases over again he would not expose them to the radium treatment.

Dr. Henry L. Lynah of New York said he thought there was a general misunderstanding about the question of biopsy. Sir Felix Semon said that if one had permission for immediate operation, biopsy was a safe procedure. He quite agreed with this statement. Reasoning clinically papilloma and many tumors of the larynx simulated cancer. In taking a specimen it should be taken from deep down and even part of the cord might be removed. The cord would regenerate when there was a mobile arytenoid joint and there was no danger of impairment of the voice. Regarding Dr. Greene's series of cases, Dr. Lynah said his experience had been similar to that of Dr. Greene and Dr. Forbes. All of those patients died. Two had sloughs which perforated the esophagus. Cancer did not seem to kill primarily, but the patients succumbed from secondary infection from septic food.

Dr. Robert Clyde Lynch of New Orleans, La., said he had had seven cases treated by the use of radium needles, of which four had died. He thought the patients were made more uncomfortable by the treatment and died sooner than they otherwise would have. Dr. Smith had spoken of a case in which he did a laryngectomy after an application of radium. The cuts showed what looked like cartilaginous tissue; there was tremendous sloughing of the parts, and the man died from the sloughing process. If operation was decided upon, the time for the application of radium was after the operation rather than before, on that account, Dr. Lynch asked Dr. Greene whether the radium seeds that he used contained four hundred millicuries of radium. Dr. Freer's results were so different from those he had been able to see in the cases of the men who were using radium in his section of the country, and from reports from other sections, that he wondered whether the difference in the content of the element used accounted for the difference in the results. In their part of the country they were disposed to be rather pessimistic about the result obtained in carcinoma of the mouth, pharynx, and upper esophagus when treated by radium.

Dr. D. Crosby Greene of Boston called attention to the fact that in his paper he did not claim to have cured any patients but that they had been relieved. With seed implantation one got necrosis of the part of the tumor which presented in the lumen. The patients stated that they were more comfortable and swallowed better. The end results, however, had been bad in all but one case. Nevertheless the method gave some promise of accomplishing more, particularly if combined with the use of Dr. Duane's new *x*-ray apparatus. They had had some good results with radiation. He expected to show next week in Boston two cases of apparent cure of cancer of the larynx by radiation. Their results with the surface application of radium to the larynx had not been as successful as Dr. Freer's, and he wished to pay tribute to Dr. Freer's ingenuity and skill in administering radium in this way. Almost invariably there was a certain amount of reaction following the application of radium in the larynx; so much so that he did a tracheotomy beforehand. At any rate he thought this did good in itself and avoided the danger of acute stenosis of the larynx.

Dr. John R. Winslow of Baltimore stated that the important point in these cases was the diagnosis, and for this they were rather dependent upon the pathologist. The laryngeal cases that he reported could have been treated by any method. It happened that at that time the more recent methods of applying radium were not known. The skin burn was due to inexperience. It seemed to him that Dr. Freer's doses were enormous.

Dr. Fielding O. Lewis of Philadelphia stated that in reference to the length of time the patients were able to retain these applications in the larynx, he might say that they used preliminary tracheotomy because they found that the reaction was so severe that this procedure had to be resorted to later; there was also an added advantage in putting the larynx at rest. Dr. Swain said he would prefer to use radium in the earlier cases of carcinoma of the larynx. He felt differently, because among the cases treated by radium so few were cured, whereas with thyrotomy 75 or 80 per cent. of cures were obtained when the cases were seen early. Regarding biopsy, he felt that there were borderline cases in which it was necessary to remove a specimen.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Die Heilbedingungen für die Tuberkulose im Hochgebirgsklima. By Dr. med. Bernhard Kurt Voigt. 70 pages with tables. Price, 15 Marks. Published by Johann A. Barth, Leipzig.

Jahresbericht der Gesellschaft für Natur- und Heilkunde in Dresden, Oktober, 1919, bis Mai, 1920. Published by J. F. Lehmann, Munich, 1921.

Within the Atom. By John Mills. 215 pages illustrated. Price, $2.00. Published by D. Van Nostrand Company, New York.

The Microtomist's Vade-Mecum. By Arthur B. Lee. 594 pages with figures. Price $6.50. Published by P. Blakiston's Son & Co., Philadelphia.

Medical History.

HOBART COLLEGE AND THE MEDICAL PROFESSION.

By BRANDRETH SYMONDS, M.A., M.D., LL.D.,
NEW YORK.

HOBART COLLEGE in Geneva, New York, has been closely identified with the medical profession from its foundation. It received a provisional charter in 1822. Three years later, when it had complied with all requirements, the regents of the University of the State of New York granted Geneva College, as it was then called, a full charter which gave to the College the right to confer all the degrees and diplomas which any university or college in Europe was privileged to grant, and the first class was graduated in 1826. In the same year there was a magnificent medical row in New York City. A circular dated August 1, 1826, says, "The late Professors of the College of Physicians and Surgeons, having seen fit to withdraw from the Institution without thereby intending to relinquish their accustomed functions, have organized another medical college, in which all but two of the former faculty take part," etc. This circular was signed by those medical giants, David Hosack, M.D., F.R.S., Samuel L. Mitchell, M.D., LL.D., Valentine Mott, M.D., John W. Francis, M.D., Wm. James McNeven, M.D., John D. Godman, M.D. These gentlemen "were appointed by the Trustees of Rutger's (formerly Queens) College, New Brunswick, New Jersey, the Medical Faculty of that Institution." Evidently the doctrine of State's rights prevented a continuation of this connection, for after the first year it was dissolved and in 1827 a "union was formed between these gentlemen and the trustees of Geneva College in the State of New York, by which they were recognized as the Medical Faculty of that Institution." Two leading lawyers, Thomas Addis Emmet and Josiah Ogden Hoffman, stated that "we have deliberately examined the charter of Geneva College and the act relating to the different colleges in this State and have no hesitation in saying that diplomas granted by Geneva College to those who shall study medicine with Rutgers Medical Faculty of that College are good, effectual, and valid to every purpose for which a medical degree is legally requisite, and equally so as that of any Medical College in this State." This opinion was endorsed by Chancellor Kent, but the question had to be tested in the courts, for the College of Physicians and Surgeons of New York City was intensly jealous of this new Medical Faculty. The P. & S. had absorbed the Medical Department of Columbia College in 1813, and its only competitor in the State was the College of Physicians and Surgeons of the Western District, located at Fairfield, which terminated its career in 1840.

The Rutgers Medical Faculty of Geneva College was a real rival, however, which thrived at the expense of the P. & S. in New York City. Its professors were better known, stronger, and more popular, the medical students more numerous and the graduating classes larger. So in 1830 the P. & S. got a kindly judge in the Supreme Court, who probably had gout and dreaded to lose his colchicum, to decide that Geneva College had no right to establish a Medical Faculty away from Geneva. To one who has seen Cornell University do the same thing in New York City and Union University in Albany, it seems ridiculous, but it served its purpose then. A circular dated November 1, 1830, says: "The undersigned, late Professors in the Rutgers Medical Faculty of Geneva College, New York, in answer to numerous inquiries, both epistolary and verbal, announce that they have resolved to suspend, for the present, the exercise of their collegiate duties as professors in the different departments of medical science. Unwilling to contravene the laws of the State, or the decision of its courts, which have recently declared that Geneva College does not possess the power of establishing a Medical Faculty in the City of New York, they address themselves to the unbiassed and uninfluenced opinions of their countrymen. Most of their Board have, for more than twenty years, others for a longer period, devoted their time and talents to the improvement of youth in the noble and important science of medicine; they trust with uniform and unequivocal approbation; with necessary and consequent improvement of the profession, and benefit to the cause of humanity. A medical institution had been reared by their hands from the humblest beginning into successful rivalship with the oldest and most prosperous university in the country; but when by years of vigorous diligence, and well-directed exertions, their situation excited the cupidity of those to whom, unfortunately, its government was confided, they relinquished their situations after the highest authorities in the State had not only acquitted them of all censure, but had passed a distinct vote of approbation in their favor. On abandoning their seats, they founded and erected on their own individual responsibility a New College; desirous of continuing their efforts in a cause in which they had been so successful; and from this institution they have for several years past sent forth numerous well-educated youth, who had repaired hither from different and remote sections of the Union. Let it suffice, that more than two thousand pupils have been educated under their care and direction during their entire collegiate labors. But the authorities of the State which, right or wrong, they are bound to obey, having seen proper to deny their protection, in order to sustain a monopoly and to prevent by legislative enactment, that competition so necessary to the free development of talent, they now withdraw from the task of official and public instruction; wishing to those who come after them all the success they may merit, unimpeded by those envious arts which may interfere with their usefulness." So this dream of Hosack, Francis, Mott, and the other medical giants came to an end.

Hobart College, however, determined to develop again its association with the medical profession, and there seemed great need for it. The little medical school at Fairfield, near Utica, was flickering out, and in fact came to an end in 1840, thus leaving the P. & S. the only medical faculty in the State. Western New York, on the other hand, was developing fast. The Erie Canal, which had been opened in 1825, was the great artery of transportation from the Atlantic seaboard to the Great Lakes. A branch of it ran down to Geneva at the foot of Seneca Lake.

and brought great prosperity to the entire region of the finger-lakes.

In 1834 a faculty of medicine was organized to hold its sessions at Geneva. It was a strong set of medical men and included Willard Parker, who died in 1884, leaving behind him a splendid record of great achievements; Thomas Spencer, who was Dean of the Faculty and had been President of the New York State Medical Society in 1832; Charles Broadhead Coventry, who was President of the New York State Medical Society in 1854. In March 1835, they persuaded the Legislature to amend the "General Regulations concerning the practice of Physic and Surgery" in this State, so that the diplomas granted by the Medical Faculty of Geneva College "shall have the same force and effect as licenses to practice Physic and Surgery as are given by law to the licences granted by any incorporated Medical Society in this State."

No opposition was raised to this amendment and the up-state legislators apparently passed one over the city members. At that time there were no real restrictions on the practice of medicine and surgery. No permit was needed, and no medical diploma was required until 1880. The back country was filled with irregular and unlicenced practitioners of all sorts, who had had no medical education. It was a slow and expensive trip to reach New York or even the Berkshire Medical College in Pittsfield, Massachusetts, for the only means of through travel as far as Albany was the Erie Canal.

Hobart thought that the amendment above mentioned carried with it all the privileges which pertained to an incorporated medical college. So the Geneva Medical College promptly sent a delegate to the next meeting of the State Medical Society. He was refused admission and immediately brought suit for a mandamus. Again a Justice of the Supreme Court of the State felt kindly towards the P. & S. and ruled that the amendment did not carry this privilege, though it gave every other right. In spite of this, Hobart's Medical Faculty flourished. A careful record of the graduates has been kept by Hobart College, but the students who attended the lectures are shown only in a few circulars of occasional years which the Librarian of the New York Academy of Medicine has preserved. The following table shows the gleanings of this information:

Year of Graduation	Graduates	Enrolled Students
1840	20	87
1841	37	119
1843	37	165
1845	44	183
1848	27	114
1849	32	106
Total	197	774

This table shows that only one-quarter of the class was graduated each year. As each student was required to attend lectures for two years, and only a few attended three courses, it is fair to assume that nearly one-half the candidates for the degree of M.D. failed to pass. This fact demonstrates the high standard required by the Medical Department of Hobart College.

In 1845 there was some agitation for an improvement in medical standards throughout the United States. The *New York Journal of Medicine* said in an editorial in May, 1846: "If there is to be any change, the different Colleges might do as Geneva College has done—make their examinations public, invite the censors of the State Society to be present, appoint a Board of Medical Curators who may also be present, and let a majority of votes of all be necessary to confer the degree of M.D. This plan has worked admirably at Geneva College and given satisfaction to the profession universally. Why may it not be extended to other institutions?"

Although it was not allowed to send an official delegate to the New York State Medical Society, most of its graduates joined that organization and several of them were elected president. Both its faculty and its alumni association were officially represented at the preliminary National Medical Convention which assembled at New York in 1846. Its delegates were also present at the meeting in Philadelphia which on May 7, 1847, voted "to resolve itself into the American Medical Association." From that time it was regularly represented at the meetings of the A. M. A.

In 1847 it took the epochal step of admitting to its lectures Elizabeth Blackwell, to whom it granted the degree of M.D. in 1849. She was the first woman to receive this degree in America. Her application to attend lectures was refused by all the medical colleges along the Atlantic Coast, and even at Hobart the medical faculty deemed it wise to submit the request to the students. Their reply was as follows:

At a meeting of the entire medical class of Geneva Medical College, held this day, October 20, 1847, the following resolutions were unanimously adopted:

1. Resolved, That one of the radical principles of a republican government is the universal education of both sexes; that to every branch of scientific education the door should be open equally to all; that the application of Elizabeth Blackwell to become a member of our class meets our entire approbation; and in extending our unanimous invitation we pledge ourselves that no conduct of ours shall cause her to regret her attendance at this institution.

2. Resolved, That a copy of these proceedings be signed by the chairman and transmitted to Elizabeth Blackwell.

She reached Geneva on November 6, after two and a half days of hard continuous travel from Philadelphia. On the 9th she wrote to a sister and after describing the nostalgia which she had for the first two days, she says:

This evening, however, I have finished my second day's lectures; the weather is still gloomy but I feel sunshiny and happy, strongly encouraged, with a grand future before me, and all owing to a fat little fairy in the shape of the Professor of Anatomy. This morning, on repairing to the college, I was introduced to Dr. Webster, the Professor of Anatomy, a little plump man, blunt in manner and very voluble. . . . He asked me what branches I had studied. I told him all but surgery. "Well," said Dr. Lee, "do you mean to practise surgery?" "Why, of course, she does," broke in Dr. Webster. "Think of the cases of femoral hernia; only think what a well-educated woman would do in a city like New York. Why, my dear sir, she'd have her hands full in no time; her success would be immense. Yes, yes, you'll go through the course, and get your diploma, with great éclat too; we'll give you the opportunities. You'll make a stir, I can tell you."

Judging from his addresses and general reputation, he seems to have been very broad-minded with an excellent knowledge of anatomy and a first-rate capacity for demonstrating on the cadaver. In her autobiography she says:

The behavior of the medical class during the two

years that I was with them was admirable. It was that of true Christian gentlemen. I learned later that some of them had been inclined to think my application for admission a hoax, perpetrated at their expense by a rival college. But when the bona-fide student actually appeared they gave her a manly welcome and fulfilled to the letter the promise contained in their invitation.

She spent another winter at Geneva and then received her diploma, as the leader of the class. Within a few years other medical colleges in different parts of the United States were conferring the degree of M.D. on women but the Medical Department of Hobart College was the pioneer in this movement and by its bold progressive action, overcame one of the impediments to woman's usefulness. 1921 is the centenary of her birth.

In 1852 the name of Geneva College was changed to Hobart Free College and this was further modified in 1860 to Hobart College. In the late sixties clinical instruction in hospital and dispensary was recognized as an important factor in medical education. Physical diagnosis demanded and anesthesia permitted the use of abundant living material for the students to observe and investigate. Geneva was a small town and could not furnish this. Some country medical schools maintained an existence in spite of such deficiency but the Medical Department of Hobart College did not feel that it was proper or wise to send forth its graduates without suitable clinical training. Unless it could give a medical education as good as any medical school in the land, it would not grant a diploma to a man only partially trained. So in 1872, the Medical Department of Hobart College, after nearly fifty years of fine needful work, graduated its last class. During that time it conferred the diploma of Doctor in Medicine on more than 700 graduates. More than four times that number received instruction there, if the students of each year are counted separately. The standard of qualification was high, as good probably as that of any medical school in the land. But when, owing to changing conditions, it could no longer give the best, it ended its activities in medicine. A year or two later the cabinets, equipment, etc., were sold to the Medical Department of Syracuse University.

Although Hobart terminated then its direct instruction in medicine, it never ceased to have a marked interest in the profession. Many of its graduates and students entered the medical ranks, especially as the demand for a preliminary education developed among the better medical schools. These began to require two or three years of college education and extended their new course to four years. A man had to spend six or seven years at College, undergraduate and medical, before becoming an M. D. and then he failed to receive his baccalaureate degree. Large universities could and did make arrangements by which the courses for the baccalaureate degree and that for the M.D. were so combined that both degrees were given after six or seven years of study. The small colleges where the highest humanities are taught, were unable to accomplish this, causing a great loss of character to our profession. So in 1906, Hobart College adopted the following provision:

Combined Degrees: Students who propose to study medicine in a reputable medical school that requires at least two years of college work for admission, may obtain both degrees, the bachelor's and the doctor's, in seven years, the time required for both degrees in other professions. The student who desires to avail himself of this privilege may proceed to the medical school when he has completed three years' work, including all that is specifically prescribed for the degree he seeks. When he presents to the registrar a certificate showing that he has finished one year's work in the medical school, he will be recommended for the baccalaureate degree.

A number of Hobart students have since used this privilege with benefit to themselves and our profession. How well it is regarded by the teaching faculty of medicine is best shown by the following letter from the Dean Emeritus of the College of Physicians and Surgeons of New York, the Medical Department of Columbia University.

Kennebago Lake House, Kennebago Lake, Maine.
June 9, 1921.

To Brandreth Symonds, M. D.

Yours of the 6th has followed me to the Maine woods, where I am fishing for trout and catching a rest and some fish.

I am pleased to testify to the broad and catholic spirit of the authorities of Hobart College which was shown some fifteen or so years ago in connection with the combined course in medical education. Columbia in 1890 instituted the combined course in recognition first of the cultural and liberal value of the work in the scientific foundations of medicine as required of medical students, and second, of the economic necessity of saving time for young men who were earnest and capable beyond the average requirement of collegiate standards. The combined course was therefore safeguarded against abuse by the requirement of a high standard and when applied both to medicine and to law, it marked an epoch making advance in professional education.

Hobart College was one of the first to extend the application of the principles involved in the idea of the combined course to its students and recognizing the opportunity for service, Hobart has permitted members of its senior class to attend first class medical colleges as students in medicine and has given credit for the one years' work in physiology, anatomy and biological chemistry, towards the baccalaureate degree of Hobart College.

The students who have availed themselves of this privilege have justified this action of the faculty of Hobart in helping to establish a new principle in education that work done *in absentia* can properly be credited by one college on the certification from another of equal standing.

A considerable number of institutions in New York and in other States have followed the lead of Hobart and the new principle is firmly established today. But when this action was taken first, it required courage, breadth of vision and confidence in the future of medical education.

It gives me great pleasure to testify that Hobart College was in the van with the leaders of progressive education. Faithfully yours,

(Signed) SAMUEL W. LAMBERT.

Dr. Lambert was Dean from 1904 to 1919 and since that time has been Dean Emeritus. Columbia University in 1921 conferred on him the degree of D. Sc., causa honoris.

As always, when the medical profession is concerned, Hobart College is the pioneer. And to-day Hobart College offers the very finest education preliminary to the study of medicine. The man or woman who treats the ailments, physical and mental, of human beings needs more than a purely scientific training. (Hereafter when the masculine pronoun is used, it can generally be understood to refer to both sexes, for our language is deficient in this respect. Hobart College has a splendid woman's department, The William Smith College, which is

under the control of the same administration and faculty, and is operated as a coordinate institution. It is not coeducational in the strict sense, for the two sets of students do not mix in the classes.) He needs a knowledge of human nature which is not obtained from dissection, the microscope, or the test-tube. The foundation of this knowledge is best laid in the study of the great intellects of all times and all countries for—"The paths we now tread o'er, Our fathers trod five thousand years before." The norm of human nature changes very little from age to age, and even its morbid symptoms seem to be modified almost none. Our instruments of precision enable us to make more accurate diagnoses and descriptions, but influenza dates back to the Dark Ages, at least, and bubonic plague attacked the Philistines in the days of Samuel. Such an education is found in an institution when the requirements for entrance and the under-class years include a goodly proportion of Greek, Latin and mathematics. Or perhaps a study of the best minds of the modern languages may be substituted for the Greek and Latin, and in both cases a plenteous supply of the finest writers of our own language is added.

The student is taught these expressions of the highest type of normal human nature by the professors themselves; men who are almost indissolubly linked up with the future of the college and of these students. They are not taught by instructors, recently graduated, whose desire in life is to become assistant professors elsewhere. The professors at Hobart are underpaid, as they are everywhere, but they have always had the strongest attachment to the College, for they realize the splendid opportunity there of coming into immediate contact with young human nature at its most absorptive age. Theirs is the joy of watching it unfold and begin to blossom, but just think of what it means to the youngsters. These are shown by precept and example what every man and woman ought to do, and what is forbidden. In the growth of civilization, personal restraint and inhibitions have been wrought into the fibre of human nature more and more. Some of these restraints are set forth concisely in the Ten Commandments of the Jews but the highest examples are the statements of our Lord—"Thou shalt love the Lord thy God with all thy heart and with all thy soul and with all thy mind. This is the first and great Commandment and the second is like unto it: Thou shalt love thy neighbor as thyself." Think of the repression of self, of the restraint and inhibition that are contained in these few words. It was far beyond human attainment when it was uttered, and even to-day human nature falls shockingly short of it. But it is the goal of Christian endeavor and at Hobart College, founded by a Christian gentleman, Bishop John Henry Hobart, it is woven into the curriculum.

Every department of science too receives proper attention in the course of study. After four years work at Hobart, or even three years, if he is bright and a hard worker, a man is properly trained to begin the study of medicine. During that time he has lived amidst the best hygienic surroundings for there is no more healthy country than the region of the fingerlakes of New York. The college is situated at the north end of the greatest of these, Seneca Lake. The mortality of its graduates, taken from the last general catalogue, is only 85 per cent. of the deaths expected by the American Table. The class of '81 shows an extraordinary record. Its thirteen graduates sat down to their Senior class dinner in June, 1881, and forty years later, at this writing, all are alive.

Somebody will say—in fact, it has already been said—that the education described above is a splendid foundation for every profession and business. Quite true but this appeal is to the medical profession, for it comes in contact with sick, suffering human beings and for them the highest humanity is needed. And such has always been taught at Hobart College.

1 West Ninety-fourth Street.

Origin of Clinical Teaching in Italy.—Professor Fedeli of Pisa recently published an article on this subject in the *Medical Clinic of the University*, an abstract of which appears in *La Riforma Medica* for July 9, 1921, xxxvii, 28. It has commonly been believed that priority in this respect belongs to France. He shows, however, that the original clinic was held at Padua in the year 1543. The clinician was Giovan Battista da Monte, who conducted a "school for practical instruction" in the S. Francesco Hospital up to the time of his death. This school did not survive its founder and it was not until 1764 that the first official medical clinic was established in Venice. This was followed before the year was out by the establishment of clinical instruction at the University of Pavia, with Borsieri as first incumbent. The latter was succeeded by the Frenchman Tissot and he in turn by the celebrated Austrian Peter Franck. The next clinic chronologically was established jointly at Pisa and Florence, making use of S. Maria Nuova Hospital in the latter city, while the teachers were from the University of Pisa. Bicchiere, the Pisan professor, demonstrated one case weekly in the Florentine Hospital. In 1781 the Medical Clinic of the Maria Nuova Hospital was formally opened, with 20 beds, 10 for each sex. One lecture was given daily at the bedside of the patient. Through the instrumentality of the Grand Duke several beds for teaching were established in the S. Chiara Hospital at Pisa in 1783 with Professor Torregiano in charge; and in 1786 this clinic was made officially a part of the University. Next in succession comes Geneva (1789), Bologne at the end of the century and Rome in 1815.

The order of establishment of medical clinics outside of Italy is given by Fedeli as follows: In 1714 Boerhaave established the clinic at Leyden and held two clinics weekly. This is usually stated to be the first official clinical chair, and with the exception of Padua in 1543 (and perhaps Oxford), has a safe lead over all others, the original clinic at Pisa having been unofficial. In 1745 Van Swieten established the first medical clinic at Vienna, following the lead of his master Boerhaave. In 1781 Prague followed suit, while the original German clinic was established in Göttingen by Peter Franck in 1786. Hufeland followed at Jena in 1793. There is said to have been clinical teaching at Oxford in 1680 and at Edinburgh in 1745, but no details are given.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 19. Whole No. 2661. | New York, November 5, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

RADIUM THERAPY IN CANCER.*

By GEORGE STUART WILLIS, M.D.,

NEW YORK.

VISITING PHYSICIAN AND DIRECTOR OF THE RADIUM DEPARTMENT OF THE NEW YORK POST-GRADUATE HOSPITAL.

THE use of radium in cancer is greatly on the increase. Much progress is being made in its application and the utilization of its rays, but the therapy is still very much in its infancy.

The progress of radium therapy has been slow for two particular reasons—first, the high cost of radium, and secondly, the lack of co-operation on the part of the medical profession in general. Unfortunately, the high cost of radium and of maintaining a department has been such that large institutions have found it difficult to finance. At the present time, very few hospitals throughout the country have equipment and enough radium for use in all branches of medicine and surgery, therefore its value in cancer has not yet been accurately determined.

We have now but few workers who are devoting their entire efforts to the development of radium therapy and we also find but few institutions that are endeavoring to standardize by the same method of treatment.

As for proper cooperation, it was unfortunate that when radium was first used in medicine it was boomed as a cure for all cancers. This unquestionably accounts for a great deal of the prejudice which still exists against its use, and I feel that even the most enthusiastic users of radium to-day have little hope that it will ever prove a cure for all cancers. That in the cure of initial and accessible growths radium will in the future show permanent cures, I feel confident; on the contrary, a growth that has progressed for any given length of time and has shown any evidence of metastasis must be considered only from the standpoint of prolongation of life. Even to-day, cooperation with radium therapeutists is lacking and very few men show the spirit that is absolutely necessary to develop the therapy. Surgeons will send hopeless cases expecting results from the use of radium, although they may have operated and reoperated upon the patient; and the profession in general seems loth to send malignant growths for anteoperative treatment. Personally I believe that all malignant growths and surrounding tissues should be thoroughly radiated before any surgical measures are performed. To bring this about it is necessary for the surgeon as well as the internist to have a more workable knowledge of the physics of radium and the action of the radiations upon normal and abnormal cells.

It is evident that the position of the radium therapeutist should be that of a consultant, and, as it is an accepted fact that a radium toxemia exists during the disintegration of a malignant growth, the entire supervision of the case should also be under his care. The radium therapeutist, however, cannot possibly be specially trained in all branches of medicine and surgery, therefore the application of the radium should be under the care of a specialist from each department who has been adequately trained. It is evident that proper cooperation by this method would tend to prove the true value of radium therapy.

Time will not permit of full discussion of the physics of radium and in passing I shall merely speak of the present controversy which exists between the radium therapist who is working with emanations alone and the therapeutist using radium salt itself.

Radium is constantly in a state of atomic disintegration and a gas known as the emanation is the result. All the therapeutic values of radium are a result of the disintegration of the emanation. This gas is in a constant state of formation and it has a life of approximately thirty days. To obtain the emanation various forms of mercury vacuum pumps are in use. The gas is pumped from a radium bromide solution and compressed into small capsules and, after measurement, is ready for use. A number of hospitals are using this method and the chief advantage is that the radium is constantly in a safe place and in no danger of theft.

As regards the use of the radium salt itself, it is packed in small glass tubes or put in metal needles for use in various growths. The result of the controversy narrows to a point of which has the better therapeutic value, the beta and gamma rays together or the gamma ray alone. It must be remembered that the beta ray has an absorptive value of only a centimeter of tissue, while the gamma ray has a decreasing value with each centimeter distance but a combined range up to ten centimeters of tissue. The beta rays are of many ranges of penetration, are very active and irritating in their action, and in number are at least nine times as numerous as the gamma ray, so that when gamma rays are used alone it is necessary to expose at least nine times as long.

The action of the gamma ray upon cell life is most ably summed up by Ewing: "Within three

*Read before the Alumni Association of the University of Buffalo, June 4, 1921.

to five days after the application in the cervical canal of 300 mc. of radium emanation in a platinum tube, there is hyperemia of the tissues, beginning exudation of lymphocytes and polymorphonuclear leucocytes, and swelling of all the cells. In the second week, the cords of the tumor cells present a characteristic appearance. The nuclei are swollen, homogenous, and hyperchromatic, the cells loosened, and fusion giant cells form. In the third week, the number of cells are greatly reduced. Many appear to suffer necrosis; others are invaded and mechanically broken up or compressed by lymphocytes. From the fourth to the fifth weeks, only nuclear fragments or an occasional giant cell are visible, or no traces whatever remain. Meantime, the stroma has been active and appears to take an important part in the process. Leucocytes become over abundant, the capillaries proliferate actively, and the stroma is transformed into granulation tissue in which numerous new capillaries penetrate and excavate the tumor cell nests. The gathering of leucocytes, lymphocytes, plasma cells, and polyblasts in the later stages of radium reaction may be extremely profuse, and in this respect the reaction is somewhat specific. Eventually the site of the tumor is occupied by granulative tissue from which slight serous and cellular exudate is discharged. Later, epithelium grows over the denuded surface, completing the repair. All manner of variations occur in the reaction of tumor tissue to radium. Complete simple necrosis follows over action of radium. Bulky tumors may present large areas of simple necrosis in which cysts form by liquefaction. The stroma as well as the tissue is destroyed, in which event extensive scarring will result."

In the foregoing scheme of changes it would appear that just enough radium had been employed to cause slow degeneration of tumor cells and stimulate regenerative growth of granulation tissue.

The American Radium Society in its endeavor to standardize the use of radium has adopted a classification of cases—A, operable; B, borderline or doubtfully operable; C, inoperable, D, advanced and hopeless; E, recurrences.

To classify our cases and also as an aid to prognosis it is necessary that a patient at first have a thorough physical examination; secondly, a complete uranalysis, and if the specific gravity is low or if albumin or casts are present a phenolsulphonephthalein test and a chemical blood examination; thirdly, a complete blood examination consisting of counts—red, white, hemoglobin and differential, and a pathological specimen to be taken for a laboratory report.

Treatment.—Much may be expected from the medical treatment of malignancies in conjunction with radium therapy. The two main factors necessary for success in the treatment are, first, that the growth is accessible to the action of the rays of radium, and, secondly, that the physical condition of the patient is such that they will withstand the treatment. Literature is teeming with the description of the necessary dosage required to treat a growth of a given kind and size. Our experience in the New York Post-Graduate Hospital has been that it is necessary to treat the patient rather than the growth, therefore our doses are based upon the theory that a patient can take care of a certain amount of absorption due to the disintegration of the growth. For example, in treating a patient who has a hemoglobin of 55 per cent. and red corpuscles of only 3,000,000 per c.m.m., it is impossible to use as large a dose of radium at one time as in the treatment of a patient who has a comparatively normal blood count.

The result of radium treatment and the necessary absorption of protein material demands an increased action on the part of the kidney excretion, and it seems poor judgment to treat a patient with low phenolsulphonephthalein percentage with a lrage amount of radium at one time. To illustrate:

Mrs. R., admitted August 27, 1920, Post Graduate Hospital, service of Doctor Thomas Cherry, presented a normal urinary output but her blood examination revealed a hemoglobin of 45 per cent. Sahli; red blood corpuscles under 3,000,000; white blood corpuscles, 12,600; the differential count was unimportant. The chief complaint was of a constant vaginal bloody discharge. Upon examination a large mass was found rising at the site of a previous complete hysterectomy. Radium therapy was not indicated because of the patient's blood condition and it was suggested that a transfusion be done. 500 c.c. by citrate method was given. On September 8 the blood report showed 55 per cent. hemoglobin; 3,200,000 red blood corpuscles, and 21,000 white blood corpuscles. The patient was then treated with four 12½ mg. needles inserted into the mass. On September 21 the patient reported that she had had no bleeding and was much improved generally. The blood examination showed 3,968,000 red corpuscles, 14,800 white corpuscles, and hemoglobin 60 per cent. Sahli. The patient continued to improve and reported at the clinic on May 27, 1921, having gained over ten pounds in weight and with a comparatively normal blood picture.

Mrs. R., admitted August 28, 1919, to the New York Post Graduate Hospital, service of Doctor Thomas Cherry. Blood examination: red blood corpuscles, 2,776,000; hemoglobin, 70 per cent. Talquist; urinary examination revealed albumin and casts. Chemical blood: urea, 49.6; uric acid, 10; creatin, 13; sugar, 0.159. Phenolsulphonephthalein examination revealed no coloration at the end of four hours. The chief complaint was of vaginal bleeding. Upon examination the diagnosis was made of carcinoma of the cervix involving the anterior bladder wall. The low blood count with the picture of an arteriosclerotic kidney made it impossible to hope that any benefit would come from radium therapy. Knowing the hopelessness of the condition, the family insisted upon the application of radium. 30 mg. was inserted against the cervix for a period of ten hours. The patient became noticeably worse and on the 17th of September examination showed: urea, 107; uric acid, 11.7; creatinine, 20; sugar, 0.142. The blood picture was: red corpuscles, 1,632,000; hemoglobin, 30 per cent. Sahli; leucocytes, 7,040. The patient was discharged on the 28th of September and died the following month.

Experience has taught us that a patient presenting a hemoglobin of less than 50 per cent. or a red count under 3,000,000, is not considered a case for radium therapy. From a urinary standpoint a phenolsulphonephthalein excretion of less than 50 in two hours is considered a contraindication for radium therapy.

To combat the toxemia which always exists after a treatment with radium, soda bicarbonate and soda citrate have been our chief aids. Sodium bicarbonate is given in dram doses, t.i.d. for at least a week after treatment, sodium citrate, in 15 grain doses every three hours. It has been our habit

also to give iron in some form either intravenously, subcutaneously, or orally. A liberal diet is also prescribed and constant attention paid to the increase in bodily weight.

Radium Therapy.—For convenience I will discuss the use of radium under five headings: First, superficial cancers; second, oral, laryngeal, and esophageal growths; third, uterine cervical and vaginal growths; fourth, rectal; fifth, breast.

Superficial Cancers: The basal cell carcinomas are in the majority of the cases very rapidly benefited by the use of radium. The squamous cell carcinomas are more difficult but unless metastasis has occurred over large areas we feel that the disease may be arrested in the majority of cases. Technique of superficial growths; needles ranging from $7\frac{1}{2}$ to $12\frac{1}{2}$ mg. are inserted through the growth, to each centimeter of space a needle, and are kept there for a period of one hour. This treatment is supplemented by using a tube of 25 to 60 mg. applied over each area of about two centimeters square for not more than one hour. These tubes are screened with a millimeter and a half of brass and one millimeter of soft rubber. If necessary, treatment is repeated but not oftener than once a month.

Mouth, Throat, and Esophagus: Our treatment in these cases has been the application of a 10 mg. needle inserted deeply into the growth which is allowed to remain from one to four hours in each centimeter of growth. In many of these cases we had marked diminution in the tumor mass, but in few cases did we escape infection which has proved more disastrous than the original growth. In the past six months we are inclined toward gamma ray therapy and feel that our results are more favorable. Technique: a tube from 60 to 100 milligrams, screened with a millimeter of gold and two millimeters of hard rubber is applied over the growth for one hour daily. Treatments are continued for one month and are then supplemented by external treatment along the glands of the neck, raying each centimeter for approximately 600 mg. hours. This treatment is repeated monthly as often as necessary.

Carcinoma and sarcoma of the tonsils are treated with needles, and if we can prevent infection results are good. Laryngeal cancers have done poorly from a standpoint of cures. Technique: introduction of a needle, containing 10 mg. of radium, by a member of the throat department while the patient is in a suspended position. These needles remain from one to four hours, depending upon the size of the growths. Cross firing externally with a tube from 100 to 125 mg. radium to each two centimeters square. These cases do very well from a palliative standpoint, but sooner or later in nearly all our cases we have noted infection. Formerly we did a preliminary tracheotomy in all laryngeal cases, but because of infection we have discontinued its use and our results are far better. Occasionally after the introduction of the needles hemorrhages have occurred, and in one case this proved fatal. The esophageal cases are at present treated with a special tube made of one millimeter thickness of gold and one millimeter of hard rubber. Attached to this container is a silver wire one millimeter in diameter. Technique: after preliminary *x*-ray examination, the patient is suspended and under the direction of the specialist an esophagoscope is introduced and the radium tube containing from 60 to 100 mg. of radium is introduced as far as possible into the growth and allowed to remain in place for six hours. This treatment is repeated monthly. We can report no cures, but we have four patients who at the present time are able to swallow solid food, and from a palliative standpoint are greatly improved.

Uterine Growths: The technique consists of the introduction of a 60 to 100 mg. tube into the cervical canal. If only one centimeter of tissue is estimated to be involved, 600 mg. hours are given. If more than a centimeter of tissue is infiltrated 2,400 mg. hours are given at one treatment. This treatment is repeated if necessary at the end of from four to five weeks. In certain cervical cases needles of $12\frac{1}{2}$ mg. each were inserted into the cervix, four to six needles being used at a time, and the treatment given for a period of six hours. At the end of two months, if the cervix shows evidence of repair and becomes movable, we suggest a complete hysterectomy and that the patient be returned for post-operative radium treatment at the end of four weeks. Cases of this class are also cross-fired, using from 100 to 150 mg. of radium over the abdomen for 24 hours. Carcinoma of the uterine body we feel is purely surgical, but we suggest ante-operative treatment with a tube of 100 mg. of radium introduced into the uterus for a period of twenty-four hours. Recurrent cases do very poorly and although it may be possible to relieve pain, hemorrhage, and discharge, we have seen no complete recoveries.

Rectal Growths: Much progress is being made in the treatment of cancer of the rectum. Formerly infections have played a great part in our failures and we now advise a preliminary colostomy in all cases of carcinoma of the rectum which are assigned to our department. Technique: needles containing $12\frac{1}{2}$ mg. of radium are inserted under either local or gas and oxygen anesthesia. These needles are applied one centimeter aport once a week for four weeks, and remain in place from six to twenty-four hours. The patient is allowed to rest for a month and then it is usually possible to have some idea as to the amount of further treatment. We also use a tube screened by one millimeter of gold and one millimeter of hard rubber, especially made, containing from 60 to 100 mg. of radium, used daily for one hour. This method has been adopted to prevent sloughing and toxemia, which occurred when we used massive doses at one time. Our experience as to dosage has been that a usual growth will require 600 mg. hours of gamma ray therapy to every centimeter square. It is important that the growth be thoroughly irrigated at least three times a day and it is our habit to use a permanganate of potash solution, 1-3000, as irrigation, two or three quarts daily. This is supplemented by a washing out morning and night with a 3 per cent. soda bicarbonate solution.

Carcinoma of the Breast: Class E, or recurrent cases, do well under radium therapy in proportion to the carcinomatous involvement. These cases can be considered only from a palliative standpoint. Early cases show good results. Technique: Under

either local or gas and oxygen anesthesia needles containing 12½ mg. of radium are introduced into the mass and are allowed to remain in place from six to twenty-four hours, depending upon the size and density of the growth. The chest wall and axillary space, the supra- and intraclavicular spaces are divided into areas, two centimeters square, and are radiated with a tube screened with one and one-half millimeter of brass and one millimeter of soft rubber for 300 to 600 mg. hours. The treatment may be repeated at the end of a month and it is suggested, in every case, that the breast be removed by an elliptical incision and that the axillary space be undisturbed, leaving all postoperative treatment in the hands of the radium therapist.

Bladder and Prostatic Cases: In bladder growths a preliminary suprapubic opening is suggested and the method established by Doctor H. G. Bugbee of New York is followed. Ten mg. radium needles at a distance of one centimeter apart are introduced and allowed to remain in place for six hours. An indwelling catheter is introduced into the suprapubic opening and allowed to remain in place for at least a month. At the end of a month the bladder, under gas and oxygen, is explored again and if any evidence of the growth is noted the needles are inserted in the same manner as before. This improved technique has been in force too short a time to report permanent cures, but that the initial growth has been removed in each instance seems encouraging as to the future outlook.

Prostatic growths are treated in like manner, and through a suprapubic opening, radium needles attached to long handles, are inserted into the prostate through the bladder and allowed to remain in place for six hours. This treatment is supplemented by the introduction of radium needles through the perineum into the prostate which are allowed to remain from three to six hours. The temporary results in carcinoma of the prostrate are apparently encouraging, but again the time is too short to note the permanence of the result.

In summarizing I wish to emphasize:

1. The necessity for closer cooperation so that the early use of radium may be proven.

2. The need for further experimentation to determine the action of radium on abnormal tissues.

3. My personal belief that radium should be used in all malignancies before and after surgical operations.

4. The relative value of radium emanation and salts of radium to be determined only after further experimentation.

5. The question of whether surgery or radium shall be considered more efficient in the treatment of malignant growths of the cervix and rectum.

116 East Fifty-third Street.

Garlic as a Hypotensive.—Evidence accumulates that products containing the active principle of garlic are hypotensive. In the laboratory they are able to reduce the tension and slow the pulse for a considerable interval. There seems to be a selective action on the vagus nerve. Tincture of garlic will produce the same result in the clinic on mankind. There has been no suggestion to employ the drug in hypertension and no account of results obtained in that condition.—*Gazette des Hôpitaux.*

ANTHRAX AS A NON-OCCUPATIONAL DISEASE.*

WITH SPECIAL REFERENCE TO ITS SHAVING-BRUSH ORIGIN.

By LOUIS HANNAH, M.D.,

Sylvania, Ga.

Anthrax (French, *charbon;* German, *milzbrand*) is primarily a disease of animals and most frequently affects those of the herbivorous class, especially cows and sheep. A number of laboratory animals, such as white mice, house mice, guinea pigs, and rabbits, are highly susceptible. Man is susceptible in varying degree, and with possibly few exceptions acquires the disease, directly or indirectly, from the lower animals. Such animals convey the infection in the capacity of hosts as well as victims of the malady, for beasts are known to harbor the germs for years without contracting the disease themselves.

The origin of anthrax is said to be lost in antiquity. It has been identified with the plagues of Egypt, and some authors believe that allusions to the disease are to be found in Homer. To enter into its history and world-wide statistics would lead us far afield of the purpose of this paper; but suffice to say here the disease is ubiquitous, its worst ravages being reported from Asiatic countries—mainly Siberia, Asia Minor, China, and Persia. Russia and Italy are the most seriously affected of the European countries, while Germany, France, and England, prior to the period of the world war, were comparatively free from the disease. In the United States, anthrax has been known for about a century and has occurred, in both sporadic and epidemic form, in nearly every State, chiefly in the Mississippi Valley, Gulf States, a few Western States, and in the East, principally New York, Delaware, Pennsylvania, and Massachusetts. Until the past few years the great majority of cases occurred among the lower animals, and only recently has the disease become recognized as an occupational and social menace to this country. To indicate its frequency, it might be stated that more than one American physician has had as many as forty cases in individual private practice in the course of from six to eight years.

It is of singular note that the prevalence of other infectious diseases (discovered long since anthrax) has ceased to attract extraordinary attention, while anthrax, which afforded us our first knowledge of bacteriology, has only recently attained prominence in this part of the world. The occurrence of this disease formerly was regarded more as a foreign scourge, affecting principally beasts and infrequently man, and was commonly prevalent only in Asiatic and a few European countries. Today, however, it concerns our own country as an industrial problem, and lately we have been confronted with the danger of remote infection from various sources of inoculation. In other words, our attention is directed to sporadic cases of this affection which bear no direct relation to industrial pursuits. The disease in man has been, in the large majority of instances, of occupational origin, arising from con-

*Read before the Screven County (Georgia) Medical Society, at Sylvania, Ga., August 25, 1921.

tact with animals or their carcasses, but most frequently from handling materials obtained from infected animals and used in the manufacture of such as woolen, leather, and hair goods, and artificial manure. Materials imported from Asiatic countries especially are prolific sources of the infection. Not only raw, but the finished products as well (such as leather, shoes, toilet brushes, hair braids, hair mattresses and pillows, etc.) are carriers of the disease, though much less frequently. It is possible for persons to become infected either by mere handling of such products in transit or through the ultimate utilization of them. Furthermore, instances are recorded of the infection in humans being acquired by coming in contact with grain, such as wheat, which was supposed to have been contaminated by infected animals or animal products. The germs of anthrax have been found to lurk in all secretions of animals, including urine, feces, saliva, and milk, from which they may be disseminated by flies and other sucking insects. The disease is even known to have occurred from contact with pet animals which had been feeding on diseased carcasses. The liability to infection of wounds or incisions from anthrax-infected catgut is common knowledge to students of surgery. Of all sources, however, of this disease the greatest danger is said to repose in hides and wool.

Since the advent of the world war, an added danger to mankind from anthrax in the form of cheap shaving brushes (especially the horsehair variety), has been introduced into the United States in by far the greatest measure from Eastern countries, whence horsehair and various bristles were hastily shipped, without the previous usual disinfection because of the urgent demands that accompanied hostilities. Following the outbreak of shaving-brush anthrax among American soldiers during the war, a number of such cases have been reported from time to time, which becoming scattered as reports indicate, it is not at all improbable that unless radical measures are instituted against the careless manufacture of these brushes, we shall be seriously confronted with anthrax as a social, or non-industrial, as well as an industrial problem. Up to June, 1920, there were recorded in this country twenty-four instances of shaving-brush anthrax, in six of which bacilli were isolated from the brushes. But this number, in all probability, does not represent every case that has occurred, because physicians generally have not in the past been aware of this peril in shaving brushes, and thus failed to recognize the disease. One observer, from investigation of the records of Charity Hospital in New Orleans, has stated: "We are forced to the conclusion that many cases of anthrax must have died in private practice, as well as in our public institutions, under the diagnosis of erysipelas, cellulitis, carbuncle (ordinary), blood poisoning, etc."[1] The disease is even said to have been confounded with diphtheria.

Concerning the shaving brush as a source of danger from anthrax, Hubbard[2] regards the use of new brushes made of horsehair or mixtures containing horsehair as a matter "calling for prompt and drastic action by our public health authorities." It is even suggested that all horsehair shaving brushes be taken off the market and that their future manufacture be interdicted. Though horsehair varieties are the most seriously incriminated, should not *all* shaving brushes be regarded with keen suspicion? It is with the non-occupational phase of anthrax, and with the shaving brush in particular as the chief offender among finished products conveying the disease that the writer is herein concerned.

The recognized types of anthrax, according to Andrews, are malignant pustule, malignant edema, pulmonary, and gastrointestinal anthrax. The first two also are classified as external anthrax, in which inoculation occurs usually through a scratch, cut, or abrasion in the skin, and the latter two as internal anthrax, which arises either from inhalation or from ingestion of the germs with dust particles or food. The disease, as manifested from shaving brush inoculation, concerns, of course, only the external variety. Of the cutaneous lesions, those arising in the cervical or adjacent regions are most serious, the mortality in such cases approximating 50 per cent. It is obvious, therefore, that the shaving brush as a source of the malady is particularly dangerous, because the victim is invariably inoculated about the face or neck, where the brush is applied.

CASE.—S. D., a negro farm laborer, 32 years of age, and married, was brought by automobile to my office from his farm, a distance of six miles, on last April 30. Though he was able to maintain a sitting posture in spite of the rugged trip and walked alone to the office, on arrival the patient exhibited signs and symptoms of a most serious malady. Attention was first attracted to his agonizing dyspnea and gurgling of fluid in his throat. On closer inspection I discovered a large lesion about the center of the anterior surface of his neck, which proved to be a flattened, indurated, and necrotic papule, the size of a half dollar. Forming the core of this lesion was a black eschar, surrounding which were coalesced vesicles, a reddened areola, and a generalized subcutaneous edema. The sore caused no pain, but only a slight itching. The patient's neck was swollen to about twice its normal size, and there was such marked swelling of the shoulders, arms, and thorax, that the overlying skin was very tense and glistening. The edema was fluid, producing no crepitation, but pitting on pressure. His facial expression was anxious and respiration so embarrassed from edema, and possibly inflammation, of the larynx, that it was difficult to obtain a history of the case. He was covered with a cold, clammy perspiration; his tongue was heavily coated. His temperature could not be taken, on account of the necessity of keeping his mouth open to breathe. Enlargement of the lymphatic glands could not be detected; his pulse was imperceptible; and his blood pressure did not register even any oscillation of the instrument's needle; all of which were probably due to the extent of edema. Examination of the patient's blood showed hemoglobin 70 per cent., malaria negative, and blood picture indicating marked secondary anemia, doubtless the result of an anthracemia. Analysis of the urine proved negative. His past history was excellent, with the exception of an attack of gonorrhea. No family history could be obtained. The present history is as follows: On Sunday, six days before coming under the writer's observation, the patient while shaving cut a small pimple at the site of the present lesion on his neck, of which mishap he thought nothing at the time. The following day the injury had developed into a very small, apparently insignificant sore, which subsequently progressed daily in size until it presented the appearance observed by the writer. On the third day after shaving, the patient stated that he had a severe chill and high fever, and the next day became aware of the swelling and slight dyspnea, but did not consider it imperative to consult a physician until two days later (six days after shaving), when he came under my care.

The patient was given stimulants, and a hypodermic of quinine because of the chill and the prevalence of pernicious malaria at this season. But the serious nature of his affection was not at first determined. The lesion on his neck was considered as possibly syphilitic, with a superimposed, unknown, malignant infection. He was also given antisyphilitic treatment, but with no hope of recovery, as he was already in practically a moribund condition when brought to my attention. The patient died two days later—nine days after onset of the disease, and at the time of his death the edema had extended to his thighs. A postmortem clinical diagnosis was derived from the association of the characteristic cutaneous lesion with the use of a new shaving brush, and from the malignant type of edema. Later this diagnosis was verified by isolation of anthrax bacilli from the shaving brush which the patient had used. Seventeen other brushes from the same lot were also examined by cultural methods, with negative results. Grateful acknowledgment is made to Dr. T. F. Sellers, of the Georgia State Board of Health, for identification of the organisms in this case and the resulting bacteriological diagnosis. It might be well here to state that antianthrax serum could not have been obtained sufficiently early for administration in this case.

All articles, including lather brush, used in shaving by the patient, were "brand new," and had been used for the first time. They were purchased from a local 5 and 10 cent store, whose stock is supplied entirely from headquarters in New York, indicating the Northern origin of this case. There was no brand mark nor manufacturer's label on the brush used in this instance, but an effort is being made by health authorities to ascertain the source of this lot of brushes through the buyers in New York, while the remaining ones of the lot have been taken off the market by local retailers.

Comment.—The interesting and possibly unusual feature of this case was the extent and malignancy (as to effects) of the edema. Malignant edema, as an individual type of the disease, is said by those who have made a special study of anthrax to be characterized in severe cases by "redness, vesication, and a gangrenous appearance of the skin," and especially by edema of the eyelids, and by absence of a pustule. In the present instance we have a combination of both malignant pustule (so-called) and generalized subcutanous edema, which though absent from the eyelids and presenting none of the skin changes described above, certainly was malignant in its extent and effects. I know of no other instance of this disease which exhibited such universal edema.

As to the recognition of anthrax, one could hardly be discredited for an untimely diagnosis, at least in this section of the country, because of the rarity of the disease and the inattention of public health authorities in the past to its possible prevalence. The records of anthrax in Georgia, according to a report of Dr. T. F. Sellers,[3] read before the Medical Association of Georgia in 1919, show that the disease was practically unknown in this State prior to the occurrence of three cases at Camp Hancock in June and July, 1918, two of which were traced with certainty to shaving brushes. The following year, in February, a case was reported from Camp Gordon, and in April of the same year another, both of shaving-brush origin, was reported by Dr. Shellhouse, of Calhoun, Georgia. A bacteriological diagnosis was established in all of these cases. The total number of cases of anthrax in Georgia, therefore, of which statistics are available, comprises, in addition to the one under consideration, the five instances cited above. It will be observed also that the reports are confined strictly to the shaving-brush variety. These figures indicate the rare incidence of the disease and that, prior to recent military activities, it was either unknown, unrecognized, or unannounced in this State. The small incidence of such a serious malady, however, should not discredit its danger, and it is imperative that the public be especially cautioned in regard to the potential evil of cheap shaving brushes. A campaign against this source of anthrax is now being formulated by the Georgia State Board of Health, which would be very timely for all other States of the Union to inaugurate, in cooperation with the Federal Health Service and the American Association for Labor Legislation.

As this article goes to press, the writer is informed of the recent occurrence in New York City of another case of shaving brush anthrax which adds emphasis to the importance of this dread disease as a non-industrial problem. In this instance, death resulted in three days after shaving, notwithstanding specific treatment in one of our best hospitals and at the hands of competent men. The victim was a former congressman—one of that social class who would not be expected to employ a cheap variety of shaving brush—which impresses us with the universal risk attendant upon the use of any unsterilized animal hair brush for shaving; by "unsterilized" we refer to its literal meaning (implying that an article is either sterile or unsterile), and not to uncertain measures employed for sterilization. The rapid fatality in this case, as well as the patient's ignorance of the seriousness of his condition until too late (which is practically always the circumstance), also should certainly arouse the attention of all public health authorities to the necessity of prompt action in the matter of education and warning against anthrax.

REFERENCES.

1. Dabney, T. S.: A Case of Anthrax (Charbon), *New Orleans Medical and Surgical Journal*, 1898-99, li, pp. 377-383.
2. Hubbard, S. D.: *Journal A. M. A.*, December 18, 1920, lxxv, 25, pp. 1687-1690.
3. Sellers, T. F.: Anthrax from Cheap Shaving Brushes, *Journal of the Medical Association* of Georgia, May, 1919.

A SPECIFIC CURE FOR PNEUMONIA AND PULMONARY TUBERCULOSIS.*

By SAMUEL STERN, M.D.,
ATLANTIC CITY, N. J.

To claim a cure for pneumonia[1] and pulmonary tuberculosis is both presumptuous and startling, particularly so in view of the many discredited pretenders in the past. Therefore, to verify my claim of a cure, the following researches are submitted based upon fundamental and accepted scientific facts which can be readily substantiated by reference to any standard text on the subjects quoted. In the facts I am about to present, I will first briefly outline the normal body functions and their perversions, which can and do occur, resulting in pathological processes of these diseases and it

*Read by invitation, Lancaster County Medical Society, Lancaster, Pa., April 6, 1921.

may be noted how closely they follow and are associated with health and disease and direct the way, scientifically and successfully, to apply a cure for pneumonia and pulmonary tuberculosis.

Health: Gould's definition. That condition of the body in which all the functions are performed normally and equals normal physiological state.

Normal Physiology.—The body as a whole may be described as a composite mass of cells of complex chemical construction, each cell having its function which if not directly is indirectly correlated. All these cells are dependent upon body metabolism for their growth and sustenance. This is maintained in various ways, the usual method being through the blood. As the blood travels through all the tissue and organs in the body, it follows that it may select or eliminate any substance it may contain. The blood carries in solution or suspension the various products of metabolism or assimilation, both endogenous, internal, and other secretions, and exogenous foods and gases, whereby through proper interchange of absorption and elimination it is enabled to maintain the harmonious relations existing in health. Now note that any interference therewith in any manner is followed by functional or physiological derangement which, if continued, will induce physiological defenses in which the law of compensation undoubtedly becomes a factor and, if prolonged or should the compensatory efforts fail, organic or pathological changes must inevitably occur.

Functional changes of the organism may be independent of or associated with pathological processes. It is evident, however, that all pathological changes, in addition to tissue alterations, are accompanied by physiological variations. Fischer's[2] postulate here deserves emphasis: "The transition from the physiological to pathological is not abrupt, although an imperceptible one." Heretofore, the failure to observe the physiological changes associated with the pathological findings have contributed in part to our failure in the treatment in these and other diseases. The pathological processes which invite these physiological alterations should be studied seriously and intensively so that we may be enabled to treat the various diseases intelligently and successfully.

The blood, the body's most vital element, is one of the chief factors in pneumonia and pulmonary tuberculosis and is physiologically well worth close attention and consideration. Physiologists describe the blood as a fluid or plasma holding in solution or suspension salts, cells, and other organic and inorganic matter. It is alkaline or neutral in reaction—the sodium and potassium carbonates and phosphates are its principal alkalies. The alkalies constitute an integral part of the protoplasm, keeping in solution—note well—the albumins with which they are combined and modified. Von Noorden[3] believes the body organism has a tendency to maintain its own alkalinity and serious consequences may follow its reduction. Of alkalies' other qualities I will refer to later. The plasma also contains fibrin which under normal conditions remains in solution. Its precipitation within the body tissue usually accompanies some pathological processes, for instance, its presence in the alveolar spaces in pneumonic states. As regard the causes of fibrins — coagulation or precipitation — one authority contends that inflammation is essential to coagulation and precipitation and points to fibrin ferment produced by this change as the factor that produces this result. Others think cellular destruction, whatever the cause, is the means of liberation of fibrin ferments. Fischer attributes it to acids or excess of alkali, principally the former. Another cause is the presence of any foreign body within the blood. No serious attention, however, need be paid to the academic discussion relative to the merits of the various theories concerning the production of fibrin and its ferments, for at some stage in the progress of pneumonia and pulmonary tuberculosis one or all of these conditions may be present.

Of the cellular elements we need note only the red blood cells. The chief function of these corpuscles is that of a vehicle for gaseous elements. They carry oxygen from the lungs to the tissues and promote the elimination of carbon dioxide from the metabolic processes of the body. To properly provide for these changes hemoglobin and alkalies are provided.

Hemoglobin may be described as a highly complex protein body contained within the red blood cell. By virtue of its iron content it is very stable, being enabled to absorb oxygen but not to oxidize it. Combined with its powers of ready dissociation, it facilitates both physiological processes, absorption of oxygen to provide for oxidation—the body's chief source of energy—and elimination of carbon dioxide, one of the most important waste products of metabolism.

Mathews[4] recognizes two kinds of oxidation occurring within the living matter—aerobic and anaerobic. Aerobic from exposure to air, absorption from the lungs; anaerobic, produced by reduction of foods or changes in body metabolism. Any interference with these most vital physiological processes may be attended by serious consequences to body metabolism. These elements, as I will show, are very important factors in the production and correction of pneumonia. Oxygen free in the blood is in union with hemoglobin as oxyhemoglobin.

Carbon dioxide and carbonic acid are principally waste products of tissue change and the metabolism of digestion or of any oxidative process. Retention within the body of these waste materials will lead to serious harm and as such are important contributing factors in the processes of pneumonia. As already noted, the absorption of oxygen and the elimination of carbon dioxide are dependent upon alkalies, the chief being the sodium and potassium carbonates and phosphates.

A study of the method of exchange of these agents so vital to cellular life shows that the blood corpuscles containing carbon dioxide and carbonic acid in solution or suspension, as phosphates, carbonates, or bicarbonates of sodium and potassium, or as methemoglobin, convey this substance to the excretory organs of the body. We are chiefly concerned with the lungs and their method of exchange of carbon dioxide, carbonic acid, and oxygen.

According to Graham's[5] law, the diffusibility of gases is inversely proportional to the square root of their densities. Therefore the lighter gas, air with its oxygen, will descend. Moreover, the tension of the oxygen of the air is higher than that of

the blood, and the tension of carbon dioxide of the blood is higher than that of the air. Necessarily, therefore, the oxygen of the air passes through the lungs into the hemoglobin in exchange for carbonic acid and carbon dioxide. This sets free the alkali with which it is in suspension or solution. The alkalies are thus liberated in the blood to saturate other carbonic acid affinities. The oxygen is hereby procured and this necessity to all oxidative processes is provided for.

Consider now the results of any interference with this cycle of exchange of oxygen, carbon dioxide, carbonic acid and the consequent liberation of alkalies. First, the chief source of supply of oxygen for oxidative purposes is withdrawn either partially or entirely. Mathews notes that this produces cellular acidosis. Carbon dioxide, if retained, owing to its affinity for water, increases the carbonic acid content of the blood and tissue, thereby producing acidosis. Oxidative processes are inhibited which secure molecular and tissue changes and alter viscosity. If delayed in elimination, these changes promote tissue asphyxiation. Free alkalies are also lost to the system by reason of their combination with carbon dioxide and carbonic acid to assist in removing these waste products from the tissue. This loss is also to be noticed in withdrawing an essential physiological element in maintenance of the albumin in solution, and maintaining normal viscosity. Do we not, therefore, at once interfere with the normal physiological equilibrium and, if persisted in, insure pathological processes? We do. And this is in part the modus operandi which, if continued, readily induces other physiological changes referred to later, which, when completed, present the pathological picture of pneumonia and tuberculosis.

The physics of pneumonia is also not to be ignored. The laws of physics, like those of chemistry, are universal. Though they may be coincident, they are undoubtedly independent and, as such, play an important rôle in normal and perverted physiological states. In discussing blood viscosity, Hemenway[6] says that when the viscosity is increased the velocity of the blood current will be reduced, unless the force behind it is increased. It requires four pipes with a diameter of 1 inch to equal the capacity of 1 or 2 inches. Since the circumferential friction is increased inversely with the diminution in the square of the diameter of the vessel, it is easy to see that the smaller the vessel the greater will be the retarding effect of viscosity on the blood current. This effect is especially noted in the capillaries through which all the blood of the body passes; complete capillary stasis may ensue. Later, in his article, Hemenway adds, given obstruction through the capillaries with heart power normal or above normal, the tendency is to force the more fluid portion of the blood into the tissue or to produce rupture of the weaker vessels.

Is not this suggestive of the cause of cardiac failure so common in pneumonia? Would it be rash here to suggest that the increased blood pressure so indicative of cardiac failure is an index of the degree of altered viscosity, or are we to assume it to be an incident of the disease? To me it asserts itself as cause and effect and is another factor in the establishment of this physiological perversion. To digress from my subject it may be asked, Is increased blood pressure in clinical medicine a symptom of the complex of the disease in question? Is it a disease *per se?* Or is it not, as in pneumonia, the physical effect of altered viscosity? Here surely is a fertile field for investigation. Mathews cites a 4 per cent. increase of viscosity by variations of temperature of 5°, surely within the range of most febrile states. The same author adds that carbon dioxide is a factor in increasing viscosity, while oxygen diminishes it. That there is a surplus of the former and a deficiency of the latter I shall later show.

Of other important factors of viscosity the colloid bodies are noteworthy. All the factors and theories concerning the colloidal state need not be discussed here. They are accepted facts, however, since Graham's[5] contribution in 1851, and they constitute a large portion of the body protoplasm; they are susceptible of physiological and physical variation which, under favorable conditions, assume pathological importance.

Quoting Noyes, Fischer distinguishes two types of colloids: those which are viscous, gelantinizing, and not readily coagulable with salts—colloid solution—and those which are nonviscous, nongelatinizing, and not readily coagulating with salt—colloid in suspension. Fischer states that the essential difference between the two groups resides in the relation of the colloid to the solvent. The first type united to much solvent is lyophilic; if soluble in water, hydrophilic. The second group is called lyophobic. The hydrophilic class contributes the larger part of the body protoplasm. Of the colloids with which we are chiefly concerned the pulmonary cells deserve only passing mention. The blood plasma and corpuscles cause us most concern. I have already called attention to the presence of fibrin and serum albumin in solution with alkalies. To this we should add fibrinogen, serum globulins, lipoid and fat-like bodies, all colloids in soluble state; it is upon the colloid bodies that Fischer builds. He believes them subject to changes and says that they swell in the presence of acids. Hydration and dehydration are the results of the influences of water. Mathews calls attention to the reaction of all protoplasm as generally being faintly alkaline (personal opinion amphoteric).

In speaking of the physical and chemical changes which ensue in protoplasm when its reaction is rendered less alkaline or more acid, Mathews says that they are extremely important and profound. That acids are supplied to these bodies, I shall show. Combine this with the withdrawal of alkalies and we incidentally supply in part the means to produce coagulation or gelatinizing of these colloid states (gel) and confirm Hemenway's findings that altered viscosity may show its effect locally, namely, gelatinizing state of colloids in lungs and these when present and completed add to the physiological alterations that produce the pathological state of consolidation in pneumonia.

Disease is defined by Gould as a disturbance of function or structure of any organ or part of the body "which is typical of a pathological state." Let us now review the pathology of pneumonia and pulmonary tuberculosis.

Pathology of Pneumonia.—The three stages,

congestive or red hepatization, consolidative or gray hepatization, and resolution, require only passing notice.

Histology.—All standard textbooks note that in the congestive stage there are blood, distended capillaries and alveolar tissue. In the consolidative state the picture is altered to include fibrin, cellular and granular debris, red and white cells, bacteria and serum. Resolution adds to this picture mainly the liquefaction, necrosis, and its mucoid character.

Bacteriology.—We need be little concerned with the many cocci or bacilli, distinguished by their presence or their supposed responsibility, as causative factors in pneumonia. Biochemically they are classified by Vaughan[7] as essentially particulate specific proteins and in his work on protein-split bodies he lays great stress upon bacteria as particulate proteins producing aminoacids. Abderhalden's[8] defensive ferments confirm Vaughan's work in aminoacids and, in accounting for the failure to provide specific toxins or vaccines to combat their effect, states that 40,200 distinct chemical bodies may be produced from eight bodies, elements or substances. Any single chemical protein of the aminoacid type contains four elements: carbon, hydrogen, oxygen, and nitrogen. It is, of course, reasonable to presume it capable of producing at least a few acids or a single aminoacid. Should this fail, Abderhalden again comes to the rescue: "We can well imagine decomposition of the bodies of dead microorganisms to occur without the direct participation of the microbes themselves to give rise to various disturbances in the harmonic host without the microorganisms exerting any direct action." Combine these findings with Mathews' observation that every acidosis is combined with proteolysis in the cells and the appearance of ammonia and we surely have proof presumptive of the primary and secondary action of bacteria in producing pneumonia.

Pulmonary Tuberculosis.—As a foreword, first I make no claim for a cure in the advanced types of this disease, with marked cessation or cavity formation. To do so would at once justly invite suspicion. However, in the early cases the socalled incipient or latent types, particularly of tuberculosis, without destructive lesions are amenable to this cure.

It is not within the scope of this paper to discuss fully all the lesions which may and do occur in pulmonary tuberculosis, though a general description is in order of the primary state which exists in the onset of this disease and if allowed to persist may and will produce any or all of the varied types and states described. As prevention is the keynote of present-day medicine, it follows that in the early diagnosis and proper treatment of pulmonary tuberculosis the more serious consequences of tuberculosis may be eliminated.

Pathology of Pulmonary Tuberculosis.—The gross pathology is one of catarrhal pneumonia in the capillary bronchitis which exists. Here all the histological findings already alluded to plus the tubercle bacillus, the provocative agent, may be found.

Coplin[9] states: "Associated with the development of the tubercle there is inflammation of the epithelial lining of the vesicles constituting either a true pneumonia or bronchopneumonia. So that a lobe, or rarely both lungs, may represent some form of the bronchopneumonia or what closely resembles lobar pneumonia." In confirmation of this, any one of us can surely recall his autopsy observations and experiences in which the small miliary tubercle was central to a well defined lobular pneumonic area.

Vaughan in his work upon this disturber of our health and happiness has separated glutanimic acid and other split proteins from the tubercle bacilli which add specifically to our knowledge of this disease. Add to this the secondary infections usually present, the staphylo- and streptococci, the pneumococci, and we again have all the factors already accounted for in pneumonia.

We may now profitably review and correlate these studies in physics, physiology, pathology, bacteriology, etc. The occurrence and progress of active hyperemia or congestion in pneumonia and tuberculosis is dependent upon weather exposure and bacterial invasion. This is followed by increased arterial influx of blood in the capillaries which, if continued, alters the normal densities and tension of oxygen and carbon dioxide in the effected alveolar air. The failure of proper interchange of gases, owing to the loss of equilibrium in tissue tension, density, free oxygen and alkali effects this exchange. The compensatory powers of the body protoplasm now enter and as long as this is equal to the occasion, physiological processes, though retarded, may be completed; with interference continued, the physical factors add to the already labored functions.

I have spoken of altered viscosity first, by physical interferences with capillary circulation. This adds to the carbon dioxide retention and failure to supply oxygen to already overburdened and undernourished tissues. This provides the acidosis of tissue, according to Mathew's views, which I have noted, as due to faulty oxidative processes and an increased ammonia output by proteolysis, as cited by Vaughan and Mathews. It is probable that at this stage the growth of bacteria has sufficiently advanced to supply the aminoacids of Vaughan and to disturb the harmony to host as quoted by Abderhalden, which adds to the already overburdened parts; edema of the pulmonary or alveolar tissue being a factor of obstruction to capillary circulation in the affected area, continues this state. It increases the retention of carbon dioxide, it diminishes the oxygen supply, it advances the production of carbonic acid, and the withdrawal of free alkalies —all these factors contribute their share in the embarrassment of pulmonary tissue and produce at this stage fully advanced congestion.

We now gradually emerge from psysiological to pathological conditions, confirming Fischer's postulate of imperceptible transition from normal to pathological. Continue this lung embarrassment and the colloids add their share of troubles; hydration first, withdrawal of alkalies, advancing acidity, tissue and cell proteolysis, aminoacids of bacteria, later hydration and passage from soluble colloid state to gelatinizing state or coagulation of the blood within the affected area, *i.e.* the consolidative state or red hepatization of pneumonia. As to fibrin, somewhere in the latter stages of this

evolution all the processes for precipitation of fibrin already noted, namely inflammation, acidity, cellular destruction, proteolysis, etc., have been provided for. Other probable compensatory problems are the giving up of the sodium and potassium bases of the sulphates to become sulphides and sulphuric acid. The latter, according to Bunge," would also be a product of hypoalkalinity and the perverted catabolism of proteins, both present in pneumonia.

At autopsy with section of the lung in pneumonia we would now have the pathological picture of a firm, dark red, dry, granular lung; bulging aveolar spaces of acute lobar pneumonia, histologically showing red and white cells; bacteria, cellular debris and fibrin. As to the cellular content present in this stage, they are the victims of circumstances, like rats in traps, so to speak, enmeshed during the gradual change from soluble gelatinizing solution to coagulation.

The various factors in the production of these diseases having been accounted for, we are now concerned with restoring the diseased state to normal. Here a brief survey of gray hepatization shows this pathological process to be one of the body's defensive efforts at restoration, and the first advancing sign of resolution, which is the body's endeavor to restore harmonic relations.

It is not within the scope of this paper to describe all the changes in the transition from pathological to physiological; I note only that the resolution of pneumonia must be essentially the provision of correctives that the body's efforts to return to normal physiological equilibrium may be accomplished. It should be said that when we are more familiar with the body processes we may well marvel at the wonderful immunity defences and compensations present. I might further add that most of nature's so-called cures can and will later be accounted for in compensatory reactions of the metabolic processes of the body which, though seldom absent, may be delayed. Probably a few of our socalled states of immunity may be accounted for by intensive physiological observations. It is upon these most fortunate circumstances that our mystic and other neighbors often succeed mysteriously where we have failed, much to our chagrin and incidentally financial embarrassment. It is surely not due to any vaunted skill or virtue that they may profess to have.

Treatment.—Empiricism, indeed, has too long dominated our applications of remedial measures. We have surveyed the normal physiological relations necessary to continue and promote health. Attention has also been directed to the perversions and the means by which they have been effected. As recovery from disease necessarily consists in restoring normal functional activities to, or near, the state in existence previous to diseased alterations, it follows that the cure of pneumonia and tuberculosis depends upon a restoration of normal physiological conditions of pulmonary and other tissue metabolism. Here a word of caution: it is neither essential nor safe to provide highly complex, doubtful, or dangerous methods; simplicity may be combined with safety, and what is more to be desired, specificity. All these desirable qualities may be readily at our command.

I have directed attention to the one element, oxygen, as essential to psysiological processes. This important constituent is very essential to all cellular changes. Have we not in the past appreciated this in our effort to supply oxygen directly in our treatment of pulmonary tuberculosis and pneumonia, and indirectly by the open air methods? Cyanosis as evident at some stage reveals carbon dioxide retention and should be provided for by elimination.

Coagulation and consolidation and its production and associated interferences with normal physiological relations has been referred to and demands our attention. Since nature's socalled cure is resolution of these areas, the primary aim is to provide for or to promote this process. As the normal body supplies physiological means to maintain this condition in the healthy state, we can safely imitate her by furnishing these deficiencies.

Here reference to physiological processes informs us that the combination of organic acids of foods, the citrates, malates, oxalates, tartrates and benzoates has, with sodium and potassium bases, the function of keeping in proper balance and solution the various albuminous substances of the blood and body tissue. To supply any of these acids, citric, oxalic, tartaric, while logical, is not without its attendant dangers and limitations and in so doing we ignore fundamental principles of intelligent therapeutics.

This is best expressed by Fischer's thought of the many drugs to be employed. One can foresee, of course, that those will give the best results which can have no specific poisonous effect, and which have the maximum power to restore normal physiological relations. In selecting acids, citric acid seems to have answered most of these demands. If for a base sodium is supplied in place of potassium, we again materially gain and supply all the good features and avoid any possible dangers from careless or ignorant application. Further, sodium is stimulating to the heart and striped muscle tissue. In general, potassium is depressant and in maximum doses may be toxic. Sodium citrate is converted in the system into sodium carbonate, a most essential element to normal body metabolism. As already shown, by this drug we are enabled to promote resolution of the coagulated areas with citric acid—in soda, its base, we are enabled to provide for oxidation by supplying free oxygen in sodium carbonate.

We also provide for elimination of carbon dioxide and carbonic acid which, according to Haldane's[11] newer physiological conceptions, are life's basic factors. We provide for hydration and dehydration accompanying this condition. We keep in solution the albumins essential to normal viscosity. Combine this with the dilution of toxins of the bacteria by virtue of the freedom of use possible with this drug and we need not, therefore, fear the virulence of any bacteria.

All the other physiological and physical factors already alluded to are also provided for. Sodium citrate has served me well and is the drug of my choice; and here a word of caution as to the personal care in the selection of drugs to be used is not amiss. Ordinary commercial drugs are usually chemically impure, the sodium salts often being contaminated with the chlorides and sulphates and iron. Therefore C. P. drugs are in order.

Should nausea and diarrhea occur, Weaver[12] advises the use of paregoric. To counteract this state, my custom is, first, to decrease the dosage one-half to one-fourth, or lengthen the interval of administration before resorting to opiates. I have used the tartrates, potassium bitartrate, which is acid, in my senile cases, where alkaline urine with its attendant ammoniacal decomposition was a factor to be dealt with, insisting, however, that the attending nurse use litmus paper as her guide in its use, and I have played alternately with my citrates and tartrates until my results have been accomplished.

Again in children, or adults with children's temperaments or habits as to partaking of medicine, grape juice has saved the day, for in unfermented grape juice we have the tartrates in a palatable form, and I would add that it is good therapeutics in all cases as a finishing touch to treatment and through the convalescent state. Here a knowledge of the chemistry of foods again comes to our rescue, for the malates in cranberries and apples, given as sauces, are particularly efficacious both for treatment and to give dietary variety and latitude with satisfaction and safety to the patients.

As to the dosage of pneumonia in adults—children in proportion to age—two drams are given every two hours, dissolved in eight ounces of water or milk for the diuretic and diaphoretic effect and to aid gastric tolerance. I never permit less than four to six ounces of fluids in adults, children in proportion, with tendency to larger quantities of liquids.

Some results of this treatment were as follows: Respirations that had been rapid, labored, and limited, with accompanying pain, showed almost immediate amelioration. A respiratory rate of forty to sixty was lowered to an average of twenty-eight to thirty-five and usually with greater amplitude and freedom from pain and distress. Temperature, the usual febrile state, 102.5° to 104.5° F., declined rapidly to 99° and 100.5° F. within twenty-four to forty-eight hours. Results were obtained by lysis, not crisis, within from four to six days without the intense prostration usually accompanying the disease.

Any discontinuation of treatment before five to seven days is usually followed immediately with recrudescence and return to original state. Diuresis and diaphoresis were also obtained. Diaphoresis and diuresis are most pronounced. In the majority of my cases diaphoresis was so marked as to often evoke comment, often concern, lest the patient take fresh cold. For its beneficial effects, we are enabled to draw upon the skin as a valuable aid and excretory organ in the elimination of waste and other products. I speak of carbonic acid and carbon dioxide, etc. Hypodermoclysis is unnecessary and, as Fischer notes, dangerous, because it may and often does invite sloughing.

I would also note that the period of the disease is materially shortened. The individual is relieved of the intense suffering and prostration attendant upon all other methods heretofore tried or suggested, and this within twelve to twenty-four hours after treatment is instituted and continues until recovery is established. Freedom from any complication, such as effusion or empyema, allows me to institute regular diet just as soon as the patient will accept same, omitting only the acids, spices, salad dressings and condiments—which is usually about the third day. Laxatives are administered if necessary.

In my senile and highly toxic cases, I support the kidneys' elimination with half-ounce doses of infusion of digitalis and buchu made fresh from the leaves. Here again I would enjoin the physician against permitting the pharmacist and the manufacturer advising the use of the fluid extracts in providing infusions as is commonly and regularly done. Fluid extracts are not infusions, nor are infusions fluid extracts except to the knave, fool, or impostor. These are dangerous individuals to the physician and his patients and should be carefully avoided or shunned.

In cases marked by troublesome coughs I use heroin and terpin hydrate or codeine in a suitable mixture. I continue my two drams of sodium citrate until temperature, respiration and pulse have remained normal for forty-eight hours. Then I gradually reduce the dose by lengthening the interval of administration and continue the process until the patient is discharged as cured.

In tuberculosis I usually administer sodium citrate, one dram t.i.d. unless febrile or pneumonic processes are present, when I increase the dose accordingly, giving grape juice, 1-3 ounces once or twice a day 48 hours after I begin my treatment on both pneumonia and tuberculosis patients. Care should be exercised with grape juice lest idiosyncracies or physiological factors interfere with an excess of the use of same. Food, as already suggested, is pushed with cranberries and apples, etc., for variety and therapeutic reasons. Food is not only desired but well tolerated, and the family, friends, and patient are all happily provided for and cease to worry lest the patient will not receive enough nourishment.

I have personally treated, successfully, over one hundred cases—with two deaths—of the various types included in this series. I have had nephritic, tuberculous, alcoholic, influenzal, postoperative, and frank lobar pneumonia of pneumococcic origin—and here, with pride, I add the acid test of success of this therapy was the complete recovery of a child of four and one-half years of age with anterior poliomyelitis with a double basal lobar pneumonia. The ages of these patients have varied from six months to eighty-two years.

REFERENCES.

1. Stern, Samuel. A Successful Treatment for Pneumonia. *New York Medical Journal*, April 21, 1917.
2. Fischer: Edema and Nephritis.
3. Von Noorden: Acid Auto-Intoxications.
4. Mathews: Physiological Chemistry.
5. Graham: Chapman's Physiology.
6. Hemenway, H. B.: Therapeutic Use of Citric Acid and the Citrates. *Journal of the American Medical Association*, April 6, 1912.
7. Vaughan: Protein Split Products in Relation to Immunity and Disease.
8. Abderhalden: Defensive Ferments.
9. Coplin: Pathology.
10. Bunge: Lehrbuch der Physiologie, 1901, vol. 2.
11. Haldane, J. S.: New Physiology. *New York Medical Journal*, Oct. 21, 1916.
12. Weaver, W. H.: Sodium Citrate in the Treatment of Pneumonia. *New Orleans Medical and Surgical Journal*, September, 1912, Vol. 65.

2815 Pacific Avenue.

PAN-PEMMICAN.

A PRIMITIVE RATION ADAPTED TO MODERN NEEDS.*

BY GEORGE HOMAN, M.D.,

ST. LOUIS.

A STUDY of the practices of aboriginal peoples, living close to nature with respect to the instinctive manner of their dealing day by day with the problems of living may often afford important hints to those who abide in more pretentious stages of progress, and serve to remind the latter that the laws of organic nature still hold sway, howsoever much civilization may have outwardly affected conditions amidst which such lives are spent.

The fundamentals of human feeding must always remain sustantially the same; and a glance therefore at the eating habits of the early tribes on this continent may not be without interest.

The American Red Indian was chiefly a flesh-eater, drawing food supplies principally from the yield of the chase and fishing. It was in the case of the larger tribes only, with relatively stable conditions of residence, that tillage of the soil for grain production was resorted to and the crop usually was maize or corn. The milling of grain was laborious hand work, and this sort of food supply seemed to be never over-abundant. When the planted crop failed and game animals and fowl became scarce famine was a common experience with such tribes.

When the braves took to the warpath they carried with them a ration consisting of dried venison beaten to a pulp, which was combined with certain wild berries or fruits; animal fat was added and the whole then pressed into the form of cakes.

This food product was called pemmican by the Indians, the term being adopted by the whites, and was a compact and nutritious form of food especially suited to meet the physical strain of strenuous effort on hostile raids and warlike forays.

When the pioneer white settlers found conditions on the frontiers sufficiently stable to permit of safe farmwork the principal grain crop planted was corn; and it would appear that to the Indian pemmican they added parched corn reduced by pounding or grinding to a coarse meal; and thus created a kind of aliment that fully met all the demands of the body, being in concentrated form, inviting in flavor and aroma, appetizing, and digestible.

It has often been a reason for wonderment that this valuable and comparatively inexpensive form of food has been so completely lost sight of, especially during the last few years, and since the prices of everything that goes upon the table have reached such forbidding heights; and the subject is brought forward at this time in the hope that by some such recourse the cost of wholesome living will be substantially lessened to many worthy persons who now severely feel the pinch of high prices.

The name attached to this resuscitated culinary product while not strictly classical yet leans that way by reason of having borrowed from the Latin word *panis* the first syllable in order to signify the union therein of bread-stuff and meat-stuff elements, together with dried chopped fruits and seasoning to increase its acceptability to the digestive powers.

*Read at a meeting of the Staff of the Free Dispensary, Parish of the Holy Communion, St. Louis, June 7, 1920.

The measurement of food values by means of calories estimation may in fact prove quite fallacious, even when they appear correct, for the reason that certain dishes, though scientifically and technically approved, may yet be presented in such manner that the senses concerned will be offended; the proof, therefore, of pan-pemmican is in the eating; and this, when properly prepared and served, is palatable and satisfying in an eminent degree, while the cost can be kept down to a low market level.

If fresh meat is used, cuts of lean beef from shank or flank, free from fat, are preferable, while the cooking process should be very slow and of a penetrating nature. In aboriginal usage the lean venison, which is finer in fiber and flavor than beef, was dried in strips, presumably by smoking, and was somewhat analogous to our own dried beef, to the jerked beef of South America, and the biltong of South Africa.

If the poet spoke truly of Peeping Tom of Coventry, that "Heaven cancels a sense misused," then it may also be true that nature annuls a power or function unused, on the principle, perhaps, that if no work is given to the teeth there is no need for them; and this fact in modern life among white people touching dental conditions must plainly appear to those who can see things as they are among town populations. Children past their earlier years are usually fed on dishes of mush or slush, porridge, pudding, etc., and almost nothing is given to them on which by the grinding action of jaws and teeth these important parts can be exercised and normally developed; for by such exercise only can wholesome conditions of gums and teeth be established, nerve and blood supply maintained, and resistance to decay strengthened.

The addition of parched corn coarsely ground to pemmican supplies a most palatable inducement to chewing performances, which are equally enjoyable and necessary for the proper mingling of the saliva with the food intake. The changes in the maize kernel, brought about by the proper use of heat, are interesting in their chemistry, and all tend in the direction of more perfect digestion and better nutrition. The tough covering of the grain is rendered friable, and in its dietary effect overcomes tendencies to constipation. The raw starches are transformed into more easily digestible elements (dextrose, maltose, sucrose) affording an agreeable savor which stimulates stomach action; while the oil in the kernel is changed to a volatile state that yields an inviting aroma. The applied heat turns the contained moisture into vapor which distends the grain and favors all the changes above briefly indicated.

The inclusion of fruits or berries in pemmican was a notable instance of obedience to a craving decreed by physiologic law in the animal economy for the prevention of scurvy, and that the Indian had his reward cannot be doubted; for, at about the same time, English fleets, both naval and commercial, were sometimes paralyzed in operation, with heavy loss of life among their crews, by the presence of that disease. Hospitals were crowded by wrecks of seafaring men, who had lost all their teeth by scurvy;† for it took a long time for the

†The former seriousness of scurvy as a menace to the success of military operations in the case of land forces, as well as seamen, is well shown by the expe-

simple truth that lime juice would prevent that disability to get through the skulls of those in authority; but when finally such an allowance, or its equivalent, was added to the ship ration the disease became almost an unknown quantity.

It is supposed that wild plums, cranberries, and other tart forms of fruit were the ingredients of pemmican as originally made, and that wild honey or maple syrup was added to give adhesiveness to the mass, and which also was an important element of nutrition in this admirable preparation for human feeding. To-day the choice of fruits for pan-pemmican would probably be finely chopped dried cherries, currants, prunes, raisins and the like, although the dietetic need for such inclusion is not now what is was in pioneer times, but the tempting savor afforded by their presence cannot be overlooked. Again, there would be no present need for adding fat to the preparation, as the whole-milk supplied to its little patrons by the Dispensary would in its fat-content meet the due demand in that direction.

If this form of feeding should be adopted by the Parish Dispensary service, as affording a maximum food value at minimum cost, it is suggested that with suitable oversight it could be conducted with no financial outlay other than the cash paid for market supplies. For example, half-grown boys and girls no doubt would volunteer for this service, the parching and grinding of the grain being assigned to the boys, while the girls would handle the meat and fruit portion. Not an atom should be wasted, for if bones are received with the beef these when cleared of the meat should be given to the boys, who with hammer or saw would reduce them to small particles. These, when slowly simmered in water, would give up all of their organic matter and some of the mineral salts, and the resulting liquor would make a valuable soup-stock. Even the remaining fragments of bone have a market value in the form of meal with raisers of poultry for egg production.

Very much more could be said on this subject, for it touches the very foundations of physical vigor and life. The unhappy parade of painted faces seen on the street—too often hard, stunted and uncomely in expression—appearing above bodies that do not seem to be old in years, bespeaks a deep-lying cause operating at the basis of vitality and which moral or social influences cannot adequately explain. The causes responsible for such general lack of wholesome bodily conditions must have been in silent, secret operation for years, and their sinister effect is seen in scurvy conditions that the younger generation seeks to hide with masks of paint and powder.

For these conditions the elder generation of housewives and home-makers must be held chiefly responsible; for, within the years known to all now present, under pressure of economic and other causes, the patronage of public eating places has been vastly increased, the character and quality of such catering has been fundamentally changed for the worse without recognition by the public of the fact; beguiled by false appearances such patrons have lived in what in effect is a fool's paradise, and as Nature's law is inexorable the penalty of transgression must be paid. The people perish for lack of knowledge of wholesome food preparation—bastard baking, counterfeit cooking, misfit or pernicious kitchen service must, in impartial judgment, be held accountable for the malnutrition now everywhere visible among the population.

The hope of sages of earlier times was for a sound mind in a sound body, and this end was sought by study of, and obedience to, natural law; and it would be entirely reasonable to expect that a sound soul would complete this trinity of blessings, for such a result would in fact be pure religion and undefiled, as natural to man as the air he breathes.

Effective action for the betterment of such conditions as have been sketched of necessity must hinge largely on the disposition of those in official station; but, unhappily, such authority in this community with reference to the issue raised seems to be as slothful and unseeing as was the naval board when English fleets were being decimnated in manpower by scurvy—only by endless prodding and protest could relief be secured.

What has been offered on this occasion has not been primarily to move to such action; but rather, with reference to the young lives coming within range of the influences of this institution, that they should enjoy a better nutrition by the means suggested, and gain at the same time a fair knowledge of natural law in bodily growth, digestive action and the why and wherefore of the processes employed in wholesome food preparation.

The almost universal form of food called bread which, when prepared from good materials in right proportion and properly baked, is correctly enough spoken of as the staff of life, has been turned rather into a club of death by local ignorance and indifference and commercial greed and craft—a double swindle affecting both health and purse being perpetrated on the users of such sinister products through what appears to be corrupt collusion on the part of manufacturer and caterer.

Efforts directed in opposition to such a regime of sloth and piracy do not seem promising; for, so long as housekeepers and bread-buyers are content to be gulled in such fashion and tamely submit to rank imposition they deserve to suffer all the ills that flow from such manifest delinquencies.

The plea made here and now is chiefly in behalf of a younger generation, the hope being that through influences brought to bear possibly through

---

rience of the expedition sent out by the French Government in aid of the American Colonies against Great Britain, under the command of Comte de Rochambeau. This enterprise was very popular with all classes of the French people, and special care was taken to insure success. From among a great number who offered themselves for service, only the physically fit were selected. The troops numbered 6,000 men, and the Fleet sailed from Brest May 2, 1780, reaching Newport, R. I. on July 7 following. A few days later the commander of this force officially reported to the French Ministry of War: "And the scurvy has ravaged our army"; (Merlant) "1,500 of my men sick on the ships, 800 in the army"—this in the case of a thoroughly provided fleet, as considered at that time, and in the pleasantest season of the year. Further, the noted Russian commander in the Napoleonic wars, Suvoref, reported as follows: "There is no scurvy in Finland. . . . By means of cabbage, tobacco, and horseradish scurvy has been stopped, and by cleanliness, too." (Blease).

this and like places, they may grow up to better things unburdened in body and mind by ills that are avoidable, fitted to deal in wholesome fashion with all the problems that may come to them in life, and to this end practice and precept, sound and sane, as briefly suggested herein, must ever play no inconsiderable part.

NOTE.—The excellent keeping quality of the alimentary preparation suggested above happened to be proved in a manner entirely accidental. A copy of this paper reached two accomplished nurses, cooks and dietitians on the Pacific Coast, who at once proceeded to the production of Pan-pemmican on the line suggested. A sample of this product was received by the writer (in St. Louis) and at once distributed as widely as possible among children, by whom it seemed to be much relished. By an oversight one cake was mislaid and lay, loosely wrapped and in common room temperature, from July, 1920, to the February following, when it was discovered and found to be entirely free from mould, fermentation or souring; though very dry it was in fact as palatable as the day it was made.

716 CENTURY BUILDING

A BRIEF DISCUSSION ON THE POSSIBLE RÔLE OF THE THYMUS IN GRAVES' DISEASE AND IN MYXEDEMA.

BY G. A. FRIEDMAN, M.D.,

NEW YORK.

MUCH experimental work has been done on the thymus gland, yet no evidence has been found that it furnishes a hormone. The question arises as to whether one is justified in considering the thymus as belonging to the group of endocrine glands on mere hypothetical grounds. Such hypothesis does not seem tenable at first glance, because it is impossible to decide whether the gland should be considered as a lymphoid or an epithelial organ. Were the latter true, the hypothesis of a thymic hormone would deserve great consideration.

Stöhr,[1] for instance, states that the thymus should be considered an epithelial organ. The thymic cells, according to him, have only externally a mistakable similarity with lymphoid cells. Gierke[2] believes that finer studies of the thymic cells, and the special staining for specific granulations, may decide the question of the thymus as being an epithelial organ.

In spite of definite information as to origin, one must admit that thymic hyperplasia has been noted very frequently in Graves' disease. It is true that the presence of a large thymus in this condition can rarely be demonstrated on *x*-ray examination or by percussion, but thymic hyperplasia, as will be shown later, has frequently been found in exophthalmic goiter cases at necropsy. Because of this occurrence, some have even conceived a thymic type of exophthalmic goiter.

As an enlarged thymus is a frequent finding in those who die from Graves' disease, one would expect the histology of the thymus in this condition to rest on a solid basis. But a few remarks will serve to indicate how contradictory is the histopathology in hyperthyroid states. In a case of Mönkelberg[3] and in a case of Hansemann[4] numerous Hassall corpuscles were found in the thymus. In a case of Soupalt,[5] the increase of Hassall bodies was so enormous that the histological picture resembled a carcinomatous growth. There were no Hassall corpuscles in a second case of Hansemann and in a third case of his the enlarged thymus consisted solely of lymphatic tissue. Dirker[6] reports an increase of lymphatic tissue in a large thymus in a case of Graves' disease. Since a hyperplasia of the thymus is associated either with an increase of Hassall bodies or increase in lymphoid cells, there must be a great deal of truth in the statements of Stöhr and Gierke.

Although the function of the thymus is not understood in either normal or abnormal states, the fact remains that the enlargement is associated with an indisputable and typical endocrine disorder, *i.e.* Graves' disease. The frequent hyperplasia of the thymus in the latter condition strengthens the suspicion that the thymus is an endocrine gland.

As it is well known that there is an antagonism of symptoms between subjects afflicted with Graves' disease and those afflicted with myxedema, one would expect to find in the latter condition a hypoplasia of the thymus. It is the consensus of opinion at the present time that thymic tissue persists throughout life and never involutes completely, in the full sense of the word. By this is meant that, just as in the individual afflicted with Graves' disease, the thymic remnant leads to hyperplasia, the thymic remnant of a myxedematous individual becomes still further atrophied.

I know that many speak of a persistent thymus in Graves' disease. While Hoxie[7] denies the existence of a persistent thymus, one must agree with Halstead,[8] who has expressed the view that the thymus in Graves' disease is activated anew by the thyroid gland. Hyperplasia of the thymus may be due to other causes besides stimulation from the thyroid, as in the status thymicolymphaticus. Hoxie, I believe, is right in speaking of reactivation of the thymus from unknown causes. This author relates the following case: A young farmer, seen at the age of 19, had been suffering from shortness of breath for two years. Formerly he had been the fattest member of the family, but he was very thin when he came under Hoxie's observation. The manubrium of this patient was resected and some pieces of the thymus removed. The microscopical study of these revealed the epitheliazation described by Matti and Klose[9] as characteristic of reactivation of the adult thymus. The causes of this reactivation are unknown. His case also shows that loss in weight may be due to thymic hyperplasia.

Friedleben[10] showed that the thymus gland is not essential to life. It may be extirpated in animals without any consequences to the general welfare of the young. Pappenheimer[11] recently arrived at a similar conclusion through his experiments. The thymus, according to Friedleben, may be missing in otherwise normal fetuses and in children; yet in some pathological conditions the thymus is found to be hyperplastic or atrophic. In Friedleben's experiments one finds a suggestion as to the possible atrophy of the thymus in myxedema. There was no atrophy of the thymus found in young dogs when he resected the left vagus, but after section of the vagus, the sympathicus, lower cervical and upper dorsal ganglion of the sympathicus complete involution of the thymus occurred. Halstead[12] noted atrophy of the thymus in a myxedematous dog. Atrophy of thymus in thyroidectomized animals was

found by Hofmeister,[13] Haushalter and Jeandelize,[14] Blumreich and Jacoby,[15] and Tatum.[16] The latter author has also made the interesting observation that in rabbits the thymus atrophies after excision of the thyroid gland.

Scholz[17] states that at autopsies, the thymus of myxedematous individuals was frequently found diminished, atrophied, sclerotic, or in a state of interstitial inflammation. It is also true that in some cases the thymus was found large and persisting in old age, but it must not be forgotten that a gland may be large and degenerated at the same time. It was explained in a recent article,[1] that the large hypophysis in thyroidectomized animals and the large hypophysis found at autopsies in myedematous individuals, may be of a degenerative nature, while the nonenlarged hypophysis in Graves' disease is practically a physiological hypertrophy. The same may be possible for the thymus. Von Harberer[19] reported a case of Graves' disease in an individual who was operated upon by Kocher. The patient did not improve; but after thymectomy he became perfectly well. Instead of the expected large thymus gland only a very small one was found, and in this thymic remnant numerous Hassall bodies were located.

It may be of interest to note that in myxedema the assumption of a hyperfunction of the adrenal cortex, as explained in a previous article,[20] is in accord with a hypofunction of the thymus. Brugsch[21] writes that injections of adrenal cortex produced a diminution of the thymus with regressive phenomena.

May it not be possible then that some symptoms and signs of Graves' disease are partly due to hyperplasia of the thymus, and the same of myxedma to hypoplasia of this gland? The increased metabolism in Graves' disease may partly be due to thymic hyperplasia; the decreased metabolism in myxedema to a hypoplasia of the thymic remnant. In the previously mentioned case of Hoxie's in which there was loss of weight, hyperplasia of the thymus was demonstrated. Brugsch[22] states that after thymectomy in young dogs, marked adiposity occurs after 14 days. In the myxedematous dog of Halstead the thymus was found to be atrophied.

It is highly probable that exophthalmos, which is one of the cardinal symptoms of Graves' disease, may be partly due to thymic hyperplasia. The statistical data of Albert Kocher[23] showed that exophthalmos was present in 70 to 80 per cent of typical cases of hyperthyroidism. The percentage of bulbar protrusion in Graves' disease corresponds closely to the incidence of thymic hyperplasia in this condition.

Rössle[24] reports a series of 52 cases of hyperthyroidism with thymic hyperplasia. McCardi[25] found 18 cases with thymic hyperplasia in 35 cases of sudden death in hyperthyroidism. Matti[26] found in the literature 183 cases of hyperthyroidism on which postmortems had been held. In 98 cases, making 74 per cent of the total number, hyperplastic thymuses were found. Thus 74 per cent. of thymic hyperplasia is a very close comparison to 70-80 per cent. exophthalmos. These figures lead one to suspect the possible rôle of the thymus as an operative agent in the causation of exophthalmos.

Omitting the various theories which have been advanced for the explanation of bulbar protrusion in Graves' disease, the consensus of opinion at present seems to favor the theory of cervical sympathetic stimulation. This stimulation in man is supposed to be brought about by the excessive secretion of thyroid products. But the effect of this stimulation is absent in 20-30 per cent of typical hyperthyroid cases. May not the reason for the absence of exophthalmos in these cases be the simultaneous absence of thymic hyperplasia?

The assumption of the cooperative work of the thymus as causation of exophthalmos is quite in accord with some experiments. Bircher[27] experimentally produced in dogs, tachycardia, nervousness, tremor and exophthalmos, by injecting thymus products into the peritoneal cavity. Crotti[28] repeatedly found these symptoms developed moderately after thymus injections. The antagonistic symptoms of narrowing of the eyelids, or enophthalmos, frequently met with in myxedema, may also be due to hypoplasia of the thymus aside from thyroid insufficiency. In Friedleben's experiments, after section of the sympathicus, atrophy of the thymus developed. By analogy, atrophy of the thymic remnant, as found in myxedema, may inhibit the cervical sympathetic.

From the considerations developed in this paper it follows that, although a thymic hormone has not yet been demonstrated, the thymus shows changes in two typical endocrine disorders: Graves' disease and myxedema. The hyperplasia in the former may be partly responsible for the increased metabolism and for the causation of exophthalmos; the hypoplasia in the latter for the decreased metabolism and the causation of enophthalmos.

Thymus, therefore, should be contraindicated in the hyperthyroid states and added to thyroid extract in the treatment of subthyroid conditions.

REFERENCES.

1. Stöhr: Quoted by Melchior, Edward: Die Bezichungen der Thymus zur Basedowschen Krankheit. *Centralblatt f. d. Grenzgebiete der Medizin u. Chirurgie*, 1912, vol. 15, p. 166.
2. Gierke: Quoted by Melchior (1).
3. Mönkelberg: Quoted by Melchior (1).
4. Hansemann: Quoted by Melchior (1).
5. Soupalt: Quoted by Melchior (1).
6. Dirker: Quoted by Melchior (1).
7. Hoxie, George Howard: The Reactivated Thymus. *Arch. of Int. Med.*, April, 1917, vol. 19.
8. Halstead: Quoted by Hoxie, George Howard: Thymic Disturbance in the Adult. *N. Y. Med. Jour.*, April 8, 1916.
9. Matti and Klose: Quoted by Hoxie (7).
10. Friedleben, Alexander: Die Physiologie der Thymusdruse in Gezundheit und Krankheit. Frankfurt, A. M. 1858. J. Tutter, p. 253.
11. Pappenheimer, Alwin M.: The effects of Early Extirpation of the Thymus in Albino Rats. *Jour. Exp. Med.*, vol. 19, No. 4, 1914.
12. Halstead: Quoted by Tatum (16).
13. Hofmeister: Quoted by Tatum (16).
14. Haushalter and Jeandelize: Quoted by Tatum (16).
15. Blumreich and Jacoby: Quoted by Tatum (16).
16. Tatum, Arthur L.: Morphological Studies in Experimental Cretinism. *Jour. of Experimental Med.*, 1913, vol. 17, p. 636.
17. Scholz, Wilhelm: Myxödem. Kraus und Brugsch (21), p. 565.
18. Friedman, G. A.: Suggestions Regarding the Rôle of the Hypophysis in Graves' Disease and Myxedema. *N. Y. Med. Jour.*, March 2, 1921.
19. *v.* Haberer: Thymectomy in Graves' Disease.

Report of German Surgical Congress, *Jour. A. M. A.*, May, 1913, p. 1474.
20. Friedman, G. A.: The Possible Relation of the Adrenal Cortex to Graves' Disease and to Myxedema. MEDICAL RECORD, Feb. 19, 1921.
21. Brugsch Morbus Basedowii: Kraus und Brugsch Speiell Path. u. Therapie innerer Krankheiten, Urban u. Schwarzenberg, Berlin. Wien, vol. 1, 1919, p. 447.
22. Brugsch: Quoted from (21).
23. Kocher, Albert: Morbus Basedowii: Kraus und Brugsch (21), p. 759.
24. Rossle: Quoted by Crotti, p. 537.
25. McCardi: Quoted by Crotti, p. 537.
26. Marti: Quoted by Crotti, p. 537.
27. Bircher: Quoted by Crotti, p. 552.
28. Crotti, André: Thyroid and Thymus, Philadelphia, Lea and Febiger, 1918, p. 552.

1000 PARK AVENUE.

THE STANDARDIZATION OF HOSPITAL TECHNIQUE.*

BY JEROME SELINGER, M.D.,

NEW YORK.

INSTRUCTOR IN SURGERY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

THE standardization of anything—whether it be hospital technique or a wage scale—is not a new theory. But in these present years of scarcity, inefficiency, confusion and continually mounting prices a revision of our older methods, incorporating some new ideas, should not be amiss. Most hospitals are poor. The income derived from investments, plus an allowance from the department of charities for taking care of the poor, is rarely, if ever, sufficient to meet expenses. The deficit, therefore, must be supplied by a generous benefactor. In the past such benefactors have been available. But at present with the heavy demands "to give" upon our people of wealth, together with the luxury tax, the excess profits tax, the income tax, and what not, it is questionable if any money will be left for the support of mere hospitals.

The money aspect, while important, is not the only question to be considered. A lessened dispensation of energy with an equal amount of work, or more; a clearer understanding of what to do and when to do it; a better and more thorough training for our interne and nursing staffs would primarily result from standardization. By standardization I do not mean to imply one man rule. There is nothing so detrimental to the advancement of science as a hospital dictator. Any institution suffering from the effects of a boss is bound to reflect the personality of its particular boss. Such a situation is, in a vast majority of cases, morally depressing. The institution and all that it stands for must consequently suffer.

In private sanatoriums and smaller hospitals there is an unconscious and unintentional systematization and standardization of technique. This arises from the fact that no large gifts of money ever find their way to institutions of this type. The owner of a sanatorium will try to furnish whatever is demanded of him by the majority of physicians and surgeons who support his institution. This majority may not demand the articles that are generally accepted as the best, but since they do most of the work and therefore use most of the material at the sanatorium, it is logical and just that their wants should be satisfied. The owner consequently limits his purchases so that they may conform to the requirements of the majority. The minority must alter their method, bring their own material, or take their work elsewhere. While this is a method of standardization—automatic standardization—it is not necessarily the best method.

It is, however, chiefly of the larger and more complex hospitals that I wish to speak; those with several surgical divisions as well as divisions for surgical specialties; those that teach undergraduate as well as post-graduate students; and those that do not teach at all. It is in hospitals of these types, where the service is large and flabby, where, because of their size, proper supervision of details becomes impossible, where each individual operator is a law unto himself, where technique and ethics are lost in the mad rush for success,—it is in these hospitals that valuable time, expensive material, and precious money are lost by the wholesale.

It has been said "When men smile and agree, progress ceases." Generally and scientifically speaking, there is absolute truth in the statement. For that reason individuality, research, the development of new ideas, should be encouraged in every possible way. To the casual reader and superficial thinker it might appear that individuality and standardization were incompatible. That is by no means the case, as I shall attempt to prove.

Let us consider a hospital with twenty operating surgeons scattered throughout the various divisions. Doctor A. prescribes three drams of licorice powder for a preoperative cathartic; Doctors B. and C. give castor oil and Hinkle's pills respectively in similar cases; Doctor D. orders morphine for a preoperative sedative; Doctor E. gives morphine and atropine, while Doctor F. prefers scopolamine. Doctor A. uses laparotomy pads to protect the wound edges, but Doctors B. and C. have not time to bother with such technique. The same system of variation occurs throughout the operation and continues in a more marked degree during the postoperative treatment. The variations in postoperative treatment are so marked as to warrant special mention. Doctor A.'s patients without apparent reason are dressed on the first day following an operation and they continue to be dressed every two or three days until the seventh, eighth, ninth, tenth, eleventh, or twelfth day, when the sutures are finally removed. Some of Doctor B.'s patients receive their primary dressing on the seventh or eighth day after operation regardless of the fact that one of them may have a markedly elevated temperature. As a postoperative narcotic Doctors A., B., and C. give one-quarter, one-fifth, or one-sixth of a grain of morphine, respectively. One could cover many pages with the great variety and number of discrepancies which occur in the general technique of a single institution. But I think I have cited a sufficient number to clarify the evil and make it evident that our only salvation lies in systematization.†

* From the Surgical Department of Dr. Chas. Gordon Heyd. Paper read before the Junior Faculty Association of the New York Post Graduate Medical School & Hospital May 25, 1921.

† I have in mind an institution that has a fourteen-page "Standing order book." Each attending physician and surgeon has his own pet orders listed, and no two of them are alike.

With the above statements in mind, it is not difficult to realize the multiplication of work for the doctors, nurses, and all hospital attendants. The work of each individual is increased and therefore the work of the entire machine is increased. And the expense account of the hospital is increased in direct proportion to the number of revolutions of the machine. Catgut and other suture material, gauze, iodine, alcohol, adhesive plaster, etc., etc., are expensive. The wear and tear on surgical instruments is not negligible. The life of a hospital towel or sheet is, at its best, not too long. The waste, therefore, the unnecessary waste, would be found to be stupendous if computed.

Without destroying individuality, without making one surgeon a slave to another's technique, without destroying initiative and the incentive to new ideas, how can we curtail waste and extravagance and permit the credit and debit side of a hospital ledger to approximate each other? The answer is "standardization of technique," a liberalized standardization, adoption of a standard that has been scientifically proved to be surgically sound in all of its angles. For example, if the leading surgeons to-day use chromic catgut for the suture lines in a gastroenterostomy; if pathological examination eliminates catgut as a cause of ulcer at the site of a gastroenterostomy; and if a like examination proves that silk or linen thread may be a cause of such ulcers, then why should any surgeon (in a controlled institution) be allowed to use linen or silk in doing a gastroenterostomy? If, once again, the accepted practice of a majority of surgeons is to dress a wound on the seventh, eighth, or ninth day, provided, of course, there is no reason to suspect an infection, why, in hospitals of repute, are men allowed to dress it on the day following an operation and on each second day thereafter until the sutures are finally removed? Why are hospital internes permitted to probe a wound? Why, one might ask, do the hospital authorities allow a probe on the dressing tray? It is not difficult, with these few examples in mind, to realize the multiplication of work and the immense waste of material resulting from varieties of technique.

What are we going to do about it? Whose technique and whose teachings shall be adopted? Shall we accept the methods of Doctor A. because he does most of the work at the hospital? Or Doctor B. because he is of the new school? Or Doctor C. because we personally like his methods? By no means should the practices of any one of these men be accepted and followed. The self-evident course is the one to be pursued. The technique of the majority of doctors—or the technique of any one doctor—*when scientifically proved to be the best*—should be accepted as the hospital routine. It should stand as the best, it should be rigidly adhered to until another method has been proved to be superior. It should not be difficult to adopt this procedure. Every first-class hospital has its associated laboratories where pathological and bacteriological examinations can be made. Every new idea or theory as to technique—whether it be preoperative, operative, or postoperative—can be submitted to a surgical committee who will appoint a certain number of operative surgeons thoroughly to test the proposed change. The results obtained should be outlined in the form of a report and referred to the surgical committee for consideration. If the report is favorable and the new method proved to be better than the old, then it should be established as a part of the hospital routine, supplanting the older method.

Every surgeon strives for the best results. They are all desirous of using the best and most generally accepted technique. So, after all, a standardization of hospital technique is merely a localization of an already accepted general standardization. Each hospital will do its own pathfinding, the essential point being that all the surgeons should follow the pathfinders until a better way has been shown. This will in no way curtail initiative, and no one's ideas or theories will be cast aside without a fair test.

A detailed outline and list of the saving thus effected are certainly not necessary. It is not difficult to visualize the systematized smoothness with which a hospital so standardized will run. A smoothly running machine needs little attention, and excess help can therefore gradually be dropped. An interne staff, when taught to work systematically, will be able to handle a greater volume of work and its number can be decreased. With fewer details and a standard method of bedside nursing, the nursing staff will become more efficient. Student nurses will then be able to do the work that now requires the services of a paid graduate. Aside from the better service thus afforded, hospital expenses will be tremendously reduced, and a part, at least, of the gift money, will be available for research laboratories and an increase in bed capacity.

59 East Sixty-seventh Street.

THREE CASES OF CENTRAL SPEECH DEFECT.

By N. J. Poock van Baggen

San Francisco, Cal.

In the record which I kept for seventeen years of the diseases of speech, attended to mostly in my institution at The Hague, Holland, I classified the cases in the following three groups:

1. The peripheric-impressive, or perceptible defects (in which the organ itself, or the nerve fibers which bring the impressions from without to the centers of speech, are destroyed or in a morbid condition).

2. The central speech defects (in which the sensorial centers, or the motor centers, or the fibers associating these centers are affected). Of this group we distinguished again: (*a*) Central speech defects *with* anatomically perceptible alterations in the brains, and (*b*) Central speech defects *without* anatomically perceptible alterations of the brains.

3. The peripheric-expressive, or articular speech defects (which result from a disturbance in the motor fibers which unite the motor centers of speech with the muscles, or from a trouble in the articular muscles themselves).

When I look over this record I find that the greatest number of the cases were peripheric-expressive defects of speech.

The peripheric-impressive defects, excluding the congenital deaf mutes, which form a class by themselves, are represented by few cases. Also, the

central speech defects *with* anatomically perceptible alterations are not numerous, while on the contrary the cases of central speech defects *without* anatomically perceptible alterations occurred very frequently. Under this last group we classify the stutterers, hence, this great number; and, indeed, going over this last section of my record it shows almost nothing but stutterers and only very rarely a few other cases. From the aspect of the disease itself, its cause and its progress, however, those few cases are most interesting, and this induces me to report three of them here. Two of these belong without any doubt in the last-named class, while, with regard to the third, we hesitate to place it either in the class of the central defects *with* anatomically perceptible alterations, or in that of the central defects *without* anatomically perceptible alterations. However, as my reasons for placing this third case in the latter class were prevalent I decided to leave it there for the present. One of these cases was attended to a few years ago in my institution at The Hague, Holland; the other two occurred but recently at the clinic of the Stanford University Hospital at San Francisco.

CASE I.—A young man of not yet 17 years, came to me shortly after having passed his examination of admission to the University of Leyden. He obtained his admission only under the condition that he would take a thorough treatment for his speech impediment. Examination of the patient's speech showed the following state of things:

When speaking he intermingles the words of the sentences, which, however, are uttered fluently. He says: "I good results passed with my examination," instead of "I passed my examination with good results." "This morning I on bicycle Scheveningen went tennis to with friends my play," instead of "This morning I went on my bicycle to Scheveningen to play tennis with my friends." (Of course, the patient used the Dutch language; I try to report the mistakes as nearly equivalent as possible in English.) It is most remarkable that the patient himself notices his mistakes only when, not being understood, he is requested to express himself more plainly. Then, trying hard, and paying close attention, he sometimes succeeds in pronouncing a few correct sentences, when it happens to be not too complicated an utterance. In school, when he had to make a statement of some extent, and on a difficult subject, he managed, by paying close attention, to produce a few not correct but still intelligible sentences. The slightest interruption by the teacher, however, was enough to make him so nervous that he lost all control and got quite entangled in his words.

Reading aloud also causes much difficulty. He will pick up a word of the line above or under that which he is reading and insert it in that line; or he will skip words and interpolate others which are not in the text. In this instance, also, only when attention is called to his mistake he is aware of it. He understands perfectly what he is reading, while it is impossible for others to understand it.

Writing causes no difficulty at all; on the contrary, the patient shows a great ability in expressing his thoughts by writing, and his composition is of excellent construction. This explains how he passed his examinations with good results. He is very intelligent and talented above the normal, which made him a special favorite with his teachers, and so he was allowed to write his answers down most of the time and also during his examination.

His general condition is good, he makes the impression of a sturdy young fellow. He is a great tennis player. Only latterly he was becoming morose and withdrew more and more from his companions, because of his difficulty in expressing himself.

As a baby he was slow in learning to speak and even when six years old expressed himself in baby-talk. In infancy he had no sicknesses other than a mild attack of measles. Complaints of his speech came only when he went to school and began to read. However, he got along and seemed to get over his trouble until between his thirteenth and fourteenth years when there came a change for the worse and from then on he began really to suffer from his speech defect. Unfavorable circumstances (divorce of parents) were the reason that nothing was done to remedy the evil.

As the patient is able to speak and even to speak correctly, although it be but a few sentences, he gives the impression of a case of aphasia, not located in the centers themselves, but having its seat in the fibers of association which unite the different centers of speech, thus producing paraphasia; and I concluded it to be an inharmonious development of this association, hence the intermingling of the words. The fact that many times the patient does not notice his mistakes must be explained, I believe, by his giving all of his attention to his subject and not to how he expresses it. Very many do this, but when the speech apparatus works normally there are no unfavorable consequences. In comparison with his well-developed muscular system, the muscles of the tongue and lips show weakness, which must be considered as a result of the irregularity.

For the treatment, we began to submit the patient to the regular speech and voice hygienics, having in view the general strengthening of the muscles and at the same time to obtain a more conscious control over the speech. During the first week the patient was told to limit his speaking, outside of the daily treatment, to the strictly necessary, and to do his utmost to pronounce those few sentences correctly. Besides the articular, breathing and voice exercises, he was asked to repeat slowly, but very distinctly, short, easy sentences, which I wrote down. Sometimes, at the beginning, even this repeating caused great difficulty. It was never extended for more than ten minutes. After this the sentences that had been pronounced correctly were read aloud. By and by the sentences were made longer and more complicated. Then, instead of one sentence, I pronounced two at a time, then three, and so on, which led us at last to the repeating of a small story. Short poems with a marked rhythm then proved to be of great help.

In the second week the patient was told to speak a little more, but only to members of his family or to friends who were familiar with his trouble.

In the third week of the treatment, instead of repeating sentences, the patient had to answer questions. Those questions were put in such a way that the answers became more and more complicated.

While the speaking improved steadily without interruption the reading caused much more difficulty and it was only in the fourth week of the treatment that the patient succeeded in reading a small piece without preceding preparation.

The treatment lasted altogether six weeks. In the last week, to put the patient to the test, he was requested to give short lectures on different subjects. For some of them time was given for preparation. The last was an unprepared improvisation on a book recently read. Then, as there appeared no more of the old trouble, the patient was dismissed. I requested him, however, to come in as soon as the slightest difficulty might reappear. When he did return it was only to tell me that he had commenced his studies at the University and that he had no more trouble whatever and felt perfectly at his ease concerning his speech.

The cure of this case was not difficult in so far as it consisted only in adjusting the equilibrium of an otherwise perfectly healthy individual.

CASE II.—This was a middle-aged man, 36 years old, well-educated, by occupation a salesman. In July, 1920, the patient lost his speech suddenly while on a trip. He could not tell the conductor where he wanted to go and was unable to utter a word. He had full knowledge of everything and understood everything spoken to him, only felt dizzy. On the same day he noticed that he had not the entire use of his right arm, nor of his right leg. Swallowing also became difficult and he was much troubled by saliva. This state of things continued for about six weeks, then all at once he found

himself saying to his children: "Leave that dog alone." After that he was able to say more things. Answering questions then proved to be easier than posing them or than making a statement. He had trouble in forming ideas and when he began to put them into words he was often unable to finish the sentence. At the same time as his speech gradually came back, the paralysis of the arms and legs ameliorated.

On August 23, 1920, the patient entered Stanford University Medical Hospital at San Francisco (No. 87573) where his case was stated to be one of cerebrospinal syphilis, and he underwent Dr. Mehrtens' special treatment for this disease, with the most satisfactory results. (An extensive history of this case is registered in the records of the hospital.)

On November 22, the patient was able to repeat only 34 words in three minutes. He was placed under special treatment for his speech on January 25, 1921. The complaint at that time was that he could not yet speak fast enough (63 words in three minutes) nor could he remember what he wanted to say. Being a salesman he had special difficulty in remembering his "sales-talk." He not only could not find his words, but also mixed up the words, mistaking one for another. His speech was indistinct, owing to heaviness and clumsiness of the articular muscles. Given a test of the pronunciation of each vowel and consonant separately, it appeared that none was missing and that vowels as well as consonants were all correctly formed. The sensorial speech, that is the understanding of speech, was unaffected. The patient could repeat all words, even the most difficult, and answered correctly all kinds of questions.

The case gave the impression of being one of motor aphasia without anatomically perceptible alterations of the brain, combined with paraphasia, resulting from the cerebrospinal syphilis. His not being able to remember and to speak words indicated motor aphasia, while the intermingling of the words and the mixing up of the expressions showed paraphasia, that is to say the association between the different centers of speech was affected.

For the treatment the patient was given a series of breathing, vocal, and articular exercises, especially the last-named, having in view the amelioration of the heaviness and clumsiness of the speech, while, at the same time, these exercises were of great benefit for the control of the speech. At each session he was requested to name a series of objects, either from his surroundings or from pictures, trying each time to increase the number of words. Small poems were given to memorize. To combat the paraphasia, rhythmic exercises were given, composed of syllables, first with the easiest consonants, later with more and more difficult combinations of consonants and vowels. Also, sentences were given, at first short ones with easy combinations of words, and when these were spoken faultlessly from memory, more complicated word combinations were chosen. These exercises proved to have an excellent effect, especially as regards the intermingling of terms. The patient, realizing the benefit they gave him, took a regular fancy to these sentences and found great pleasure in practising and memorizing all kinds of tongue-twisters. This favorable disposition of the patient and his energy and perseverance contributed not a little to his recovery. We can indicate the means and lead the way, but in most cases the essential, the very core of the success of the treatment, lies with the patient himself, in his character, his conception of and his affinity for the treatment.

CASE III.—This was a young man, 20 years old, who lost his speech in an attack of lethargic encephalitis, from which he suffered from October 23 to November 26, 1919.

My first interview with the patient took place at the beginning of March, 1921, in the neurological clinic of the Stanford University Hospital, when the state of things appeared to me as follows: Patient cannot utter a word for several minutes, then, at last, in answer to a question, he produces a few words in a low, monotonous, somewhat husky voice. Evidently it costs him a great effort to pronounce those few words. With each following question the answer comes in the same slow, reluctant, incomplete way. In his effort to speak the patient is much bothered by saliva; before he finally begins to speak he swallows repeatedly. The articulation is correct, but weak and lacks distinctness; the consonants are somewhat run together, as is often the case when the innervation is not strong enough. The articular movements, that is, the opening of the mouth, the moving of the lips, the protruding of the tongue, and the raising of the soft palate, are correct, but incomplete; and when the patient is requested to make a more complete movement, it appears that he is unable to do so without the movement becoming spasmodic. The movement of the tongue is often accompanied by a fibrillary tremor. The action of the pharyngeal and of the laryngeal muscles also is correct, but incomplete, which causes a slight nasality.

Physically the patient appeared to be a well-nourished, well-built, and well-muscled young man. His gait was decidedly impaired and rather unsteady; the right leg especially responding only reluctantly to his efforts. At times there was an involuntary movement in the right forearm. When the patient made a great effort to speak, this movement of the right forearm increased and he was obliged to hold it with his left hand.

The sentences spoken were often unfinished, because of the inability of the patient to utter all the words; however, the syntax of those sentences was always faultless. The patient was of normal intelligence, had gone through High School and possessed a fair knowledge of the English language. The vocabulary had remained intact; also the power of understanding words and sentences was unimpaired. This latter test was greatly facilitated by the fact that the patient was able to write, although the handwriting was not very good, owing to the disablement of the right arm.

To a certain extent it was easy to reach a conclusion in this case. All the symptoms were present which characterize subcortical motor aphasia, or the so-called aphasia of Broca, due to a lesion located in the third left frontal gyrus, and by which the power of speech is totally destroyed, or seriously impaired, while the understanding of the spoken word, as well as the ability to write, are unaffected.

It was more difficult to decide in which group this case had to be included, whether in the group of motor aphasia *with* anatomically perceptible alterations, or in that *without* anatomically perceptible alterations.

The autopsy in cases of lethargic encephalitis has disclosed numerous small hemorrhages in the substance of the brain. If that is the fact, there has been lesion and our case belongs in the first group. There is a possibility, however, that these hemorrhages are not primary, but secondary. It is certain that the symptoms observed in this case do not show the characteristics of a lesion. When there is a lesion the vocabulary is affected; sometimes the simplest words are missing, sometimes names, figures, or dates, but some part of the vocabulary is always wanting. In this case the vocabulary is intact and it appears to me that the speech inhibition is caused by a state of lethargy, or torpor, with subsequent debilitation and atrophy of the centers in question.

While in the case of motor aphasia caused by lesion, the treatment consists in reeducation, or, more exactly, rebuilding, we had here to revive, to stimulate, and to strengthen, and consequently the treatment was given with this aim in view. The patient was submitted to breathing, vocal, and articular exercises, having in view not only the developing of the muscular power of the motor, vibrating, and forming elements of speech, but also the invigorating of the nerves and their stimuli, that is, of the centers themselves. Also, various exercises were given to rouse the spontaneous speech from its languor. In these latter exercises, especially, we met with many and great difficulties. At the beginning of the treatment days passed when the patient, even with the greatest effort, could not utter more than two or three words. Slowly, however, very slowly, the improvement came and when, after four months of exercising, we looked over our daily reports, we found that gradually the bad days gave place to better, fairly good, and very good. The treatment was greatly supported by the intelligence and energy of the patient and his usually cheerful disposition. Besides the attention given to the power of speech, the patient was advised to exercise his limbs regularly and more particularly the right leg and right hand and arm.

To give a definite opinion in regard to the prognosis in this case is out of the question. The improvement gained, however slight, supports the hypothesis as to the nature of the ailment and encourages us to continue in the same course. I have in my practice encountered one case of motor aphasia, where a fairly good spontaneous speech was obtained only after three years exercising. In that case, however, the cause was different. At present it is not known what causes lethargic encephalitis, and where the causes are unknown it is very difficult to give an opinion as to the possible results.

Liebes Building,
177 Post Street.

SIMPLE METHOD OF IRRIGATING THE ANTERIOR URETHRA.

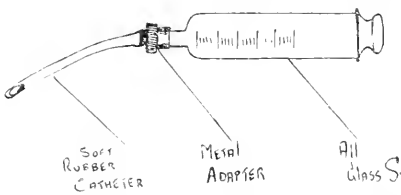
By Maximilian M. Nemser, M.D.,

New York,

Clinical Assistant, Department of Urology, New York Postgraduate Medical School and Hospital.

The present-day consensus of opinion seems to be against the irrigation, injection, or instrumentation of the posterior urethra in cases of simple anterior urethritis. It certainly would seem to be a safer procedure to confine local therapy to the site directly involved. At the same time it is desirable that the therapy be thorough.

The choice lies between irrigating or injecting the anterior urethra. The former is usually accomplished by means of the time-honored irrigating stand and nozzle, gravity being the motivating force to the fluid. The latter (injection) by means of a hand syringe.



The objections to the irrigating are that the apparatus is unwieldy and that the stream is not at all times under the full control of the operator and that it is often too forceful. As to the injection we find that the patient very often uses either too much or too little force. Another point to bear in mind is the fact that once the anterior urethra is full it no longer lends itself to lavage. It was to overcome these various drawbacks that the writer devised the following simple method:

The necessary apparatus consists of the distal 12 cm. of a 14F soft rubber catheter, an adapter, and a Luer glass syringe. The sterile catheter with the adapter attached is introduced into the urethra. The sterile syringe is next filled with the irrigating fluid and attached to the adapter and slowly emptied. The fluid easily escapes along the sides of the catheter. One or more syringefuls may be necessary to wash out the anterior urethra thoroughly. During the injection of the last 8 c.c. (The average capacity of the anterior urethra) it is well to withdraw the catheter slowly, thus leaving the urethra filled with the fluid.

With a very small meatus, a still smaller catheter may be used, or in selected cases a meatotomy may be performed. Care must be taken to inject the fluid slowly in order that it does not spurt on leaving the meatus. A 20, 30, or 50 c.c. syringe may be used. The length of the catheter is such that even when introduced to its full length it cannot pass the cut-off muscle—at any rate the operator can easily tell when the end of the anterior urethra has been reached.

The writer finds that quicker results may be obtained in these cases by instituting treatment early and that it is peculiarly adapted for a case tending to become chronic. A possible objection is the fact that one such irrigation a day is necessary—a condition that some patients may find it hard to comply with.

56 East 87th Street

Medicolegal Notes.

Hearsay Evidence as to Duration of Disease Inadmissible.—In an action on a life policy the defense was fraudulent representations by the insured in reference to his health and treatment by a physician. The particular point of attack was that the insured had had for several years interstitial nephritis, and in his application had stated to the contrary. The defendant offered in evidence what purported to be a certificate of death, made up of a certificate of death signed by the local registrar under the South Carolina Vital Statistics Act of 1914 and a medical certificate of death signed by the physician who attended the insured in his last illness. This certificate, compound of the two certificates as stated, is such as is required by the acts and the regulations of the State Board of Health. It, or a certified copy, is admissible in evidence to establish the matters therein required to be recorded when within the knowledge of the person making the certificate. Matters not within his knowledge and plainly appearing impossible to have been within his knowledge are subject to the objection applicable to hearsay evidence. In the medical certificate the physician who was called in on November 18 and attended the insured until his death, on November 30, certified to the duration of the alleged disease, a fact which the certificate showed could not have been within his knowledge. This matter being a vital point in the controversy, it was held error to allow the physician's statement as to the duration of the disease to go to the jury. Judgment for the defendant was therefore reversed.—Williams v. Metropolitan Life Ins. Co. (S. Car.), 108 S. E., 110.

Necessary Basis for Medical Opinion as to What Is Proper Treatment.—In a malpractice case the opinion of medical men may be received in evidence as to what would be the proper treatment, but in order for such expert witnesses to have a basis for their testimony they should be informed as to what treatment was given the patient, or what the physician in attendance had failed to do.—Emerson v. Lumbermen's Hospital Ass'n, Oregon Supreme Court, 198 Pac., 231.

Authentication of Hospital Records Produced in Evidence.—In a personal injury case it was held that a physician who testified that he had no independent recollection of an operation performed on the plaintiff and who only knew the contents of the record card thereof from having recently inspected it, could not prove "what the record was." The card did not refresh his memory, for, if he ever had any connection with the operation, he had totally forgotten it. The card was not properly authenticated. The witness did not write it or identify the writer or the handwriting. He did not look it over at the time it was made to see if it was a correct statement of what occurred. He could not say that what was on the card was what he dictated at the time of the operation or that he actually dictated anything that was on the card. The writer of the record was not asked to verify it as true.—Verde Combination Copper Co. v. Reito, Arizona Supreme Court, 198 Pac., 462.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Susbcribers.

New York, November 5, 1921.

FULL-TIME PROFESSORSHIPS.

IT is a little over seven years ago that Dr. Theodore C. Janeway was called from his field of useful and productive activity in this city to take the chair of medicine at the Johns Hopkins University on a full-time basis. The University had just received a grant of $1,400,000 from the Rockefeller Foundation on condition, so it was reported, that it would adopt this Teutonic idea of teaching the science of medicine, leaving the art to be gained by experience. This was, we believe, the first time the plan was put into practice in this country, and it was regarded with approval by many, for the German idol had not yet been smashed. The MEDICAL RECORD questioned the wisdom of the innovation, believing that the obvious disadvantages of the full-time clinical professorship would far outweigh its possible advantages, and that the experiment would prove unprofitable to both teacher and student, and eventually also to the institution making it. We were properly rebuked by the engineers of this new uplift of medical education, but the MEDICAL RECORD had made its protest and was content to wait for time to test the experiment. Since then other schools, some through the stimulus of further and larger grants, have adopted the full-time plan, and the medical profession has had ample opportunity to observe its working. Although it is perhaps too soon to know whether the students turned out from these full-time institutions are as good practitioners of medicine and surgery as those educated under more human conditions, it is certain that the productive activity of the professors has not been increased by taking from them the incentive if not the power of growth.

There are hopeful signs that the pendulum has swung about as far in this direction as it will, and that the era of formalism in medical teaching is nearing its limit. A welcome note has been sounded by Dr. Deaver of Philadelphia, who, in his presidential address before the American College of Surgeons last week, expressed himself as opposed to the full-time clinical professorship. The speaker, himself a veteran teacher in a medical school of the front rank, unqualifiedly condemned this new fashion in education, the good results of which he had failed to see. After protesting against the attempted domination of the workers in the world by swivel-chair theorists, he said:

> I am thinking of the recent furor in favor of the full-time teacher in clinical branches. . . . I am not questioning the motives of the originators of this audacious movement, but I am watching for its results, not too brilliant so far, and promising less. I am concerned for the student and would be alarmed for the profession were it not for my great confidence in the sober sense of the great body of a democracy such as this which will eventually work its way toward its own proper method of dealing safely and sanely with conditions. Still I marvel at the new super-intelligence which in rapid pursuit of its ideal sets aside the principle of natural selection, the well-proved motive of human endeavor (high reward), and the cardinal virtue for the attainment of practical results (experience). In my heart I am thankful that such men had no voice in the selection of a generalissimo for the Allied armies.
>
> During the last five years, as you know, the tendency has been toward the full-time clinical teacher. Its central idea was good, but its application, begun before the war, if I mistake not, was influenced by the German idea of efficiency which, as all now know, failed utterly to include the human element in its equation. Without wishing to appear reactionary, but with all interests of the profession in mind, I do not hesitate to say that I doubt the wisdom of the present course. . . . The professor of clinical branches should not only be allowed, he should be obliged, to be in direct professional contact with the public. . . . It is our profound belief that the system of full-time salaried chairs for the clinical branches which has been forced upon a number of our foremost institutions by powerful influence is not only contrary to the spirit of American institutions, and contrary to the proper working of the human mind, but is sure to result in degeneration of that art which is the true flower of science, and in the deterioration of the instruction of the student how to deal effectively with the problems which he must confront in his chosen life work.

Now that Dr. Deaver has had the courage to protest against this full-time fad, we hope others who may have been overawed by the vociferous educational reformers and their powerful backing will come out in support of a return to a sane and rational system of medical teaching. It is argued that the full-time professor has his hospital practice to help him keep abreast of the times and prevent fossilization, but there is a gulf between institutional practice and private practice as wide and as deep as that between organized charity and human sympathy. Imagine such giants as John Warren, Samuel D. Gross, Austin Flint, and Alonzo Clark in the guise of full-time professors!

OXALIC GOUT.

THE relation of oxalemia, as that of other acids in the blood, to gout is one that is still a subject of discussion with no definite solution apparently yet in sight. The subject is reviewed at some length by Loeper in *La Médecine* for July, 1921, ii, 10. Oxalic acid, he states, is the younger brother of uric acid, for while there is no chemical similarity outside of the organism, there is a likeness in their metabolism. Both may be ingested from without; both may be eliminated from the body or precipitated and retained there-

in. One unites with sodium, the other with calcium. Both are irritant and toxic, oxalic acid the more so. Both give rise to gout, both form stones in the urinary passages. Oxalic gout is a subacute articular process with a tendency to produce a hypertrophic, deforming arthritis electing by preference the hands and fingers. While uric acid attacks by preference the cartilages and periarticular structures, oxalic prefers the bones and fibrous tissues. Oxalic gout is termed by Teissier and Roque gouty rheumatism. The *x*-ray shows bone lacunæ and decalcification. In both affections a blood state preexists or coexists—uricemia or oxalemia. Blood serum and blister serum alike contain oxalic crystals. We associate uricemia with hypertension and rushes of blood, oxalemia with hypotension and anemia. In oxalemia there may be neuralgias, myalgias, asthenia, neurasthenia, and melancholia. There is a special urinary pathology to oxalemia—dysuria, hematuria of the occult or cryptic type, renal colic, at times actual inflammation (secondary), and especially calculosis. There are also gastroenteric disturbances, notably flatulent dyspepsia, spasmodic and painful crises, diarrheas and other symptoms connected by the author with crystalline irritation. He believes that one type of gastric ulcer is of this origin. Many obscure conditions which would readily escape diagnosis are attributable to the deposit of oxalic acid crystals in certain tissues. Yet there should be but little trouble in reaching the nature of this condition. It cannot occur in the absence of oxaluria, although one might not be justified in making the diagnosis with simple testing of the urine. The amount is very significant, for this may reach twelve fold the normal. The author and others have devised a blood serum test which is very useful and have found as high as 8 cg. of acid per 1,000 parts of blood. No diagnosis is made in the absence of this blood test. Teissier uses the blister serum test as a substitute.

It is, of course, well known that both uric and oxalic acids may be formed in the body, both without doubt when there is incomplete combustion in the latter. In both cases certain substances like purin bodies favor production. The symptoms are due to elimination—here belong the urinary and gastroenteric—and to deposition, as in the connective tissues, bones, muscles, and nervous tissues, and especially the liver. Treatment involves prohibition of rhubarb and other plants containing oxalic acid; a diet poor in purins and nucleins; no cocoa or chocolate; alkalies; magnesium, which is the chemical antidote; hexamethylenamine, phosphorus to replace the waste of that mineral—usually glycerophosphates. A study of oxalic acid poisoning, such as has occurred from eating rhubarb leaves or when small quantities of the pure acid have accidentally been ingested, shows the picture of gastroenteric, renal, and nervous lesions.

MIXED INFECTION OR CONSECUTIVE INFECTION.

It seems, at the present time, to be the prevailing belief among those who have studied the subject that influenza especially and also measles, or rather the fatalities due to these diseases, are caused by mixed infections. However, this is a theory not yet firmly established, and there is much to be said against it. In an article in the *Edinburgh Medical Journal* for October, 1921, Dr. J. W. Crerar suggests another theory to account for the virulence of certain cases of influenza and measles. He investigated and studied the matter under favorable circumstances, that is in a relatively small urban district where there was a sufficient population to supply a considerable number of cases, and where the conditions of the life of the people were more or less uniform. It was a virulent epidemic of measles studied under these conditions, and after describing it closely from all points of view, but especially in its relation to school attendance, attention was directed to a comparison of this epidemic of measles and the deadly epidemic of influenza in October, November, and December of 1918.

He pointed out that there were certain resemblances, both clinically and statistically, which were at least suggestive. Both were virulent, and in both the so-called complications were integral features of the diseases, at any rate, in the increasing phases of the epidemics. It is a matter of general observation that in a virulent, explosive, apparently self-determining epidemic the patients who are affected as it is tending toward its climax are more seriously ill than those who are affected as it is declining. Crerar's personal experience of the two epidemics under review, confirmed this belief, the complications having been much more frequent and grave in the earlier weeks than in the later weeks of the epidemics.

Attention was drawn with emphasis to the fact observed by him that there was much similarity in the clinical pictures of those gravely ill with pulmonary complications, whether the initial disease was measles or influenza, and the question was asked if this similarity could be dependent on the presence of a similar secondary infection in both cases. Bacteriologists seemed to be agreed that the presence of the pneumococcus and streptococcus was a common finding in cases of acute influenzal pneumonia, and Thursfield had shown, in the Report of Medical Officer of Local Government Board, 1912-13, that streptococcal infection was a preponderant cause of death in measles.

Crerar suggested that it was probable that the fulminating virulence of the primary infection, whether it was measles or influenza, was the occasion of the activity of the other microorganisms, and it was unnecessary to invoke the theory

of a simultaneous mixed infection. He thought it very probable that the devitalizing depression of the original infection presented the opportunity for a sudden loss of resistance to certain microbes which might be normal inhabitants of the throat and nasal passages. Many points of similarity between epidemics of measles and of influenza were traced, but the main object of the writer was to suggest that the theory that the primary infection of either disease started into activity other microorganims was as well supported by facts and as plausible as that of a simultaneous mixed infection.

Statistics of Operations for Mammary Cancer.

Professor Forgue of Montpellier has a personal record of 285 ablations of cancer of the breast, and of this number 115 have "doubled the cape" of the third year of survival. Thirty-three have died of metastases and 18 of intercurrent disease. Forty-two are living without recurrence seven years after operation—about 14 per cent. of the total, and the percentage is improving steadily. He regards a ten-year survival as equivalent to a radical cure, and looks forward to a goal of 10 per cent. of 10-year survivors. This figure agrees fairly with the conclusion of pessimists when they state that 90 per cent. of cancer patients die despite treatment. Thus the author who writes as an optimist really gives the same figures as the pessimist but with a very different interpretation. For him it is an ample justification to use the knife, while for the other it denotes that surgery has not made good. The author realizes the need of standardizing cases for statistical purposes. It is not just to class a cancer in a young woman who has nursed a baby and who comes of a cancerous stock with some of other forms such as, we suppose, a cancer in an elderly thin woman. The late Dr. Murphy regarded the fat woman of 40 as hopelessly doomed. One might, of course, decline to operate in all cases with unfavorable factors, but it is best to group the operated material along certain lines and keep them separate in statistics. This has, of course, been done to some extent, and we know that the survival in cases without axillary adenopathy is high. Professor Forgue read his paper before the recent French Congress of Surgery (reported in *La Presse Médicale* for October 1, 1921, xxix, 79). The discussion brought out the fact that neither Forgue nor Walther, who opened the discussion, regarded radiotherapy as sufficiently developed for final conclusions.

Precocious Diagnosis of Cancer of the Cervix.

Apropos of the campaign of education in the interest of the early diagnosis of cancer some figures of Frankl will serve to point out the obstacles which must be overcome in this direction so far as cervical cancer is concerned. The figures of the German gynecologist are quoted in *La Presse Médicale* for Oct. 8, 1921, xxix, 81. During the period 1901-1912 Frankl saw in his services 1,007 cases of cancer in this location. The percentage in which the disease was in its earliest stage was but 3. In other words, in but three and a fraction out of a hundred cases admitted to the clinic was the diagnosis made either by the microscope only or in the very earliest clinical stage, in which there was a small focus strictly limited to the cervix. Recently the author has compiled a second series of cases which partly overlaps the first. It concerns the number of cancers of the cervix seen between 1909 and 1921. There were 1,011 in this series and the author was pleased to find that 10 per cent. were in the first stage at the first consultation, during the period 1909-1913 inclusive. After the beginning of the war it fell off and during the war years the percentage was between 2 and 3. It is once more picking up, but thus far is but 6.5 for the five months of 1921.

An Alcohol Test Meal.

The use of alcohol as a test breakfast goes back to Carnot in 1904. Ten years later Ehrmann extolled the same resource, while Da Silva Mello took it up in turn, and now, quite recently, San Filippo has made a study of the same. Dr. Sabrazès, editor of the *Gazette hebdomadaire des sciences médicales de Bordeaux* (August 3, 1921, xlii, 32), gives the technique of the method as follows: The stomach is first washed out and 300 c.c. of an aqueous solution of alcohol, 5 per cent., with about twenty grains of sodium salicylate, is allowed to remain half an hour. The clearness of this solution makes it very easy to recognize ingredients like blood, bile pigment, mucus, and formed elements. Free and combined HCl and total acidity are tested for in the usual way. Additional reasons for preferring alcohol to the Ewald-Boas meal are not stated unless they comprise the saving of time, for when the latter is used the stomach is not siphoned for an hour later. The irritant action of the alcohol is less efficacious than the normal stimulus of the food in the production of acid secretions, and according to Sabrazès the values are much lower. This applies also to the reflux through the pylorus.

News of the Week.

International Endorsement of the Speedwell System.—At the International Congress for Child Welfare held at Brussels last summer, the congress favored the organization throughout Europe of the unit method of boarding-out as operated according to the Speedwell system in use in the United States. The Speedwell Society was organized in New York twenty years ago when this method was inaugurated and it has employed it ever since. The operation of the Speedwell system was first described in the Medical Record in two articles by Dr. Henry D. Chapin. The first, was entitled "The Proper Management of Foundlings and Neglected Infants," published February 18, 1911; the second, "Problems of Boarding Out, with an Attempted Solution," April 24, 1920.

American Death Rate in 1920.—The Government's annual report on mortality statistics for 1920, soon to be issued, shows a total of 1,142,578 deaths within the death registration area, representing a rate of 13.1 per thousand population, as compared with 12.9 in 1919, which was the lowest

recorded in any year since establishment of the registration area in 1900. There was an increase in the death rate from pneumonia and a marked decrease in tuberculosis fatalities.

Question of Contract Practice Rends Medical Societies.—The Spokane (Wash.) Medical Society, at a meeting on October 14, refused to rescind its action demanding the surrender by its members of contracts with corporations for professional services. This action was taken after the Board of Trustees of the Washington State Medical Society issued an edict to the county society demanding that the anti-contract law be rescinded on penalty of permanent suspension from membership in the State Society in the event of failure to comply within thirty days. It is held by the county society that this order is not effective unless ratified by the House of Delegates of the State Society, which does not meet until next September. Meanwhile the county society has ordered to appear before it all doctors who hold contracts to show cause why they should not be expelled from membership. The society is said to have thirty-five members holding forbidden contracts. These doctors, it is said, have taken the stand that they will leave the society rather than give up their contracts.

Inefficiency Due to Imperfect Sight.—The Eye Sight Conservation Council of America has recently made public the results o fa careful examination of 10,000 industrial and commercial workers active in their work and supposedly in good condition, of whom 53 per cent. showed defective vision uncorrected. It was found that many employees are accused of inefficiency and carelessness when it is entirely a matter of imperfect vision. The report urges that just as it is necessary for school children to be examined, so every individual between the ages of twenty-one and thirty-nine years should have the ocular state ascertained, as was done in the case of the army draftees.

Smallpox in Bethlehem, Pa.—A senior student at the Moravian College and Theological Seminary was recently found to be suffering from smallpox. The college has been quarantined, classes have been suspended, and the entire student body and faculty vaccinated.

Smallpox in New York.—Recently two negroes suffering from smallpox were removed from the same house in Harlem within the period of one week. Neither of the men had ever been vaccinated.

Births and Marriages Increase in Paris.—The vital statistics records of Paris show many more births and marriages for the first six months of 1921 than before the war and also a reduction in the infant mortality rates in the crowded districts of the city. There were 31,885 births in Paris during the first six months of 1921, as compared with 24,300 in the same period of 1913 and 27,906 in the first half of 1920. The number of marriages in all of 1913 was only 31,916, while last year there were 53,829, and there have been 26,282 weddings in the first half of 1921.

Tuberculosis Clinics in Ohio.—A conference was held in Columbus on October 16 to plan for tuberculosis clinics to be held in forty counties of the State during the coming winter. These clinics will be under the direction of the State Health Department, each clinic being directed by the local health commissioner. Tuberculosis specialists will conduct the examinations and report their findings only to the physicians of the patients and to health officials. Each clinic will be held for two days during which time it is expected that about sixty examinations will be made.

Cornell University Medical College to Start Pay Clinic.—A pay clinic under the direction of the Cornell medical faculty will be opened at Cornell University Medical College on November 1. According to its announcement the clinic is designed to meet the needs of persons of moderate means unable to pay high class specialists' fees, but who, because they are not paupers, are unable to enjoy the advantage of the charity clinics. The price for each visit will be $1; medicine, laboratory tests, *x*-ray photographs and other supplies will be given at cost. The diagnosis of a case requiring special examinations and study, with group consultation of specialists and a written diagnosis will cost $10. A thorough physical examination to discover possible defects and diseases and to obtain advice regarding personal hygiene will cost $2.50. It is estimated that there are in New York City 2,000,000 persons who fall between those who are so poor as to be unable to pay for medical services and those who are well-to-do and able to pay full rates for whatever they need in time of sickness. The doctors who provide the medical service are to receive a salary.

Thyroid Feeding for Subnormal Children.—Under the direction of the Chicago Health Department an experiment is to be carried out to determine the effect of feeding thyroid extract to children in the subnormal classes. The sheep glands used for the feeding are to be prepared in the school kitchens and the school doctors will note the accompanying results.

Graduate School of Medicine in Atlanta.—A newly organized Graduate School of Physicians and Surgeons to be established at Atlanta, Ga., plans to do work similar in scope to that of the graduate medical schools in the larger cities of the country. The new school will be the only institution of its kind in the southeastern States. It is expected that the school will be opened some time in March, when the new building to be erected at a cost of $150,000, will be ready.

Physicians of Waukegan Scale Prices.—The secretary of the Waukegan (Ill.) Medical Society states that physicians in that locality reduced their charges to pre-war levels as early as last June. The present scale of prices is as follows: Day calls, $3; night calls, $6; office calls, $2.

Red Cross Roll Call.—The New York Chapter of the American Red Cross announces that the 1922 Red Cross Roll Call will be conducted from November 11 to 24, when an effort will be made to enroll at least 500,000 dollar members in Manhattan alone.

Physicians Requested to Aid Research Work in Whooping Cough.—In its work of investigating the value of pertussis vaccine the Bureau of Laboratories of the New York Department of Health is badly handicapped because of the diffi-

culties of obtaining material from early cases of whooping cough. Most of the notifications received by the department are of cases well along in the disease and are, therefore, unsatisfactory for cultural examinations. For this reason physicians are asked to notify the Bureau of Laboratories of early cases of whooping cough, in families who would be willing to have a representative of the department visit them and obtain material for cultural examination. The department also wishes to obtain material from children who have been exposed to infection and who show signs suggesting the onset of the disease.

Tuberculosis Decreases in New York City.—The number of new cases of tuberculosis reported in New York City in 1920 was 14,035, as contrasted with 14,570 new cases reported in 1919, a decrease of 435 cases, or 4 per cent. as compared with the previous year's registration. This decrease was limited to the boroughs of Manhattan, Bronx, and Brooklyn. In Queens there were 340 more new cases than during the preceding year. These are mostly so-called "home cases" and without medical supervision. During the year 1920 there was a grand total of 23,240 patients who attended the clinics of the Department of Health. Of this number 15,065 were discharged as non-tuberculous. In all there were 75,803 visits made by patients to the tuberculosis clinics during the year.

Hospital Notes.—Roosevelt Hospital, New York, founded on November 2, 1871, by the will of James H. Roosevelt, celebrated its fiftieth anniversary during the week beginning November 1. The hospital since its opening has taken into its wards and rooms over 250,000 patients, and has treated in its dispensary 1,080,000 cases. The $1,000,000 left by its founder has grown by appreciation and gifts until the hospital to-day is worth more than $1,500,000 and has investments worth more than $2,000,000.

A campaign to raise $125,000 for the American Hospital for Diseases of the Stomach, Philadelphia, was conducted during the week of October 26. The hospital now has forty beds which are occupied constantly and needs the $125,000 for an additional building.

Plans have been submitted for a new $100,000 building for the Wyoming Valley Homeopathic Hospital at Wilkes-Barre, Pa. Construction work will be begun within a few weeks.

The Board of Commissioners of the Louisiana Hospital for Insane at Pineville, La., have awarded contracts for the erection of four large buildings for the hospital. The contracts call for three dormitories to cost $231,000 and a dining hall to cost $201,300.

The Southern Homeopathic Medical Society is preparing plans for a $250,000 Hahnemann Hospital for Southern California.

A Methodist Hospital to cost $300,000 to $375,000 is being planned and financed by the Methodist Episcopal Hospital Board of the State of Oregon.

Gift for Research Work.—A gift of $25,000 from the estate of Mary Anne Palmer Draper for the establishment of a fund for laboratory and surgical research at New York University was recently announced by Vincent Roberts, chairman of the university's endowment fund committee.

Senior Surgeon R. L. Cook of the United States Public Health Service has succeeded Major M. H. Axline as officer in charge of the hospital at Camp Logan, Texas.

Dr. Charles W. Pilgrim has tendered his resignation as chairman of the New York State Hospital Commission, to become effective on December 12.

Dr. Harvey Cushing of Boston was elected president of the American College of Surgeons at its recent meeting in Philadelphia.

To Erect Gorgas Memorial.—At a meeting of the Board of Directors in Philadelphia on October 26, officers of the Gorgas Memorial Institute Committee, which plans to erect in Panama a suitable memorial to the late Surgeon General of the United States Army, were elected. They are: *President*, Rear Admiral William C. Braisted, U.S.N.; *Vice-President*, Dr. Franklin H. Martin, Chicago; *Executive Secretary*, A. F. Robbins, Chicago; *Treasurer*, Edward J. Stellwagen, Washington, D. C.; *Assistant Treasurer*, Edson B. Olds, Washington, D. C. Panama was selected as the site for the proposed memorial. The funds will be solicited from scientific and philanthropic organizations and from individuals. Present plans call for the momorial to take the form of an institution devoted to research work.

Harvey Society Lecture.—Dr. C. C. Little, Research Associate of the Station for Experimental Evolution, Carnegie Institution of Washington, will deliver the second Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, Nov. 26, 1921. His subject will be "The Relation of Genetics to Cancer Research."

Lectures on Experimental Medicine and Therapeutics.—Dr. Alexander Marmorek announces that he will deliver a series of sixteen lectures, in English, on experimental medicine and therapeutics at the Institut Océanographique, 195 Rue St. Jacques, Paris. These lectures will begin on November 21. Further information may be obtained by writing to Dr. Marmorek at the above address.

The American Academy of Applied Dental Science will hold its third annual meeting at the Stacey-Trent Hotel, Trenton, N. J., January 9, 10, and 11, 1922. Papers, clinics and class demonstrations will be the special features of the meeting. A cordial invitation is extended to all members of the medical and dental professions. Further information may be obtained by addressing the Assistant Editor, American Academy of Applied Dental Science, Yonkers, N. Y.

Scholarships for Post-Graduate Study.—The New York Post-Graduate Medical School and Hospital announces that there are now available several scholarships under the terms of the Oliver-Rea Endowment. The purpose of the Endowment is to further post-graduate medical education by awarding scholarships to practising physicians of the United States. The scholarships vary in amount but are sufficient to defray in full or in part the tuition fees of the Post-Graduate Medical School for the courses offered. According to the wish of the donor, physicians in the State of Pennsylvania will receive preference in the award of these scholarships. Applica-

tion may be sent to the Dean of the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, New York City.

Chairman Chosen for Semi-Centennial of American Public Health Association.—In preparation for the Health Fortnight to be held in New York from November 8 to 19, the Fiftieth Annual Meeting of the American Public Health Association, Dr. Lee K. Frankel, former President of the American Public Health Association, has been chosen General Chairman of the Centennial Committee. One of the features of the Health Fortnight will be the Health Institute, from November 8-11, which will offer visitors an opportunity to witness in actual operation every phase of health work conducted in this city. Sunday, November 13, will be Health Sunday, and the cooperation of the leading churches is expected in bringing the message of health to the people. The week beginning November 14 will be devoted to the Fiftieth Annual Meeting of the American Public Health Association, to be held at the Hotel Astor, and to the Public Health Exhibition in the Grand Central Palace.

Medical Society Elections.—The Fifth District Branch of the Medical Society of the State of New York, at its fifteenth annual meeting held in Watertown, October 6, 1921, elected the following officers: *President*, Dr. Walter Kidder, Oneida; *First Vice-President*, Dr. Nelson Brooks, Oneida; *Second Vice-President*, Dr. C. D. Post, Syracuse; *Secretary*, Dr. C. B. Forsythe, Alexandria Bay; *Treasurer*, Dr. Nelson Brooks, Oneida.

The Northwestern Ohio District Medical Society, at its annual meeting held in Toledo, October 7, 1921, elected the following officers for the ensuing year: *President*, Dr. Charles H. Clark, Lima; *First Vice-President*, Dr. W. C. Pay, Bellefontaine; *Second Vice-President*, Dr. Thomas Hubbard, Toledo; *Secretary*, Dr. Norris Gillette, Toledo; *Assistant Secretary and Treasurer*, Dr. R. J. Morgan, Van Wert.

The University Club Medical Society, Washington, D. C., was organized on October 5, 1921, with the following officers for the ensuing year: *President*, Dr. Noble P. Barnes; *Vice-President*, Dr. George T. Vaughan; *Secretary-Treasurer*, Dr. Everett M. Ellison; *Editor*, Dr. John Foote; *Sergeant-at-Arms*, Dr. Edward G. Seibert.

The Columbia County (N. Y.) Medical Society, at its annual meeting held in Hudson, Oct. 4, 1921, elected the following officers for the ensuing year: *President*, Dr. Henry C. Galster; *Vice-President*, Dr. John L. Edwards; *Secretary-Treasurer*, Dr. Charles R. Skinner.

The South Texas District Medical Society, at its semi-annual meeting held in Galveston, Oct. 14, 1921, elected the following officers for the ensuing F. R. Winn, Alvin; *Vice-President*, Dr. W. S. Foote, Bay City; *Secretary*, Dr. J. E. Clarke, Houston.

The Wyoming County (N. Y.) Medical Society, at its annual meeting held in Warsaw, Oct. 12, 1921, elected the following officers for the ensuing year: *President*, Dr. George G. Davis; *Vice-President*, Dr. Lemar M. Andrews; *Secretary-Treasurer*, Dr. George E. Skiff.

The Southern California Homeopathic Medical Society, at its annual meeting held in Los Angeles, Oct. 12, 1921, elected the following officers for the ensuing year: *President*, Dr. Bradford Fox, Pasadena; *First Vice-President*, Dr. Edward P. Clark, Los Angeles; *Second Vice-President*, Dr. Florella Estes, Los Angeles, *Secretary-Treasurer*, Dr. Charles Salisbury, Los Angeles.

The Three Counties Medical Association (Cal.), at its annual meeting held at Fall River Mills, Oct. 9, 1921, elected the following officers for the ensuing year: *President*, Dr. M. D. Pratt; *Secretary*, Dr. M. Tinsman; *Treasurer*, Dr. J. J. Quinne.

Obituary Notes.—Dr. Dwight H. Murray of Syracuse, N. Y., died suddenly of heart disease on Oct. 26, at the age of sixty years. He was graduated from the Syracuse School of Medicine in 1884 and afterward studied abroad. He was a Fellow of the American College of Surgeons and the American Medical Association; a member of the American Proctological Society, the American Pathological Association, the New York Academy of Medicine, and the Syracuse Academy of Medicine. Dr. Murray was speaker of the House of Delegates of the American Medical Association and vice-speaker of the House of Delegates of the Medical Society of the State of New York. He was a former president of the Onondaga County Medical Society. Dr. Murray was on the Board of Managers of the Onondaga Sanatorium and was proctologist to the Good Shepherd and Memorial Hospitals.

Dr. Jehiel H. Patrick of New York City, a graduate of New York University Medical College in 1893, died of heart disease on Oct. 27, at the age of fifty-four years.

Dr. Jonathan Titus Deyo of Brooklyn, N. Y., died suddenly of heart disease on Oct. 26, at the age of seventy-five years. He was graduated from the New York Homeopathic Medical College in 1870.

Dr. Henry J. Blankmyer, Jr., of Gabriels, N. Y., a graduate of Jefferson Medical College in 1903, died suddenly in Philadelphia on Oct. 22, at the age of forty-two years. He was head of the tuberculosis sanatorium at Gabriels, N. Y.

Dr. John Wilson Gibbs of New York, a graduate of the New York Eclectic Medical College in 1878, died on Oct. 28, at the age of seventy-five years.

Dr. Charles L. McCann of Brooklyn, N. Y., died of heart disease on Oct. 19, at the age of seventy-four years. He was graduated from New York University Medical College in 1871.

Dr. W. H. Burt of Atlanta, Ga., a graduate of Emory University School of Medicine in 1880, died Oct. 15, at the age of sixty-two years.

Dr. J. P. Graham of Portland, Ore., a graduate of the University of Oregon Medical School in 1909, died from the results of injuries sustained in an automobile accident on Oct. 12, at the age of thirty-eight years. He served as major in the Medical Corps of the United States Army during the late war.

Ira Darius Spencer of Croghan, N. Y., a graduate of the Eclectic Medical College of the City of New York in 1889, died following an operation on Oct. 11 in a Watertown hsopital, at the age of fifty-four years. He was health officer of Croghan and a member of the state legislature in 1902.

Dr. Vera Barky, formerly of Germantown, a graduate of the Women's Medical College of Pennsylvania in 1878, died suddenly in Cape May, N. J., on Oct. 21, at the age of seventy-five years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Oct. 14, 1921.

Opening Address at the Middlesex Hospital School.—Mr. G. Gordon Taylor gave the address at the opening of the winter session of the Middlesex Hospital School on Oct. 4 last. His subject was "The Dramatic Side of Surgery." Mr. Taylor said in part that dramatic and spectacular surgery might be, and often was, the result of brilliant and exquisite achievement. It might indicate the conquest of difficulties unexpected or those against which no definite provision had been made. Every surgeon probably derived some pleasure from the successful removal of a large tumor, and the enumeration of the weight and linear dimensions of their trophies denoted a spirit of rivalry and competition on the part of the operators for a place on the list, arranged not in order of the dexterity of the surgeon, but according to pounds and feet of the particular organ or organs removed. He shared in full the foibles of his surgical confrères. He was still proud of the successful extirpation of a 17½-lb. renal tumor two months ago and of a lady's gall bladder which had attained the size of a large cucumber, and which in a mistaken diagnosis of intestinal stasis had been treated by the application of a heavy cannon ball rolled round her abdomen. His late chief, Sir John Bland Sutton, was a dramatic operator, partly because of his speed and also by reason of the few implements which he required, they were contained in a tiny case which could be carried on one finger. Mr. Taylor then spoke of the surgical experiences of the war, and drew attention to the value of aeroplanes in conveying the wounded long distances if necessary. He, however, pointed out that this was no new departure, as wounded men were carried considerable distances in the Somali campaign against the Mullah, and one man, at least, was conveyed 225 miles for an amputation of a lower limb. Mr. Taylor discussed transfusion of blood at some length, and mentioned Holmes A. Court's dramatic case of ligature of the common carotid artery for a penetrating wound from which a man was bleeding to death, and an immediate blood transfusion which saved his life. That was the only case he knew where an immediate operation of this nature resulted happily. Some patients might be said to have many lives. An Australian lieutenant was gassed in the beginning of June, 1918; on July 4, on the way to the trenches, he was wounded in the abdomen by a fragment of shell. By a lucky chance he was near an advance dressing station, whence he was speedily transferred to Mr. Taylor's casualty hospital and had to be prematurely sent down to a base. Here he was sorely tempted to eat of forbidden food and fruit at the hands of the V. A. D.'s and nurses, but he courageously braved the unpopularity which he incurred by turning a deaf ear to their blandishments. On his way across the English Channel he was torpedoed in the hospital ship *Warilda* and dragged out of the water by a rope round his waist. He spent two hours in a boat in soaking pajamas and subsequently six hours on the deck of a destroyer. Yet he made a complete recovery and now found Paris a pleasant spot in which to sojourn as a fruit dealer. Sir John Bland Sutton, consulting surgeon to the hospital, presented the prizes to the students and the Fardon memorial medals to the nurses. In reply to a vote of thanks, he gave an amusing account of his earliest experience of prizes. His first prize, obtained at the Middlesex Hospital School, was one for botany, and the then dean, a very good churchman, when he said he wanted Darwin's "Origin of Species" for his prize, said that he did not think that was a proper book for a medical student to have, but that he might have it. When he found he was entitled to a second book he asked for Dante's "Inferno" to please the dean. He once won the Murray gold medal, and he shut it up in a box and occasionally had a look at it, but it seemed to him at times to be a terrible waste of money. After he had heard at church about the hiding of the talents, he went to a goldsmith, who said to him: "I cannot let you have anything on the medal unless you let me cut it in half, for we know that the men who make these medals have a knack of putting a piece of lead in the middle." Sir John replied that the medal was given him by the Middlesex Hospital, which would never lend itself to such reprehensible practice. But he would cut it in half, and how that man must have chuckled when he saw that in the middle there was a lump of lead. He thought the Royal Society was right in asking people not to leave their money to provide gold medals, but for research and for scholarships.

Scientific Research at the British Universities.—It is lamentable but unfortunately a fact that scientific research, and perhaps medical research, in particular, has not made any great headway in Great Britain. Of course, the reason is obvious—namely, that the general public, being ignorant of the value of such work, grudge the expenditure of money upon it. No immediate material benefits are seen and therefore the conclusion is jumped at that research of this kind is useless and a waste of money. Neither do the rich here, with but few exceptions, appreciate the value of scientific research, and are chary of rendering financial aid. In this respect they differ widely from the moneyed men of America, who have for long recognized that scientific research properly conducted, although it may not show quick results, in the long run pays fourfold. Any steps that tend to the welfare of the people at large are of the greatest benefit to the nation. And industrial and medical research certainly do tend in this direction. However, there is no need to labor this point, to the far-seeing and intelligent it is obviously apparent. While research work of whatever description in this country has seldom been financed, and it is really remarkable the discoveries that have been made in Great Britain under these conditions, the situation has undergone, to some extent, an encouraging change, and an increasing amount of research work is now financed. The Department of Scientific and Industrial Research has a relatively large

fund to be administered for research, which, as the scientific correspondent of the *Times* points out, is under conditions which it has not yet completely succeeded in strangling by red tape. This correspondent also aptly refers to these research departments as the Marthas of science, among which, of course, are included the Medical Research Council, which, by the way, takes wider views than some of the other departments. Physical energy is what the world hungers for, and consequently research efforts are especially concerned with physics, and it may be said that medical schools are establishing chairs of physics. The fractional distillations of Crookes led the way to colloidal therapy and many other discoveries which seemed remote from practical utility have proved themselves of use from medical and various standpoints. For example, Ramsay's reweighing of the inert gases, the Curies' work on the heavy earths, J. J. Thomson's investigations on electrons, Soddy's isotopes, Astron's spectroscopy, Rutherford's investigations of radiographic emanations, and many more researches of a somewhat like nature. As an outcome of these researches changes may eventuate which will revolutionize the fabric of civilization and exert an equally profound influence on medicine. Chemotherapy, which is yet in its infancy, but which is growing apace, seems as if it might become the main treatment of the future. Its possibilities are immeasurable. The consummation of successful treatment of disease can only come to pass by means of continuous and persistent research. For this purpose money is required. Other things being equal, the investigator who has at hand the most recent and best laboratory equipment will forge ahead the most surely and rapidly, and the nation of which he is a member, largely because it is the most healthy, will be the most prosperous. Therefore, scientific research, of which medical research is the most essential part, should not be starved or stinted. Education is needed in this country to drive home these palpable truths.

Reduction of Panel Doctors' Fees.—The Government proposes, Sir Alfred Mond, Minister of Health, told a deputation from the British Medical Association Insurance Acts' Committee, which waited on him on Oct. 11 last, to reduce the fee of panel doctors for each patient after Dec. 31 from eleven shillings to nine shillings sixpence on the ground of the urgent need for national economy. Dr. Brackenbury, chairman of the Insurance Acts' Committee, said that the offer of the Minister of Health would be placed before the Panel Conference, to be held on Oct. 20, for their consideration. The medical *Press and Circular*, Oct. 5 last, is very outspoken on the matter. In an editorial it is said that the Insurance Act furnishes an unsavory chapter in the history of the profession of our time. The bill was introduced for political reasons, and a portion of the profession was cajoled into supporting it and it became law. It seems that the threatened action to reduce the capitation fee will meet with strong opposition from the medical profession as a whole, although Sir Alfred Mond pleaded that the doctors should submit to it for the good of the nation. In any event it has been demonstrated that politics and matters of health should be kept apart. It has also shown how impotent doctors are politically. They are mere pawns in the game, and unless they organize and present a united front they will continue to be so. If the Minister of Health refuses to concede their demands, in all probability the Insurance Act will snuff out. Its extinction will cause few regrets, its working is hampered and hindered by red tape, and it appears to be unpopular with the bulk of the profession and more so with the patients.

Mr. James Berry, F.R.C.S., Installed as President of the Medical Society of London.—At the one hundred and forty-ninth session of the Medical Society of London Mr. James Berry, who, by the way, is a Canadian by birth, was inducted into the presidency of this old and honorable society. As is usual on such occasions a presidential address was given. Mr. Berry in his address departed from time-honored custom and, instead of delivering a learned disquisition on operative procedures in exophthalmic goiter or on some other branch of which he is an acknowledged master, related some of his medical experiences in southeastern Europe, illustrated by lantern slides. An address of this nature was really an agreeable change. It was by no means wholly concerned with medical experiences, but dealt lightly with anthropology, archeology, geology, customs and habits of the people, scenery, and so on. Mr. Berry showed himself to be a fascinating lecturer, he was humorous and witty and displayed remarkable descriptive powers and, moreover, he was commendably brief.

London Medical Exhibition.—The eleventh London Medical Exhibition was held in the Central Hall, Westminster, from Oct. 3 to 7 last. Among exhibits of a directly surgical nature were the catgut and Sontar needle shown by the London Hospital. Several American firms were represented at the exhibition. It was an extremely good exhibition, well arranged and well attended.

England's First Radium Hospital.—The new hospital of the Manchester and District Radium Institute was opened on Oct. 7 last by Lord Derby. It will be the first hospital in this country to be used exclusively for radium treatment.

Obituary.—The death has taken place at Edinburgh of Major-General Peter Stephenson Turnbull, M.D., aged 85, an honorary surgeon to the King. Major-General Turnbull joined the Indian Medical Service in 1860 and served in Abyssinia in 1867 and 1868 under Lord Napier of Magdala. Major-General Turnbull held the appointment of Principal Medical Officer for the Sind district from 1888 to 1893, in which year he became Surgeon-General to the Government of Bombay, retiring three years later.

WARNING AGAINST SWINDLERS.

To the Editor of the Medical Record:

Sir:—We have been advised that a person who has not been in our employ since 1917 has recently obtained loans from physicians in New York City.

We assume that the man secures the loans on the strength of his former connection with us or he tells

those whom he approaches that he is still in our employ. We hope to protect your readers from such misrepresentations.

Since access to us is so easy, our representatives can readily secure funds should they require them.

NEW YORK CITY. PARKE, DAVIS & CO.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 20, 1921, clxxxv, 16.

1. Etiology and Pathology of Loss of Vision from the Accessory Sinuses. Leon E. White.
2. Modern Methods in the Treatment of Fractures. E. A. McCarthy.
3. Overweight in Children. William R. P. Emerson.
4. Hypermotivity: Its Causes, Their Permanent Removal. Tom A. Williams.
5. Motives and Emotions. Wolfert G. Webber.

1. Etiology and Pathology of Loss of Vision from the Accessory Sinuses.—Leon E. White, summarizing a lengthy article on this subject, says that earlier writers considered the anatomical relations of the optic nerve to the accessory sinuses the chief factor. Later ones claimed the trouble was transmitted by the soft tissue. No one etiological factor is responsible for all cases. Purulent infection accounts for a few, while hyperplasia seems of minor importance. The analysis of a considerable number of case records indicates that the size and position of the middle and superior turbinates probably explain the etiology in a large number. Poor ventilation and faulty drainage are all important predisposing causes. He discusses the pathology under four headings, namely, direct extension, toxemia, bacteriemia, and hyperplasia. (1) By direct extension acute infections in the adjacent sinuses spread by continuity of structure to the sheath of the nerve, or even to the optic nerve itself, while in the more remote sinuses the infection becomes walled off. Nature has so walled off the chronic infections that it is futile to longer believe purulent sinus disease the one and only etiological factor. Cases with sudden loss of vision with such noses might better arouse suspicion that the cause should be sought elsewhere than longer be considered the *sine qua non* of accessory sinus blindness. A comparison may be drawn between optic neuritis and Bell's palsy. (2) Toxin originating in the accessory sinuses or elsewhere may involve the optic nerve. (3) Microorganisms may be carried into the blood stream or lymph channels from the foci of infection in the sinuses to the regions adjacent to the optic nerve. Hematogenous focal infection of the nervous apparatus has been demonstrated, so why not a similar involvement of the optic nerve? (4) Hyperplasia, a predisposing factor, is probably of considerable importance, but not *per se*. Hyperplasia, plus infection and direct extension to the optic nerve, is responsible for many cases. Cultures when taken all gave the same growth, *Staphylococcus albus*. A few streptococci were found, but no viridans were isolated. Several of the sections showed considerable increase in leucocytes and fibroblastic tissue along the margins of the bone. Others showed chronic inflammation of the deeper elements of the mucosa and of the bone, while a few showed fibrous hyperplasia.

3. Overweight in Children.—William R. P. Emerson believes that overweight in children has not received the attention from either parents or physicians that its serious menace to health warrants. When the excess of weight passes twenty per cent. beyond the average the condition is called obese. A comparison of defects in 24 underweight and 24 overweight children, shows that the underweight child averages nearly six defects, while the overweight child averages less than two. Cases are common in which it is impossible to find a single physical defect in the overweight child. Nevertheless the symptoms of overweight are shown in the tax put upon the heart and other vital organs by the extra burden of weight carried. From this condition come lessened powers of endurance and diminished activity. Owing to the extra burden placed upon the lungs and circulation the overweight child is less likely to recover from pneumonia or other acute infection. Joslin states that obesity is a predisposition to diabetes. The chief cause of obesity is the habitual intake of more food than is called up usually carbohydrates and fats. It is remarkable how general is the idea, even among physicians, that the usual cause of obesity is some abnormality of the endocrine glands. The use of thyroid extract in the treatment of obesity is a short cut attended with danger to the growing tissues and is seldom, if ever, necessary. The remedy for overweight is measured feeding. If there is no loss of weight with a reduction of one-third the amount of food usually taken, a further reduction of 100 calories per day should be made, until it is found what amount of food will bring about the desired weight loss. If the loss in weight does not exceed from one-half to two pounds, depending upon the weight of the child, the child will feel better while the reduction is going on. Moderate exercise which is not overfatiguing will also assist the process of reduction.

New York Medical Journal.

October 1, 1921, cxiv, 8.

1. The Treatment of Premature Loss of Hair. George M. M. MacKee and George C. Andrews.
2. Tooth Infection. Otto T. Osborn.
3. The Moving Finger Deception. Sinclair Tousey.
4. The Elimination of Secondary Radiation in Radiotherapy. Morris V. Abrams.
5. Roentgen Ray Therapy in Chronic Diseases of the Bones, Joints and Tendons. Herman B. Philips and Harry Finkelstein.
6. The Operation for Femoral Hernia with a Suprapubic Incision. Carlo Savini.
7. The Biology of Bone Development in Its Relation to Bone Transplantation. Philip William Nathan.
8. The Rectovaginal Septum in Proctology. Descum C. McKenney.
9. Some Observations on the Static Influence of Shortened Pelvic Muscles. John Joseph Nutt.
10. The Problem of the Immature Cataractous Lens. Homer E. Smith.
11. The Simulation of Epidemic Encephalitis by Drug Poisoning. George Wilson.
12. Simple Anorectal Fistula Simulating the Tuberculous Variety. Arthur A. Landsman.
13. Local Anesthesia in Dental, Oral, Nose and Throat Surgery. H. E. Tompkins.
14. Hepatic Fever Due to Gumma of the Liver. G. A. Friedman.
15. The Economic Fallacy of Fitting Glasses in Hospitals. Aaron Brav.

5. Roentgen Ray Therapy in Chronic Diseases of the Bones, Joints and Tendons.—Herman B. Philips and Harry Finkelstein relate their experience with roentgen therapy during the past two years at Hospital for Joint Diseases, New York, in the treatment of such conditions as tuberculous arthritis, chronic pyogenic osteomyelitis, chronic arthritis, chronic tenosynovitis, etc. They assert that roentgenotherapy is available as probably the greatest but least used therapeutic agent in the orthopedist's armamentarium. Night cries, muscle spasm, uncontrollable pain, temperature, and malaise frequently disappear after a few radiations. Sequestration is favored by *x*-ray radiation. The chronicity of osteomyelitis is markedly shortened. Drainage by radiation from deep seated abscesses is favored. Chronic sinuses dry up and are obliterated. The degenerative processes in ganglia are checked by radiation with resulting disappearance of the ganglia. Chronic tenosynovitis is similarly affected. Orthopedic and surgical measures are aided and not replaced by *x*-ray therapy. Braces, casts and the like should not be discontinued during the treatments, until definite cures have been established. A strong plea is registered for a greater adaptation in a clinical way of roentgen therapy. Technique is now established on an absolutely safe basis, and careful observation of the patient with intelligent administration of stimulating doses can do no harm, but on the contrary can save considerable time to the patient, as well as at times life and limb.

8. The Rectovaginal Septum in Proctology.—Descum C. McKenney reminds proctologists and gynecologists that they have a common interest in the treatment of diseases involving the anorectovaginal septum. Repair of the septum on the vaginal side has been made by gynecologists with little or no thought of the alleviation or cure of anorectal diseases, likewise rectal conditions have been treated by the proctologist without

proper regard for the great necessity of coincident repair of the septum. Internal hemorrhoids that do not prolapse are usually cured by repair of the septum alone. When rectocele has associated with it disease of the cervix and anterior vaginal wall, requiring surgical intervention, all should be given attention at one operation. In clean cases there should be no hesitation in repairing the septum at the same time that one does the necessary anal or rectal operation. There are many methods by which this may be done, if one bears in mind certain general principles upon which are based the successful operations. These are: The separation and elevation of the posterior vaginal mucous membrane from the rectal wall as far upward as the cul-de-sac, if necessary; the infolding of the rectal wall and the maintenance of it in this position by bringing together above the told the rectovaginal layer of endopelvic fascia; the formation of a new perineal body by bringing together from either side the edges of the levator ani muscle and other structures intimately associated with it; the obliteration of all dead space; the trimming away of redundant vaginal mucous membrane.

11. The Simulation of Epidemic Encephalitis by Drug Poisoning.—George Wilson reports the case of a woman, about forty-two years of age, who following an operation for appendicitis made an uneventful surgical recovery. Because of persistent insomnia she was given five grains of luminal every night for six nights without any results until after the fifth dose had been taken, after which she complained of headache and double vision, went to sleep, and remained in a stupor for six days. During this time she presented the characteristic appearance of a patient suffering from epidemic encephalitis. A gradual recovery ensued. A second patient was admitted to the Philadelphia General Hospital with symptoms simulating those of epidemic encephalitis. He remained in lethargy for three days, after which he became mentally brighter and stated that three days before admission he had a cold and bought half a pint of whiskey from a bootlegger. He said the whiskey had a peculiar taste and smell. Wilson said he reports the case of luminal poisoning because since Dercum's paper on the value of luminal in epilepsy, that drug has been widely used in the treatment of epilepsy, but little as a straight hypnotic. In the case herein reported it was used as a hypnotic and the symptoms developed after the administration of twenty-five grains. It is important that it should be generally recognized that intoxications can simulate epidemic encephalitis.

14. Hepatic Fever Due to Gumma of the Liver.—G. A. Friedman describes the case of a patient admitted to the hospital with a diagnosis of right lower lobar pneumonia, with persistent cough, pain in the right side of the chest, great weakness and fever. The *x*-ray and clinical examination revealed an enlarged right lobe of the liver. These findings together with that of a positive Wassermann reaction suggested the diagnosis of gumma of the liver. Under appropriate treatment there was a quick return to normal which confirmed this diagnosis.

Journal of the American Medical Association.

October 22, 1921, lxxvii, 17.

1. Epidermophytosis. Charles J. White and Arthur M. Greenwood.
2. Treatment of Ringworm of the Scalp by the Roentgen Rays. Howard Fox and T. B. H. Anderson.
3. Lymphocytosis as Diagnostic Sign of Periapical Dental Infection in Adults. Judson Daland.
4. Duodenal Diverticula. W. Wyllys Andrews.
5. Study of the Early Effects of the Sippy Method of Treating Peptic Ulcer. Howard F. Shattuck.
6. Pulmonary Abscess in Adults Following Tonsillectomy Under General Anesthesia: With Report of Cases. Lewis Fisher and A. J. Cohen.
7. Immune Reactions Following Injuries to the Uveal Tract. Alan C. Woods.
8. Quantitative Determination of Cocaine and Atropine Absorption by Aqueous Humor. Lawrence Post.
9. Surgery Versus Roentgen Ray in the Treatment of Hyperthyroidism. George W. Crile.
10. Anesthesia in Nose and Throat Work: Further Report of the Committee on the Advantages and Disadvantages of the Various Local Anesthetics in Nose and Throat Work. Emil Mayer, Ross Hall Skillern, Robert Sonnenschein, and William B. Chamberlin.
11. Presence, Absence and Location of Rales in the Prognosis of Pulmonary Tuberculosis. Francis B. Trudeau.
12. The Value of Drugs in Urology. Hugh H. Young.

3. Lymphocytosis as a Diagnostic Sign of Periapical Infection in Adults.—Judson Daland calls attention to small cell lymphocytosis with a corresponding decrease in the polymorphonuclear cells as an important diagnostic sign of periapical dental infection, the value of which is increased when leucopenia coexists. In a study of one hundred cases of chronic disease when no focal infection existed lymphocytosis was found only twice. Lymphocytosis indicates that toxins or streptococci or both are entering the blood. Lymphocytosis disappears from five to eight weeks after the removal of all foci of infection. If it persists after the removal of a periapical infection it usually indicates the presence of an undiscovered focus of infection. The organism that produces lymphocytosis is usually *Streptococcus hemolyticus* or *Streptococcus viridans*. An area of chronic periapical dental infection not communicating with the mouth cavity is usually composed of streptococci and inflamed tissue and seldom contains pus, contrary to the prevailing opinion that it is always purulent.

9. Surgery Versus Roetgen Ray in the Treatment of Hyperthyroidism.—George W. Crile reviews the literature in reference to the value of the roentgen ray in hyperthyroidism and states that at the Lakeside Hospital, Dr. Christie has made a series of comparative studies of the effects of reontgen rays, of ligation, and of thyroidectomy on the basal metabolism. He has found that bilateral partial thyroidectomy reduces the metabolism more markedly and more promptly than either roentgen rays or ligation; and that roentgen rays reduce the metabolism more than ligation. Since Dr. Christie's findings appear to show that thyroidectomy exerts the greater immediate curative effect, it becomes necessary to determine whether or not there are other considerations which should prohibit the employment of thyroidectomy in preference to roentgen rays. To determine this a comparison of thyroidectomy and roentgen rays were made as to (*a*) the resultant discomfort; (*b*) the resultant period of disability; (*c*) the immediate mortality; and (*d*) the end results. As the operation is being performed at the Lakeside Hospital (in the patient's room without removing the patient from bed), no discomfort follows the preliminary ligation; and there is relatively little discomfort after the thyroidectomy. It therefore follows that this plan of surgical management produces no greater subjective disturbance of the patient than results from transportation to and from the roentgen ray treatment room. As to the period of disability, in a recent series of 500 thyroidectomies, the total average stay in the hospital was twenty-five and one-fourth days—broken by the period at home between ligation and thyroidectomy. The mortality in this series of 500 thyroidectomies was 1 per cent.; among the last 500 ligations there were 2 deaths, a mortality of 0.4 per cent. The Lakeside Hospital records show 476 consecutive thyroid operations without a death, showing that operative risk may be largely disregarded under the type of surgical management advocated by the writer. It is too early to report on the end results in this series as at least three years should elapse before the end results may be considered as stabilized. In view of the evidence at hand it must be considered that surgical reduction of hyperthyroidism is altogether the most curative method.

10. Anesthesia in Nose and Throat Work: Further Report of the Committee on the Advantages and Disadvantages of the Various Local Anesthetics in Nose and Throat Work.—Emil Mayer, Ross Hall Skillern, Robert Sonnenschein, and William B. Chamberlin report that in response to 1,400 letters sent to members of the Section on Laryngology, Otology and Rhinology of the American Medical Association, 315 replies were received with records of 22 deaths from local anesthetics. All of these fatalities had occurred within two or three years, and, with the exception of three, none have been reported in the medical journals. A brief summary of these deaths is presented from which the Committee concludes as follows: (1) Deaths from the administration of local anesthetics are vastly in

excess of the number reported in the medical journals. (2) In most instances convulsions are the first indications of toxic effects; consciousness is never regained, and death ensues within a comparatively short time. (3) The customary dosage of local anesthetics varies from small amounts to very large ones. (4) There is no check on the manufacturer as to the comparative toxicity of the various batches of drugs that are placed on the market. (5) The freedom from ill effects noticed by so many who have used these drugs has made them oblivious to the likelihood of danger. (6) The presumption of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, that there are many unrecorded deaths, is thoroughly substantiated. (7) The appointment of a commission to investigate further these deaths and take action thereon is vitally necessary.

11. Presence, Absence and Location of Râles in the Prognosis of Pulmonary Tuberculosis.—Francis B. Trudeau presents an analysis of 1,000 consecutive admissions to the Trudeau Sanatorium during the years 1907 to 1913, whose condition was looked up and reported in 1918. Cases in which no râles were found, either on admission or on discharge examination, show the highest percentage of "cures." Those patients who entered the institution with râles but who lost them during their stay form nearly as favorable a group as those showing no râles at any time. In patients who entered the institution without râles but who developed them during treatment, the prognosis is much more grave than in either of the two above mentioned groups. In spite of the greater frequency and the more common findings of the tubercle bacilli in the right upper lesions as contrasted with the left upper, the prognosis is considerably more favorable in the former class of patients. Basal râles should not be diagnosed as nontuberculous too lightly, for in nearly 50 per cent. of this series, tubercle bacilli were found in the sputum, and nearly 40 per cent. of these developed apical râles during their stay in the sanatorium. The prognosis among these cases in which the râles were limited to one or both bases was not more grave than in those patients with râles over one or both upper lobes.

The Lancet.

October 1, 1921, cci, 5118.

1. An Address on the Value of Pathological and X-Ray Examinations in Abdominal Surgery. James Sherren.
2. The Milroy Lectures on Respiratory Efficiency in Relation to Health and Disease. Martin Flack.
3. Sciatica: Some Recent Scandinavian Investigations on Its Pathogenesis. Hans Jansen.
4. The Disastrous Results of Certain Abduction Fractures of the Ankle-Joint. W. Arbuthnot Lane.
5. Nutrition and Growth on Diets Devoid of True Fats. J. C. Drummond and Katherine H. Coward.
6. A Note on the Use of Sulfarsenol in the Treatment of Congenital Syphilis. E. Crawford and G. B. Fleming.
7. Copper in Tumors and in Normal Tissues. Charles Powell White.

2. The Milroy Lectures on Respiratory Efficiency in Relation to Health and Disease.—Martin Flack offers evidence as to the importance of respiratory efficiency based upon results obtained upon flying officers. Modern service flying, particularly in time of war, imposes great stress upon the airmen; it became important, therefore, to devise simple tests which besides helping to elucidate the causes of flying strain, would aid in the efficient selection of suitable candidates for flying. Various considerations led the writer to the point of view that in many cases of flying strain the first breakdown in the bodily system was probably in connection with the respiratory mechanisms, which became defective in working, reacted unfavorably upon the efficiency of the circulatory and nervous systems, and thereby brought out signs of cardiovascular or nervous debility. Attention is called to the correct muscular movements of breathing in massaging the abdominal contents. The descent of the diaphragm in inspiration and the contraction of the abdominal wall in expiration provide massage mechanism which plays an important part in the preservation of the tone of the smooth muscle of the abdominal contents. Constipation does not occur when a good tone of the abdominal wall is preserved. Good tone of the muscles constituting the natural abdominal belt play an important part in preserving a healthy condition of the abdominal contents. Among the special routine tests employed are those of vital capacity, breath holding and a test for expiratory force. As an endurance or fatigue test, the test of sustaining 40 mm. of mercury with the breath held has been devised. As an adjunct to this test the pulse is counted. In the fit man the rate of the pulse is not materially changed during the time the mercury is sustained; in the slightly less fit the pulse rises gradually in rate until just before the end. The average time for sustaining the column of mercury in the fit individual is from 50 to 60 seconds. The author finds that these respiratory tests afford valuable help in determining physical efficiency.

5. Nutrition and Growth on Diets Devoid of True Fats.—J. C. Drummond and Katherine H. Coward report that young rats have been grown from weaning to maturity on diets, deprived as far as possible of neutral fats, and have shown normal development and behavoir. More deaths were encountered among the animals fed on fat-free diets than among those receiving fats. It would appear that neutral fats are, from a purely physiological standpoint, dispensable constituents of a diet, provided the other food stuffs supply a sufficiency of the vitamine frequently found in association with natural fats. It is intended to ascertain whether the capacity for breeding and rearing the young is in any way inhibited by these fat-free diets.

6. A Note on the Use of Sulfarsenol in the Treatment of Congenital Syphilis.—E. Crawford and G. B. Fleming compare the results obtained in the treatment of thirty-five children with intramuscular injections of sulfarsenol and mercurial inunction with those published for kharsivan. The results suggest that the intramuscular injection of sulfarsenol is not as efficacious in producing a cure of congenital syphilis, as evidenced by the Wassermann reaction, as intravenous injection of kharsivan. Whether the virtue in the latter method lies in the drug *per se* or in the method of administration (intravenous as against intramuscular) they are at present unable to say.

7. Copper in Tumors and in Normal Tissues.—Charles Powell White has analyzed a large number of animal and vegetable substances with reference to their copper content and summarizes the results as follows: (1) Copper appears to be univesally present in the tissues of animals and plants so far as it has been looked for. (2) The known catalytic action of copper and the presence of copper in seeds, ova, and in fetal as well as in adult tissues suggest that it has a physiological significance. (3) Copper is present to a greater extent in degenerating tumors than in those which are not degenerating. This suggests either that the degeneration is associated with an increased catalytic action due to the increased amount of copper, or it may be that copper, like calcium, tends to be deposited in degenerated areas.

British Medical Journal.

October 1, 1921, No. 3170.

1. The Restoration of the Normal Cardiac Mechanism in Cases of Auricular Fibrillation by Means of Quinidine Sulphate. Alan N. Drury and C. C. Iliescu.
2. The Manner in Which Quinidine Sulphate Acts in Auricular Fibrillation. Thomas Lewis, A. N. Drury, C. C. Iliescu and A. M. Wedd.
3. Enlargement of a Splenculus to the Size of a Normal Spleen After Removal of a Ruptured Spleen Two Years Previously. W. McAdam Eccles and G. D. Freer.

1. The Restoration of the Normal Cardiac Mechanism in Cases of Auricular Fibrillation by Means of Quinidine Sulphate.—Alan N. Drury and C. C. Iliescu have treated thirteen cases of auricular fibrillation with quinidine sulphate, given in gelatin capsules by mouth, and in six cases the normal rhythm has been established, while in the remaining seven cases, although similar changes have been produced in the retardation of the auricular rate the movement persisted without break, and the rate returned, upon withdrawal of the drug, to its original level. The percentage of success obtained is of the same order as that obtained by several other workers, and the successful and unsuc-

cessful cases, as previous workers have shown, do not fall into any special clinical group either with regard to etiology, cardiac enlargement, valvular involvement, or duration of the malady. Both successful and unsuccessful cases form heterogenous groups. The drug quinidine sulphate has a very remarkable action upon the auricle, and this action is of a potent nature. For this reason alone the method of direct leads from the chest is of importance, for it gives a record of the effect of the drug upon the auricle itself; the effect on the auricle will vary considerably owing to the factors of absorption, individual tolerance, etc., and the direct leads enable the drug to be controlled.

2. The Manner in Which Quinidine Sulphate Acts in Auricular Fibrillation.—Thomas Lewis, A. N. Drury, C. C. Iliescu, and A. M. Wedd review the theory of fibrillation which they have supported in previous communications, namely, its dependence upon circus movement in the auricle which is only possible (1) if a circular path of sufficient length is available; (2) if the refractory period is sufficiently short; and (3) if the speed at which the wave moves through the muscle is sufficiently slow. In recent experiments they have found that the most striking action of quinidine upon the auricle is to lengthen the refractory period; the lengthening which occurs, when doses comparable to those used clinically are employed, amounts to 50 per cent. or more. Quinidine prolongs the refractory period of the auricle and delays the recovery of the tissue, thus rendering the gap between the crest and the wake of the circulating wave shorter and eventually abolishing it altogether; when the last event happens the abnormal action of the auricle ceases and the normal impulses are thus enabled once again to resume control. Quinidine has not only this action upon the refractory period, it has further actions. The most important of them from the present standpoint is an effect on the rate of conduction; it slows conduction in the auricle. Slowing the conduction prolongs the gap. Thus quinidine exerts two actions which are opposed to each other. It is only in those cases in which the first effect predominates over the second that the gap will close and the circus movement will terminate. In patients suffering from chronic auricular fibrillation the first effect appears to predominate in approximately 50 per cent. of the cases, for in this percentage auricular fibrillation is abolished; in the remaining 50 per cent. in whom this desired end result is not obtained it would seem as if the second effect predominates, or that the opposite effects are exerted equally. The writers utter a word of warning against the indiscriminate and uncontrolled use of this powerful remedy, inasmuch as it is a remedy of which we still have too little knowledge; it is one which, unless it is strictly controlled by frequent records of the auricular and ventricular action, is not without serious risk. A phenomenon which not uncommonly disturbs treatment is a rise in ventricular rate. This may be due to two causes, probably acting together. A fall in auricular rate is in itself sufficient to produce a lesser grade of block and a resulting rise in ventricular rate. But it is also found that quinidine has a paralyzing effect on the vagi, an action not altogether unlike, though less powerful, than that of atropine. Opposed to these actions is a direct action of the drug upon the junctional tissues. This opposed action probably moderates in some measure the rise of ventricular rate which occurs during the clinical use of quinidine in cases of auricular fibrillation.

3. Enlargement of a Splenculus to the Size of a Normal Spleen.—W. McAdam Eccles and G. D. Freer relate the history of a young man, 21 years of age, who received a violent blow over the splenic region on May 24, 1910. Symptoms developed which necessitated opening the abdomen. On examination of the spleen it was found to be torn on the inner side in the region of the hilum. Splenectomy was performed. That the actual spleen was removed is proved by the fact that it was weighed and found to be 13 ounces, a normal spleen in the adult weighing about 7 ounces. The patient had apparently contracted malaria previously to the accident, and the enlargment of the spleen may have contributed to the ease with which it was ruptured. Dr. John Gray, who assisted at the operation, writes that "the spleen was completely removed." The nurse also who assisted at the operation says she saw the spleen. The patient fully recovered. At the end of eight years he began to develop a ventral hernia at the site of the left rectus incision. On September 4, 1920, he was operated on for the repair of this ventral hernia. On opening the abdomen, five persons confirm the fact that a well-formed, normal-looking spleen was seen in the usual position. The shape, size, notch, color and consistency all appeared to be that of a normal spleen. A normal left kidney was palpated. That a splenculus may enlarge after the removal of an ordinary spleen is well known, but such an enlarged organ is rarely seen during life.

La Presse Médicale.

September 14, 1921, xxix, 74.

Glycemia and Graves' Disease.—Sainton and two others contribute an elaborate study of this association which has been known for half a century and has a considerable literature. This glycemia, it is claimed, is not so dependent on the diet as the ordinary type of diabetes and crises of it are said to coincide with exacerbations of hyperthyroid disease. A study of the isolated syndromes of Graves' disease and clinical diabetes is said to show that each carries a suggestion of the other; thus an ordinary diabetic may show slight evidences of hyperthyroidism, while a patient with Graves' disease may have thirst, polyuria, and other symptoms of the diabetic. The subject of Graves' disease may also exhibit a tendency to acidosis connected with anomalies of the protein metabolism. The authors have made numerous blood studies of subjects with Graves' disease, with normal controls. The technique was microchemical, the method of Folin having been used to some extent. In addition to the ordinary tests, provocative methods were used—special feeding, injection of adrenalin, hypophysin, thyroidin, etc. The results of the authors' labors seem to have been almost negative throughout. Nothing new was learned, while the doctrine of Labbé and others concerning a hybrid of diabetes and Graves' disease seems to be quite without foundation.

Le Progrès Médical.

September 10, 1921, xlix, 37.

Ratio of Cholesterin to Other Lipoids in Cancer Patients.—Loeper, Debray, and Tonnet have calculated this ratio in 11 patients with visceral cancer. No law can be deduced from location, for both the highest and lowest ratios were in cases of gastric cancer. The variation is partly individual (?), although the larger the tumor mass and more rapid the growth-rate, the lower the ratio. Again, in the presence of a high degree of anemia it is also low. The cholesterin alone may be below normal in the blood serum, but the other lipoids are very often augmented. The ratio is obtained by dividing the figure for cholesterin by that of the other lipoids. The authors also instituted comparisons between the cholesterin in the serum and that in the tumors. In the latter the cholesterin varied from 0.6 to 4 per 1,000, while the other lipoids went as high as 14 per 1,000. In the serum the limits were, roughly, from 1 to 3 parts per 1,000 of cholesterin, and of other lipoids from 2 to 8 parts per 1,000. The problem is complicated by the fact that radiotherapy, to which most of the cases have been more or less subjected, is believed to diminish the content of cholesterin and to increase that of the blood lipoids. The authors believe that the tumor consumes cholesterin and excretes other lipoids, incidentally producing anemia.

Lumbar Puncture for the Disposal of Obstinate Syphilides.—Schreiner has made the accidental discovery that obstinate syphilitic dermatoses clear up promptly in the course of spinal tappings. The effect is much more striking in recent syphilides, for these may vanish in a day or two. But the same result has been seen in the most obstinate nonsyphilitic dermatoses, such as lichen planus and prurigo, although repeated punctures are required in the more chronic cases.—*La Presse Médicale.*

Book Reviews.

THE MANAGEMENT OF MEN. A Handbook on the Systematic Development of Morale and the Control of Human Behavior. By EDWARD L. MUNSON, Colonel, General Staff (Med. Corps.); Chief, Morale Branch, War Plans Division (Lately Brigadier General, General Staff). Prepared with the literary assistance of ARTHUR H. MILLER, Major, Coast Artillery Corps. New York: Henry Holt and Company, 1921.

ONE big interest stimulated through the agency of the war is the effort for the betterment of life for human beings by means of an advance in the morale of large bodies of men. If men in masses can be improved mentally, morally, and physically, it naturally follows that the individual man makes a big step forward in service and happiness.

The book is a treatise on the swinging forward of large groups of men toward a sane, steady, yet perfectly practical management of their life affairs. This is to be accomplished through a careful handling of both the individual and the group by those higher up in authority and power under whose control large masses of men come. The auther worked out his principles in the U. S. Army at the time of the war and has adanted them for the use of bodies of men in the industrial world. As he himself states in the opening of his book "Not only are the measures proposed correct in principle, but they have been shown to work in practice."

The basic instincts; psychological qualities; the human agents of morale control; the functioning of the morale organization; some elements of leadership; education, information, training; recreation; health and mental state; reward, punishment, delinquency; and industrial morale are some of the topics ably handled in this work.

In one chapter Colonel Munson says in substance that nothing is accomplished in his work of morale management by argument. Much more is gained by the statement of the fact to be driven home, than by the oft repeated statement of the same fact—over and over—until it is actually placed in the minds and consciousness of the men for whom it is intended. And that is the way he has written his book. He presents a certain fact, then he carries the reader on, but somehow that first fact keeps reappearing, not once but perhaps several times, nicely correlated to other facts, until, if the reader has any perception at all, he must have received the message and been convinced. The book is a product of perfect understanding of military morale. So much so that at times the reader almost feels that a company of infantry is facing him and the order given, Bang! A report of guns and over come the facts and statements and down he goes! Knocked down by the ever-direct truth shot at him.

It is a book which should not be read in a hurry. It contains too much food for thought for hasty reading since there is hardly a relation in life but has been worked out for better condition. That the writer has an intense interest in all which concerns men for their advancement is fairly breathed from every page. He puts tremendous responsibility on the shoulders of men in authority, especially the officers in the army.

GENERAL PATHOLOGY. An Introduction to the Study of Medicine, being a Discussion of the Development and Nature of Processes of Disease. By HORST OERTEL, Strathcona Professor of Pathology and Director of the Pathological Museum and Laboratories of McGill University and the Royal Victoria Hospital, Montreal, Canada. Price, $5.00. New York: Paul B. Hoeber, 1921.

THE author presents an introduction and general outline of pathology in a readable and entertaining style, which initiates the student into the subject without overpowering him with the complexity of the subject. A pleasing feature of the book, and one desirable from the educational point of view, is the outline of the historical development of present-day ideas regarding pathology, not by a recital of a sequence of events, but by showing the bearing and influence which one step of thought has exerted upon the next. The volume is divided into two parts, the first of which is devoted entirely to bacteriology, infection, immunity, predisposition, and heredity, which are discussed in a much more extensive way than is ordinarily done in textbooks on pathology. In the second part of the volume the author aims to visualize as much as possible pathological occurrences by emphasizing the anatomico-histological side from the dynamic standpoint. Pathological phenomena are presented in their general characters and grouped in categories more or less without regard to their occurrence in a particular organ, the writer's object being confined to making clear that pathological processes are physiological and chemical cell alterations and disturbed cell relations which follow common biological laws and in the majority of instances, at least, find definite anatomical expression. The book affords a refreshing departure from the steretotyped textbook on pathology, though, to use the author's words, "the spade is only handed to the reader; he must himself do the digging."

PATHOLOGIE UND THERAPIE DES HÄMOLYTISCHEN IKTERUS. Von Prof. Dr. M. MOSSE. Price, 580 marks. Halle A. S.: Carl Marhold, 1921.

THIS brochure of 50 pages is one of the "Sammlung zwangloser Abhandlungen aus dem Gebiete der Verdauungs- und Stoffwechsel-Krankheiten." The four chapters are devoted respectively to bile-formation outside the liver, hematogenous icterus, hemolytic icterus, and icterus neonatorum. The section on hemolytic icterus makes up the bulk of the book and is divided into ten subsections.

NACHKRANKHEITEN DER RUHR. Von Professor Dr. H. STRAUSS, Direktor der inneren Absheilung des Krankenhauses der jüdischen Gemeinde zu Berlin. Sammlung zwangloser Abhandlungen aus dem Gebiete der Verdauungs- und Stoffwechsel-Krankheiten. vii. Band. Heft 12. Price, 7 marks. Halle a. S.: Carl Marhold, 1921.

FOLLOWING a brief summary on dysentery are four sections on the sequelæ of the latter, dealing respectively with the nesology, symptomatology, course and treatment of these sequelæ. The latter comprise diarrheas, spastic-hyperalgetic manifestations, gastric finds, proctoscopic finds, bacteriological and serological finds, and extra intestinal complications. Treatment comprises specific, dietetic, medicamentous, endoscopic and surgical measures.

DIE PROPHYLAXE UND THERAPIE DER ENTEROPTOSE. Von Prof. Dr. LUDWIG KNAPP. Price 42 Marks. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THIS volume of 118 pages begins with the prophylaxis of enteroptosis, which occupies 12 pages. Under treatment are considered the physical, neurological, conservative and operative forms. There is a special chapter on the separate ptoses and another on prolapse of the pelvic organs. Under surgery, operations for the separate ptoses are described. There are no illustrations, an omission difficult to understand in a work of this scope. The author has no comment to make on this drawback.

FUNDAMENTALS OF BACTERIOLOGY. By CHARLES BRADFIELD MORREY, B.A., M.D., Professor of Bacteriology and Head of the Department in the Ohio State University, Columbus, Ohio. Second Edition, thoroughly Revised, and Illustrated with 171 Engravings and Six Plates. Philadelphia and New York: Lee & Febiger.

IN the second edition of this textbook the original method of presentation is adhered to, which aims to give to the individual instructor full liberty to expand on topics in which he is especially interested. The author makes no attempt to produce an encyclopedic work, but rather to give a comprehensive grasp of the subject and to furnish a background for later work along special lines. It is therefore not adapted to meet all the needs of the medical student. Neither does it go into the minutiae of laboratory detail required by the advanced student or laboratory worker. The subject, however, is covered in a general way and recent advances in the science of bacteriology have been incorporated in this edition. The system of classification of the Society of American Bacteriologists is used throughout the text, and their Key to the Genera of Bacteria has been added.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 6, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

The Application of Pallidum Infections in the Rabbit to the Study of Problems of Human Syphilis. With Lantern Demonstration.—DR. WADE H. BROWN of the Rockefeller Institute for Medical Research presented this paper, from the point of view of the conduct of experiments and the interpretation of their results, emphasizing the joint responsibility which rested upon the clinician and the laboratory investigator in endeavoring to utilize this means for the solution of problems of human syphilis. He pointed out that a great many of the problems of experimental syphilis were problems of clinical medicine and that the benefits which might be derived from such investigations would depend very largely upon the ability of both the clinician and the laboratory investigator to judge of the fitness of the methods employed and of the significance to be attached to the results. The first essential in meeting these requirements was a familiarity with the characteristic features of the animal as well as the human infection. The material used as a basis for the development of this subject was drawn from two lines of investigation which had been carried out at the Rockefeller Institute by Dr. Brown and Dr. Pearce. The first of these consisted of a clinical study of the infection produced in the rabbit extending over a number of years, the purpose of which was to supply a detailed and systematic knowledge of the experimental infection to be used as a basis for the investigation of specific problems. The second phase of the work dealt with selected problems of varying degrees of complexity in the presentation of which the subjects of the planning and execution of experiments and the interpretation of results were considered. The disease produced in the rabbit by virulent strains of *Treponema pallidum* was described as one which began with a satellite adenitis, followed by the development of a primary lesion, a general lymphadenitis, and in certain instances by the development of a variety of lesions in the bones, the skin and mucous membranes, and the eyes—corresponding in general with manifestations of disease which occurred in man during the socalled primary and secondary stages of syphilis. These features of the animal infection were illustrated by lantern slides. Attention was called to the fact that thus far, visceral lesions and tertiary manifestations of disease had been very rare and that those observed were usually granulomatous processes involving the myocardium or degeneration and necrosis of the middle coat of the aorta, examples of which were shown. The absence of this class of lesions was attributed to the degree of virulence thus far attained by laboratory strains of *Treponema pallidum* on the one hand and on the other to the prompt and vigorous reaction exhibited by the rabbit. Among the features of the animal infection which were regarded as of especial significance to the investigator, mention was made of: (1) The time and frequency of occurrence of satellite lymphadenitis and of general lymphadenitis. (2) The relapsing course of both the infection and the disease. (3) The pronounced character of primary lesions as compared with those of man. (4) The low incidence of generalized disease in certain forms of infection. (5) Circumstances which favored the occurrence of generalized disease. (6) Variations in the character of the disease presented: (*a*) In different animals of the same series. (*b*) In response to the use of different experimental conditions. (7) The constancy of the occurrence of metastatic lesions in the testicles and the frequency of their occurrence in the scrotum. Lack of knowledge of such conditions as these had constituted a serious handicap to the work of earlier investigators and had at times led to results which were difficult or impossible of interpretation. Reinoculation experiments in the testicles or scrotum were cited as examples of instances where confusion had been introduced through unfortunate selection of a method of experimentation.

Turning to the investigation of concrete problems, it was pointed out that the permanent part of any investigation was represented by the facts established—that before any interpretation or generalization could be of value, one must be assured of the validity of the facts upon which it rested and that this implied the possession of a sufficiently detailed and systematic knowledge of a subject to enable one to judge of the fitness of the methods employed in a given instance and the reliability of the criteria used for the determination of results. A series of experiments of varying degrees of complexity was then reported, especial attention being given to the selection of methods of investigation and the means employed for the determination of results. The first series of experiments described dealt mainly with the dissemination and localization of spirochetes in infected animals as determined by subinoculation of normal animals with emulsions of lymphoid tissues taken at various intervals of time after inoculation. From these experiments, it was found that invasion of the lymphoid system invariably occurred within the first 48 hours after inoculation and that infection persisted indefinitely, being demonstrable in all animals examined at any time subsequent to inoculation, the longest interval being 4 years and 9 months. It was pointed out that the procedure followed in these experiments was extremely simple and was dictated largely by a knowledge of the clinical course of the disease. The early appearance of a satellite lymphadenitis, the constant occurrence of general lymphadenitis and the persistence of abnormalities in the superficial lymph nodes after all other manifestations of disease had disappeared pointed unmistakably to this system of tissues as the point of attack. The use of tissue implants instead of fluid emulsions and the selection of the scrotum as the site for the original inoculation were in themselves important details in that the possibility of driving the spirochetes into vascular channels by the injection of a fluid emulsion was overcome and it was possible to correlate clinical alterations in the inguinal nodes with the reaction at the site of inoculation on the one hand and with the infectivity of the node on the other. Similar experiments were carried out on the blood for the purpose of determining the relation existing between the socalled blood stream invasion and the evolution of the disease. The method of experimentation employed in this case was somewhat different. The animals studied were inoculated in the testicles instead of the scrotum since this mode of inoculation was known to produce infections of a much more uniform character and with sharper delimitation of successive phases of the reaction. By properly timing the examinations, it had been possible to show, as in the case of the lymph nodes, that spirochetes entered the blood stream before the primary lesions were recognizable. Moreover, the infectivity of the blood increased with the progress of the local infection and declined during periods of regression and was eventually lost with the healing of active lesions, differing in this respect from the lymph nodes. A second group of experiments concerned the possibilities of infection through normal mucous membranes. It was stated that the first report of an infection produced by the application of a fluid emulsion to an apparently normal mucous membrane was published by Reasoner in 1914. Eight animals were used in these experiments and one of them developed a characteristic chancre-like lesion in which spirochetes were demonstrated. At that time, no other clinical signs of infection were known so that some uncertainty remained as to what occurred in the other animals of the series. Experiments of the same character were carried out by Brown and Pearce on a number of animals using three strains of spirochetes. Male rabbits were used throughout; the majority of them were inoculated by the instillation of 0.05 c.c. of a spirochete emulsion into the sheath; others were inoculated by the introduction of the same dose of organisms into the conjunctival sac. These experiments were planned with a view to using criteria of infection other than the development of a chancre. Thus male rabbits were used on account of the high incidence of metastatic lesions in the testicles and scrotum while the sheath was chosen as the site of inoculation in order to utilize inguinal adenitis as an additional aid in the determination of results. The introduction of these features

into the experiments proved to be of great value. In all instances enlargement and induration of the inguinal nodes occurred within 1 to 5 days after the application of the virus to the sheath. The majority of the animals subsequently developed lesions on the penis but these were usually quite small and differed in general appearance from lesions produced by mechanical inoculation. Frequently the first lesions were in the scrotum or testicle and in some instances these were the only lesions, there being no visible lesion on the parts where the virus was applied. A final series of experiments dealing with modification of the clinical course of disease by the use of experimental methods was cited as an example of the possibilities for investigating complex phenomena such as those which determine the usual course of the infection, the importance of a working hypothesis and the ability to select and to use methods of investigation which would yield cleancut results. The experiments reported were based upon the conception of the existence of an intimate relationship between all processes of reaction and disease of such a nature that a modification of the reaction occurring at one stage of the infection would be reflected in the subsequent course of the disease. It was shown how this could be demonstrated by varying the conditions under which the infection was initiated, or by suppressing defensive reactions at various stages in the progress of the disease. In speaking of these experiments, reference was made to the fact that three fundamental types of reaction or disease occurred in the rabbit: An average or usual type characterized by a vigorous local reaction with slight manifestations of generalized disease, a mild but prolonged local reaction followed by frequent generalized lesions presenting the same characteristics, and a malignant type. This form of reaction was described as anomalous in that the initial or primary reaction was the most vigorous of all but instead of resulting in a prompt termination of the disease as might be expected, the local lesions assumed a distractive character and were followed by marked and widespread manifestations of generalized disease. It was believed that these peculiarities pointed to the existence of distinct qualitative and quantitative differences in the defensive mechanism of individual animals.

In concluding, Dr. Brown said that the discussion of these few problems would serve to indicate the scope of investigations which could be undertaken and something of the conditions which must be met in the prosecution of experiments of this kind. Conditions which were regarded as of prime importance in the conduct of experiments or in the interpretation of results included: (1) A detailed and systematic knowledge of the experimental infection. (2) The ability to observe and to measure phenomena. (3) The ability to judge of the fitness of methods employed and of when and how successive stages of the experiments should be carried out. (4) The ability to maintain a clear cut distinction between the facts derived from an experiment and one's interpretation of these facts. (5) A point of view unprejudiced by previous work or by current conceptions. (6) Finally, an equation for the comparison of phenomena of the human and of the animal infection and for the translation of the phenomena of one into terms of the other. He then emphasized the necessity for the coordination of clinical and experimental points of view in an endeavor to obtain a proper orientation of experimental investigations and in determining their significance to human syphilis.

Dr. WALTER J. HIGHMAN said that the fact that others who were to have discussed the paper were absent had placed rather more of a burden upon him than he had expected to shoulder, especially in view of the fact that Dr. Brown had requested that a clinician interpret the facts he had presented. This was exceedingly difficult inasmuch as it was hard for the clinician intelligently to interpret the clinical manifestations of syphilis even in the human being. The golden era in respect to clinical syphilis began with the work of Schaudinn in 1905 and terminated in 1911 when Ehrlich started us on an era of hyperenthusiasm which subsequent experience had not justified. The second period was the one in which we found ourselves at the present time and was represented by the efforts of Dr. Brown to elucidate, albeit by animal experimentation, what we were at a loss to explain in the human being. Many of the problems of syphilis were difficult to explain because no man saw enough cases through the entire course of the disease. A physician saw primary syphilis in one group, secondary syphilis in another group, and tertiary in another, but he did not see one patient from the time of the infection until he died or was cured. So we had not in human beings the advantages of the laboratory. The differences between syphilis in the rabbit and in the human being were clearly brought out by Dr. Brown but he should hesitate to draw an analogy between syphilis in the rabbit and in the human being. He had hoped that we would get something from the experimental work that would enable us to face the problem of syphilis with optimism. He had thought it might be possible to perform experiments which would show the results in treated and untreated cases followed to the end, to make comparisons between treated and untreated syphilis in alcoholics, and likewise the relation of tobacco to syphilis. He thought it might be possible to demonstrate experimentally the results of a combination of syphilis and morphine. He understood that the Chinese while a highly syphilitic race rarely had syphilis of the central nervous system. Perhaps opium dulled the sensitivity of the central nervous system of the Oriental. Dr. Highman said he frankly and thoroughly coincided with Dr. Brown's point of view with reference to the interpretation of facts and the attempt to eliminate the subjective on the part of the observer, and all he had attempted to do was to point out a few of the questions upon which experimental work might throw light; he could not say whether or not there was anything in the experimental work presented that was of practical value to the clinician.

Dr. DAVID JOHN KALISKI said he thought Dr. Brown's attitude concerning the relationship between animal syphilis and human syphilis was correct. He did not believe we were justified in drawing conclusions at this time as to a definite relationship existing between the two. He thought this fact would be brought home to us more clearly if we recalled that as early as 1914 Arzt and Kerl, and before them some English workers, showed that in normal rabbits there existed an infection with spirochetes, and definite lesions were present which, while not the same as those shown by Dr. Brown in rabbits, were nevertheless lesions of a scaly or slightly ulcerating type; and in these lesions one could find spirochetes which morphologically could not be differentiated from *Spirochæta pallida*. These organisms morphologically identical with *Spirochæta pallida* had been found in regional lymph nodes also and in a number of instances similar lesions had been inoculated in other sites. This showed how difficult it was to draw conclusions from experiments with rabbits infected with human syphilis. The work of Arzt and Kerl had been again taken up by Jacobsthal and Tomascewski, and these facts had been confirmed, and so it seemed to him that, strict as Dr. Brown was, yet there was in these experiments a disturbing factor. It had been found that in normal rabbits as many as 25 to 35 per cent. of certain strains had skin and genital lesions resembling closely those produced by placing the virus of syphilis on the skin; and not only did these lesions occur spontaneously in normal rabbits, but the organisms could be transmitted by coitus. These facts injected a disturbing factor into the question of the relationship between experimental syphilis and syphilis in man which demanded immediate clarification.

Dr. BOLESLAW LAPOWSKI stated that the clinician expected entirely different results from experimental work than did the laboratory man, but Dr. Brown was not to blame for that, for in his writings he explained his mode of action. He had planned out two phases of investigation. The first was to learn the manifestations of syphilis in animals, especially rabbits, and when he was acquainted with the manifestations of syphilis in them he planned to take up the second step and to compare syphilis in rabbits to syphilis in human beings. He had reached the first stage satisfactorily. There was no better work on rabbit syphilis than that which he had carried out. The facts were there. The interpretation of facts was sometimes very difficult but useful, since out of a clash of opinion ensues progress. The clinician would ask the experimenter to confirm

certain things that he himself must wait a lifetime to determine, that was whether certain procedures employed in the treatment of syphilis were satisfactory. We had been led to expect a new era when syphilis could be cured in six months; this must be settled experimentally. If the clinician saw a patient present a very small, suspicious lesion and he made a tentative diagnosis of syphilis and treated it for months and watched for a positive Wassermann or clinical manifestation, he might have to wait a lifetime to determine whether the patient had syphilis, because superinfection was not a proof and reinfection in the sense to prove a previous cure did not happen. Again, men used different methods in treating syphilis. One used salvarsan and mercury; another got the same results with salvarsan alone. If a man used a certain method and failed we said his method was wrong. Those questions had to be taken up experimentally. Another question was whether it was advisable to subdue secondary manifestations. Do secondary manifestations help the patient to overcome the tertiary form of the disease? That was a most important question. Dr. Brown passed that question over too quickly. He said if we suppressed the primary lesion syphilis might appear in the tertiary form, and then came Dr. Kaliski, who said that syphilis in the rabbit might not be syphilis at all. If Dr. Brown would show the history of that rabbit which he observed for five years, from the time of infection through the five years of observations, it would be of great value. Some told us in describing syphilis in rabbits that there were no relapses in rabbit syphilis; while relapses in human syphilis were characteristics par excellence of human syphilis. The next question was how did the Wassermann behave in inoculated rabbits? Was the Wassermann changed by treatment into a negative and then returned to a positive? These were some of the points not worked out. Dr. Lapowski said the subject was very large and presented many problems which must be worked out experimentally, but time prevented him from going into them.

Dr. Brown, in closing the discussion, said that in outlining the topics for presentation they had started with problems of a simple character with the intention of going on to others of a more complex character and ultimately to some of the questions propounded by Dr. Lapowski, but that time had not permitted. Taking the questions in order, Dr. Highman had indicated certain problems that he would like to have solved. While they had not investigated problems of precisely that nature, he thought that they were well within the range of present possibilities. The point raised by Dr. Kaliski and by Dr. Lapowski as to the occurrence of a natural infection in the rabbit which might be confused with a pallidum infection was attracting a great deal of attention at the present time. This infection was first described by Arzt and Kerl in 1914. Since then it has been investigated by Schereschewsky and by Lersey, Dosquet, and Kuezynski in Berlin, by Jacobsthal in Hamburg, by Levaditi, Marie, and Isaicu at the Pasteur Institute, and by Klarenbeck at Utrecht. Opinions differed as to the significance of this infection. The organism itself was either morphologically identical with *Treponema pallidum* or resembled it so closely that the two were very difficult to differentiate. The manifestations of disease which had been described were usually but not always confined to the region of the genitalia, and although the organism had been recovered from lymph nodes and lesions of the skin had been observed on various parts of the body, it was still uncertain whether the infection was local or systemic in nature. As to the lesions themselves, two types of processes had been described: One in which there was a large element of acute inflammatory reaction and the other an infiltrative process of an indifferent type associated with desquamation or exfoliation of epithelium. These lesions had been regarded by some as indistinguishable from those attributed to *Treponema pallidum*. There were points of resemblances between certain of these lesions and some of those obtained with freshly isolated strains of *Treponema pallidum*, but no one familiar with the pallidum infection would be likely to confuse the disease thus far described with that produced by highly virulent strains of *Treponema pallidum*. Nevertheless, opinions as to the relation existing between these two infections should be reserved until further information was available. Referring to the series of questions raised by Dr. Lapowski, Dr. Brown said that he thought that animals could be used at the present time to investigate precisely the group of problems suggested. He pointed out that the methods originally employed for conducting therapeutic investigations were subject to serious limitations in that they were aimed entirely at a determination of spirocheticidal action as indicated by the ability of a drug to cause a disappearance of spirochetes from lesions and to induce healing. Unfortunately, there was no means of determining, at that time, whether the spirocheticidal action of a drug was actual or only apparent. These methods were developed about Ehrlich's conception of a spirocheticidal therapy or the use of a drug which was capable in itself of destroying the spirochetes and thus accomplishing the cure of the infection. If this could be done with certainty and with safety, one might disregard other elements of therapeutic action. Experience had shown, however, that the limited treatment which so many patients received frequently failed of sterilization. The old question, therefore, arose as to the advisability of interfering with the development of a protective reaction on the part of the patient by the suppression of secondary lesions, as stated by Dr. Lapowski, or the use of therapeutic measures intended to reinforce the native resistance of the patient. These were pertinent questions. Formerly they could not be attacked experimentally, but progress in our knowledge of the animal infection has opened up a wide field for therapeutic investigation, including more accurate determination of spirocheticidal action as well as the influence which drugs might exert in other directions. Time did not permit the consideration of other questions.

SECTION ON MEDICINE.

Stated Meeting, Held April 19, 1921.

DR SAMUEL BRADBURY IN THE CHAIR.

Report of a Case of Paralysis of the Left Vocal Cord Associated with a Cardiac Lesion of Obscure Nature.—Dr. BERTON LATTIN presented this patient, a Hebrew, male, nineteen years of age, an office clerk, who was first seen in the Post-Graduate Cardiac Clinic, February 4, 1921. To the best of his knowledge the patient was in good health up to the age of eleven years, save for diphtheria at eight years with no complications. He had never suffered tonsillitis, rheumatism, chorea, or scarlet fever. He did not use alcohol or tobacco. At about eleven years of age he first noted shortness of breath on exertion. A physician whom he consulted stated that his heart was "strained a little," apparently noting no organic defect. The disability was of mild degree, the boy continuing school up to the age of fifteen. In his last year and a half of school, in high school, he did the usual calisthenics. These exercises made him conscious that his heart was acting very rapidly. About eighteen months ago the boy first noted hoarseness, which seemed to have started suddenly. This was continued up to the present time, apparently varying in degree. During the past year the shortness of breath had become somewhat more marked. On four or five occasions he had coughed up small amounts of blood. There had been no edema. He was a rather stout, plethoric boy, weighing 146 pounds. The pupils were equal and reacted normally. There was paralysis of the left vocal cord. Examination of the heart showed the apex in the fifth space, 9 cm. to the left; the right border 5 cm. out in third space. In the second, third, and fourth spaces to the left of the sternum, that was, over the right ventricle, there was felt a vigorous heaving impulse. In the second space this impulse was palpable for about 6 cm. to the left of the midline. Over this area was felt a sharp shock, corresponding to the closure of the pulmonary semilunar valve. No murmurs were heard at the apex or base. The second pulmonic sound was greatly accentuated. At the apex was felt a galloped rhythm, which was regular. The rate had varied under observation from 96 to 140. Mild exercise caused marked tachycardia, dyspnea, and tendency to cyanosis. The blood pressure was systolic 114

and diastolic 80. The electrocardiogram showed right ventricular preponderance, but no other abnormality. The teleroentgenogram showed moderate left ventricular hypertrophy. The transverse diameter was 15 cm. The right auricle seemed normal. In the upper part of the left contour was a prominent bulge extending about 6 cm. to the left of the midline. It was impossible to separate the aortic arch from the pulmonary artery in this prominence. Fluoroscopic examination seemed to show the pulsation of a dilated left auricle in this region. The correspondence of this bulge to the palpable impulse in the second space made it seem probable that it was in part a dilated pulmonary artery. The nature of this boy's heart disease was not self-evident. The assumption of mitral stenosis would readily explain the history of hemoptysis, the right ventricular hypertrophy, and the apparent dilatation of the left auricle. Paralysis of the left recurrent laryngeal nerve had been noted not infrequently associated with mitral stenosis. However, no murmurs were present. Moreover, the roentgenographic shadow did not show the characteristic globular heart of mitral stenosis. The possibility of a congenital defect must therefore be considered. A certain proportion of these defects, as was well known, gave no murmurs. The bulge to the left in the second space might suggest a patent ductus Botali with consequent dilated pulmonary artery. This lesion rarely existed alone. Patent ductus had been described as associated with recurrent laryngeal pressure paralysis. It was conceivable that there was in this case a shifting of the aorta to the right, but this was idle speculation. Evidently at the place where the recurrent laryngeal nerve hooked under the aortic arch, just external to the ligamentum arteriosum, there was some structure which was crowding the nerve against the aorta.

Dr. LIBMAN said that he also was not convinced that this patient was suffering from mitral stenosis. One thing, however, was apparent, and that was that there was a dilatation of the pulmonary artery. Dilatations of the pulmonary artery were much more frequent than was generally believed to be the case. The condition could occur with atherosclerosis of the pulmonary artery (whether syphilitic or not), mitral stenosis, and the open ductus arteriosus. Compression of the pulmonary artery beyond the conus, due usually to neoplasm or adhesions, could cause dilatation of the pulmonary artery. In such cases a systolic murmur was usually heard to the right of the sternum, whereas in other forms of the disease the murmur was heard to the left of the sternum. Apart from these forms of the disease and apart from the occurrence of dilatation due to infection of the wall of the vessel, there occurred cases which for the present could only be called "idiopathic dilatation of the pulmonary artery." Dr. Libman said that he had seen two cases of this type within the past few years. Paralysis of the recurrent laryngeal nerves occurred in a number of intrathoracic diseases. The most common cause of such a condition in cardiovascular types of the disease was aneurysm. The paralysis was usually unilateral, but could be bilateral if the aneurysm of the aorta were very large, or if the subclavians and the innominate artery were involved in the disease. Mitral stenosis had been found as a cause of paralysis of the left recurrent laryngeal nerve in a number of cases. There was a number of explanations of this condition. It could occur due to compression by the dilated auricle, or to clamping of the auricular appendage between the aorta and the pulmonary artery. In one case there was a peculiar distortion of the heart which resulted in the pulmonary artery being drawn over in such a position as to compress the nerve. In cases of open ductus arteriosus, a paralysis of the nerve had occasionally been found. The first case had been described by Schroetter, and the second by Dr. Libman himself. The compression of the nerve in such cases was very easy to understand, because it passes around the aorta exactly at the position of the ductus. In pericarditis, recurrent paralysis was also found at times. In fact, in one case, there was present a bilateral recurrent laryngeal paralysis with complete recovery after the pericarditis had subsided. The paralysis of the nerves in these various conditions might be due simply to direct compression of the nerve, or it might be due to neuritis. In the latter instance, the inflammatory process could spread up into the vagus nerve itself and then additional remarkable symptoms might occur. It was possible that certain symptoms which occurred in cases of mitral stenosis might be due to pressure on the nerve, even if the nerve were not completely paralyzed. This might be the explanation of certain forms of violent coughing associated with mitral stenosis in the absence of evidence of abnormalities in the lungs. It was important to remember that hoarseness and cough might occur in cardiac disease, especially in mitral stenosis, due to inflammatory conditions in the false vocal cords. In some cases the false vocal cords prolapsed partly or completely over the true vocal cords, and the symptoms could then resemble those present in cases of paralysis of the recurrent laryngeal nerve. Such a condition was usually termed ptosis of the false vocal cords or prolapse of the ventricle of Morgagni. Dr. Libman brought with him a specimen of a larynx in order to demonstrate a simple method of determining whether a recurrent laryngeal paralysis had been present or not. Sometimes it was very difficult to dissect out the nerve and at times it would destroy the value of the specimen if such dissection were carried out. If a recurrent laryngeal paralysis had been present, one could often determine that by looking at the back of the larynx, because one would find that the posterior cricoarytenoid muscle on the paralyzed side was atrophic or fatty, or both.

Restoration of the Normal Cardiac Mechanism in Auricular Fibrillation by Quinidine.—Dr. ROBERT L. LEVY presented this preliminary report, in which he said that during the past three years reports of 101 cases of auricular fibrillation treated with quinidine had appeared in the foreign literature; in 59, or 58.4 per cent., the normal rhythm was restored. The duration of the effect had usually been short, from a few days to a month. The usual dosage employed had been 0.4 gm. by mouth three times daily before meals, or, less commonly, 0.2 gm. five times a day. Regularization of the rhythm had occurred, for the most part, on the second or third day of treatment. Up to the present time quinidine had been administered by mouth, in gelatine capsules, to four patients in the hospital of the Rockefeller Institute. These patients had been under observation prior to treatment for periods ranging from one month to one and a half years, and were known to have been fibrillating for at least these lengths of time. On the days on which the quinidine was given electrocardiograms were made every one or two hours and were taken several times daily thereafter. In two cases a normal sinus rhythm was restored. In one of these auricular flutter intervened between fibrillation and the normal rhythm; in the other an intermediary transitional mechanism, not sufficiently regular to be classed as flutter, was recorded. In the third patient a transient auricular flutter of only a few hours' duration was followed by a return to fibrillation. In the fourth case there was a temporary increase in the heart rate without alteration of mechanism. In this patient complaint of headache and palpitation together with the appearance of occasional premature ventricular contractions induced discontinuation of the drug. The detailed records of these cases were presented. Dr. Levy stated that it was evident from a survey of the literature, as well as from observations on this small group of cases, that the factors which determined the success or failure of quinidine in altering the mechanism of the heart were not clear. They had been led to give the doses at more frequent intervals than had been recommended in the first two cases for two reasons: (1) because it was noted in the two unsuccessfully treated patients the effects induced by a given amount of the drug, as evidenced by the tachycardia and changes in the electrocardiogram, tended to disappear in the course of two to four hours; (2) because Wiechmann had shown that the greater the fractionation of the dose the greater the amount of quinidine excreted. To achieve optimal therapeutic effects it seemed reasonable, at least for the present, to administer as much of the drug in as short a period of time as was consistent with the factor of safety of toxicity. Further work on the subject was in progress.

Dr. B. S. OPPENHEIMER said that this presentation by Dr. Levy was the first which had appeared from America or Great Britain on the subject of the use of quini-

dine, and it would stimulate every one interested in cardiac arrhythmias. In view of the fact that quinidine would probably prove a valuable addition to digitalis in the treatment of auricular fibrillation, and would be used extensively, it should be emphasized that quinidine was not an indifferent substance. Dr. Hubert Mann and the speaker had had only a small experience with it,—so limited indeed that they would just mention individual cases. In one case of impure auricular flutter, the flutter became pure after quinidine. In another instance, premature beats of ventricular origin disappeared after the administration of 21 grams of quinidine, but premature beats of auricular origin appeared. A long standing, end-stage case of auricular fibrillation continued to fibrillate, but the patient, a physician, had insisted on taking a single daily dose because he experienced less palpitation when taking the drug. Finally a woman with premature beats of ventricular origin was given three doses of 0.2 of a gram each. She suffered so much from headache, flushing, burning of the face, palpitation, and weakness that she discontinued the medicine; in twenty-four hours these symptoms had disappeared. Dr. Levy had brought up the question, among others, as to the type of case in which success with quinidine was to be anticipated. Benjamin and v. Kapff had recently reported 24 cases of fibrillation with interruption by quinidine in 18. Quinidine was effective in some cases, and failed in others, in all three groups of cases with auricular fibrillation which they studied namely, auricular fibrillation associated with (1) valvular disease, (2) arteriosclerosis, (3) thyreotoxic conditions. Finally it would be very helpful in arriving at definite conclusions if the eight or ten hospitals in Greater New York which had the electrocardiographic facilities would work intensively on the subject, under some common plan and report results in the fall.

Dr. CARY EGGLESTON said that many thoughts arose in connection with this interesting series of cases. The literature now included some 100 cases of auricular fibrillation treated with quinidine. It would seem that not only did we not know the cause of the altered mechanism in fibrillation, but we did not know anything about the mechanism by which quinidine and the cinchona alkaloids acted, except that they caused an initial stimulation of all voluntary as well as involuntary muscles, and later a depression. This idea was brought out by Dr. Levy when he spoke of the increase in the number of premature contractions and the appearance of ventricular premature contractions, probably indicative of heightened irritability which was followed by depression. While it had been shown that it was possible to change auricular fibrillation to a normal mechanism, the striking feature in all these cases was that the fibrillation was resumed in a variable period of time. The question therefore whether one could continue to give sufficient amounts of quinidine to maintain a normal rhythm when once established without producing toxic effects remained to be determined. While Dr. Oppenheimer's suggestion was excellent that all who had the facilities should put this matter to a test, Dr. Eggleston thought that a word of warning should be uttered, namely, that merely because the drug had been shown to possess a marvellous capacity to alter the rhythm of a fibrillating heart to normal, recognized methods of treatment should not be abandoned. He therefore would like to emphasize the point that Dr. Oppenheimer had made that the further detailed observations necessary should be made only under conditions that permitted adequate control of the patient and the observations so as to study the duration and persistence of the reestablished normal rhythm. He did not believe this could be done under any conditions except those obtainable in a hospital where the patient could be subjected to minute observation at frequent intervals by means of the electrocardiograph. The present knowledge of this subject was not yet in a stage where this drug should be regarded as available for general clinical use. In closing, Dr. Eggleston said he felt that they owed Dr. Levy a debt for bringing the subject to attention with a view of determining the value of quinidine.

Dr. HAROLD E. B. PARDEE said that he wished to second Dr. Eggleston's statement that we owed a great debt to Dr. Levy for undertaking this pioneer investigation in this country. He was especially glad that a drug had been found that was so relatively free from danger in administration. In regard to the question whether quinidine acted as a stimulant or as a depressant, he was inclined to believe that it was a stimulant because of certain experimental work. Rothberger and Winterberg had long ago pointed out that it was possible to convert auricular fibrillation into auricular flutter by stimulation of the accelerator nerves in the dog. Moreover, auricular fibrillation could be converted into normal rhythm by the same procedure. In 1916 it had occurred to Dr. Pardee that it might be possible to convert auricular fibrillation to normal rhythm in human patients by giving atropine to cut off the influence of the vagus, and then adrenalin intravenously to supply the necessary stimulation of the accelerator system. They found this impossible however if the vagi were stimulated at the same time. He had done this in only three patients, but in one of them the rhythm had returned to normal fifty-five minutes after the administration of the adrenalin. Atropine sulphate was used in doses of $\frac{1}{50}$ grain and the adrenalin in 15 minim doses of the 1:1000 solution of adrenalin chlorid. This work has not been continued because of lack of time and because it was not thought likely that these patients would continue with the normal rhythm even though they should be returned to normal rhythm for a time. Auricular fibrillation probably resulted from a pathological change in the muscle of the auricles, and since this sort of medication would only have a temporary effect, auricular fibrillation would probably reappear. So far as the condition of the patient was concerned he did not feel sure that it would always be desirable to convert auricular fibrillation into normal rhythm, for we were able in the presence of fibrillation to keep the heart rate slowed by the proper use of digitalis, while when normal rhythm was present this was not always possible. He thought that it would be a very desirable thing if we could find a drug that would convert normal rhythm into auricular fibrillation, to be used in just such cases as this, when the rate could not otherwise be slowed. With this and with quinidine we should be prepared for any emergency. He felt that very valuable results would be obtained by Dr. Levy in continuing with this study.

Dr. ROBERT H. HALSEY said it was most important for physicians to recognize the value of these observations. If observations, such as these Dr. Levy reported, were considered by a group of men who were equipped to work on the problem, it would be a very great help in evaluating the procedure and determining what were the indications for the use of quinidine. When and what cases should have the attempt made to restore sequential rhythm and when was it wise to depart from the usual method of controlling the rapid, irregular ventricle with digitalis? In the past some cases of fibrillation under digitalis therapy ceased to be irregular and normal rhythm returned, so, it might be, the heart muscle had an inherent capacity to return to normal. Quinidine seemed to increase the possibility to an even chance. Still, considering everything said, it seemed we would have to await further observations before we knew what change to expect and what was to be done if any ill effects were produced by the drug.

Dr. LEVY, in closing the discussion, said there were two points that he would like to mention. First, in several cases in which larger doses of quinidine were given, premature contractions of ventricular origin were observed. In one instance, ventricular tachycardia of short duration occurred. For the present, therefore, the drug should be given cautiously and under adequate electrocardiographic control. A second point to be emphasized was that the use of digitalis in auricular fibrillation should not be abandoned. It was not yet clear whether, after restoration of the normal rhythm by quinidine, the function of the myocardium was improved. Observations of venous pressure and of vital capacity were being made, in addition to the usual clinical examinations, in the hope of throwing some light on this point. Quinidine treatment must still be regarded as being in the experimental stage, and a final estimate of the value of the drug as a therapeutic agent must be deferred until a large clinical material has been critically examined.

Study of the Effects of the Sippy Treatment of Pep-

tic Ulcer.—Dr. H. F. SHATTUCK read this paper, which was illustrated by lantern slides. He stated that a more accurate title of his paper would be "A Study of the Early Effects of the Sippy Method of Treatment of Peptic Ulcer." For the past two years the Sippy method had been used in the Post-Graduate Hospital and an attempt had been made to follow and observe these patients for as long a period as possible. The present report consisted in a study of the clinical symptoms and findings in 28 cases, under observation for periods ranging from three to twenty-three months. While this period was not sufficiently long to enable one to draw final conclusions the results were of sufficient interest to be reported. All of these cases gave a definite history of peptic ulcer and definite *x*-ray evidence. Cases in which the ulcer was complicated by other serious disease were excluded from the series; also cases that did not have a preliminary observation of three weeks were omitted. Of these 28 cases 22 had remained symptom free since the beginning of treatment. Of 11 cases followed for from one to two years 9 had remained entirely well and one was partially well. Of 17 cases studied with the Ewald meal it was found that there was no reduction in the gastric acidity but they all remained free of symptoms. Some cases with persistent hypersecretion were rendered symptom free. Six of the 28 cases showed occult blood and in all of these it disappeared after three weeks' treatment. In some of the cases following treatment there were visible changes in the *x*-ray findings. Dr. Shattuck said his object was not to advocate medical treatment in general or the Sippy treatment in particular but merely to report some of the effects of the Sippy treatment. As none of these successfully treated patients were submitted to surgery there was, of course, no way of knowing if there was an error of diagnosis, and it was also known that in some instances there were long periods of remission, so that it might be necessary to follow these cases for a much longer period before one could reach conclusions. He thought, however, that by this method of study one might come to a better understanding of the value of the various medical and surgical procedures employed in the treatment of peptic ulcer.

Dr. R. L. HUTTON stated that the difficulties in carrying out an accurate study as to the effects of medical treatment in peptic ulcer were quite enormous. In the first place there was the matter of getting a sufficient number of cases to warrant one in drawing any deductions. Then there was the question of following up the cases. The hospital cases were easier to follow in a way, but private patients with the intelligence to cooperate and with the economic ability to follow out the dietetic requirements and to live within the hygienic limitations prescribed were more satisfactory, and this made the conclusions more justifiable. Furthermore, it took a good many years before one reached the point where it was safe to draw conclusions. Then there was the question of determining just what happened to the lesions under any form of treatment, in view of the fact that we had such uncertain methods of determining what took place. Then there was the difficulty in determining the relationship between the symptomatic improvement and the improvement or lack of improvement in the condition as shown by the *x*-ray and other tests. In spite of all these difficulties the greatest hope of reaching reliable conclusions lay in such work as Dr. Shattuck had presented. Reports of large numbers of cases over many years and comparing the results of the Sippy treatment with those obtained by other methods of treatment, medical and surgical, checking up with operative and autopsy findings, ought eventually, to show which was the most valuable method.

Renal Tests for Ambulant Patients.—Dr. H. O. MOSENTHAL made this presentation in which he said that he had been working on tests for renal function in ambulatory patients and he believed we could tell more about kidney function from tests made when the patients were taking normal amounts of food and living in the way they were accustomed to than when they were under artificial conditions. With the tests of renal function generally performed at present artificial standards were imposed upon the patient. There was a tendency to take the blood chemistry before breakfast, and we had believed that we could find the true state of affairs at that time. However, results obtained at that time furnished information as to the reactions of the organism to the diet. There, too, they gave these patients fixed amounts that were to be eliminated, such as water, salt, phthalein, urea and a quantitative diet for the test meal for renal function. The tests we gave were such that they demanded a certain fixed power of the kidney without taking into consideration the fact that there must be a different standard of function for the man engaged in heavy manual labor and for the one doing light work. It was a mistake to judge the functional capacity of the kidney of a longshoreman and an office clerk by the same standard. In the ambulant patient we had not only the opportunity to estimate renal function but also to determine whether the kidneys could properly meet the demands made upon them by the individual's habits—dietetic and otherwise.

The present way of rushing a patient to the hospital in order to test the renal function might give an idea of function from the pathologic physiologic point of view but not from the point of view of the demands made by the normal conditions of life. In making the tests upon ambulant patients they were now drawing the blood two hours or later after breakfast, and thus obtained the effect of food upon the patient. The test meal for renal function was carried out while the patient took his usual food except that he did not eat or drink after supper and carried out his routine duties. In other details the test did not differ from the usual routine procedure. Dr. Mosenthal gave a lantern slide demonstration bringing out the applicability of these tests to the ambulant patient. It was shown that by these means not only could the efficiency of the kidney (renal function) be estimated but also some idea of the individual's dietetic habits concerning especially the quality of water, salt, proteins and starches could be obtained. The main point emphasized was that blood chemistry and the two-hour renal test could be used as a measure of the adequacy of the patient's diet and the correctness of his mode of living and not as tests of renal function only.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June, 1921.

ANATOMY.

1. Describe the endocardium.
2. Beneath what points on the anterior chest surface are the cardiac valves?
3. Give the origin and course of the pulmonary artery.
4. Give a general description of the cerebral veins.
5. Locate and describe the lacrimal gland.
6. Give the origin, course and distribution of the seventh nerve.
7. Name the flexor muscles of the forearm.
8. Name and locate the accessory sinuses of the face.
9. Locate and describe the cecum.
10. Locate and describe the bladder.

PHYSIOLOGY.

1. Trace a morsel of food in its transit through the whole extent of the alimentary canal, giving the organs through which it passes, naming the distinctive divisions of each with their secretions.
2. Give the number and regular order of eruption of the temporary teeth, stating the months of age when they normally appear.
3. Name the columns of the spinal cord and give the functions of the nerve fibres in each column.
4. Describe briefly the chemical mechanism of defense of the body against infecting organisms, *i. e.* the physiology of immunity.
5. Describe the nerve supply of the heart muscle, and give the complete cycle of circulation of the blood.
6. Describe the physiological processes by which the

blood system is relieved of effete material, and supplied with new material.

7. Name four ductless glands, and describe briefly the function of each.

8. Name three secretions and three excretions, and describe the source and function of each.

9. Of what kind of muscle tissue is the rectus femoris a type, and what is its function and nerve supply.

10. What physiological functions are affected in conditions causing (*a*) aphasia, (*b*) myopia, (*c*) muscular fatigue, (*d*) atrophy of a part, (*e*) inability to maintain equilibrium.

MATERIA MEDICA AND THERAPEUTICS.

1. Name two drugs that raise blood pressure and name three that relax or lower blood pressure. In what class of cases are they indicated? Write a prescription for same.

2. What is the definition for emmenagogue? Name three, give dosage, and write a prescription for same.

3. Name the official iodine preparations, medicinal properties, dose, and methods of employment.

4. What is the specific treatment for diphtheria? State briefly how the remedy is obtained, dose and how it is administered.

5. Write a prescription for a case of scarlet fever in a child three years old, uncomplicated.

6. Describe the action and uses of salvarsan, dosage. Name class of cases in which you would use it. If toxic results ensue what poison does it resemble and what antidote is indicated.

7. Name five official preparations of opium, dosage and name antidote for same.

8. Give Latin name for theobromine, give dosage and indicate in what class of cases you would use it and why.

9. What is the Latin name for camphor? Give action and uses. What effect does it have on blood pressure?

10. Eucalyptus, describe action and uses. Name dosage. In what form is it usually administered?

CHEMISTRY.

1. Mention the general physical and chemical properties of urine.

2. State the most common and convenient antidote for poisoning by mineral acids.

3. Give the general properties of alkaloids.

4. What is the chemical composition of the blood?

5. Give symptoms and treatment of alcoholic poisoning.

6. Give the general properties of organic compounds.

7. What antidote should be employed in a case of strychnine poisoning.

8. Name five poisonous vegetable alkaloids and antidotes for two of them.

9. What is hemoglobin? What is its function?

10. What are the requirements of good drinking water?

ANSWERS.

ANATOMY.

1. The *endocardium* is a thin translucent membrane, consisting of a lining of endothelial cells which rest upon a fibroelastic tissue. The endothelial cells are flattened and nucleated, and are of an irregular outline. The subendothelial tissue consists of a network of white fibrous and yellow elastic tissues. A few involuntary muscle fibers (non-striated) may also be present. The endocardium lines the inner surface of the heart; by its reduplications it assists in forming the valves of the heart; and it is continuous with the lining membrane of the large blood vessels.

2. The *aortic valve* is behind the third intercostal space close to the left side of the sternum. *Pulmonary valve* in front of the aortic, behind the junction of the third rib, on the left side, with the sternum. *Tricuspid valve*, behind the middle of the sternum, about the level of the fourth costal cartilage. *Mitral valve* behind the third intercostal space, about one inch to the left of the sternum.

3. The *pulmonary artery* arises from the conus arteriosus of the right ventricle of the heart; it extends obliquely upwards and backwards, and passes first in front of the ascending aorta and then to the left of it, as far as the under surface of the arch of the aorta where it divides into the right and left pulmonary arteries. The artery is contained within the pericardium.

4. The CEREBRAL VEINS are divided into two sets, the superficial and the deep. The SUPERFICIAL VEINS: The *superior*, ten to twelve on each side, consist of the anterior, middle, and posterior veins which run in the sulci, and, joining with branches from the mesial aspect of the brain, empty into the superior longitudinal sinus. The *inferior* consists of the middle cerebral vein, in the Sylvian fissure, which joins the cavernous sinus, and the great anastomotic vein, in the posterior branch of the same fissure, communicating with the middle meningeal veins and joining the superior petrosal sinus. The DEEP VEINS finally converge to two trunks, the *venæ Galeni*. These run backward in the velum interpositum, the right and left, lying side by side, and unite into the *vena magna Galeni*, which joins the straight sinus. Each vena Galeni is formed by the union of the *choroid* vein and the *vena corporis striati*, and is joined by the *basilar* and other small veins, while the vena magna receives tributaries from the occipital lobes of each side and from the upper surface of the cerebellum.—(From Little's *Anatomy.*)

5. The *lacrymal gland* occupies a depression in the supero-external angle of the orbit; the anterior margin is connected to the back part of the upper eyelid. The ducts (twelve or fourteen) open by apertures, placed in a row, at the inner surface of the upper lid. The *lacrymal canals* commence at the *puncta lacrymala*, which are the openings of the canaliculi, and, arching in the free edge of the lid, pass inward to open into the *lacrymal sac*. The *lacrymal sac* is placed in a groove formed by the lacrymal bone and the nasal process of the superior maxilla, and inferior turbinal bones, leads from the tensor tarsi; it is the dilated upper end of the nasal duct.—(*Aids to Anatomy.*)

6. FACIAL NERVE. It has its superficial origin in the superior end of the medulla, in the groove between the olivary and restiform bodies; its deep origin is from the floor of the fourth ventricle, anterior and external to the nucleus of the sixth nerve. It passes "forward and outward to enter the internal auditory meatus; it lies upon a groove on the auditory nerve, with the portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the geniculate ganglion; and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into temporo-facial and cervico-facial branches, which further subdivide and intercommunicate, forming the pes anserinus."—(*Aids to Anatomy.*)

The facial nerve is distributed to the muscles of the face, scalp, external ear; also to platysma, buccinator, stylohyoid and posterior belly of digastric. It is the motor nerve to the muscles of expression. Through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands. The *pars intermedia* is a small bundle of nerve fibers lying between the facial and auditory nerves, and it is connected with both of these nerves. It is a sensory nerve; and is closely associated with the chorda tympani.

7. FLEXOR MUSCLES OF THE FOREARM. *Superficial group:* Pronator radii teres, flexor carpi ulnaris, flexor carpi radialis, palmaris longus, and flexor sublimis digitorum. *Deep group:* Flexor profundus digitorum, flexor longus pollicis, and pronator quadratus.

8. THE ACCESSORY SINUSES OF THE FACE, are: (1) *The frontal sinuses*, situated immediately above the root of the nose, between the two layers of the vertical portion of the frontal bone. (2) *The antrum of Highmore*, situated in the body of the superior maxillary bone; it is above the mouth, and below the orbit.

9. The *cecum* is a blind pouch which forms the commencement of the large intestine. It is situated in the right iliac fossa, immediately behind the abdominal wall, and above the outer half of Poupart's ligament.

It may lie on or to the right side of the psoas muscle, or in the pelvis; and is of very variable size. Its length may be from two to four inches, and its width about the same. It is generally covered by peritoneum, and is usually freely movable. Its shape is variable, and it is generally classified under one of four possible types. From the cecum is given off the vermiform appendix. The ileocecal valve opens into the large intestine at the point of junction of the cecum with the ascending colon.

10. The *urinary bladder* is a hollow musculo-membranous viscus, situated chiefly in the pelvic cavity, but when fully distended it extends into the abdominal cavity. It lies behind the pubes and the rectum in the male, and between the pubes and cervix uteri and upper part of the vagina in the female. On the inside, three openings are observed, the two ureteral openings behind and that of the urethra in front; the space between these openings is called the trigone. The peritoneum covers the superior surface of the bladder and extends for a variable distance over the anterior surface; that part of the anterior surface which is not covered by peritoneum is called the prevesical space of Retzius. Most of the posterior surface is covered by peritoneum.

The *attachments* are a number of ligaments, five true and five false ones; the true ones are two anterior or puboprostatic, from the back of the os pubis to the front of the neck of the bladder; two lateral, which are expansions of the pelvic fascia; and the urachus, extending between the summit of the bladder and the umbilicus. The false ligaments are peritoneal folds; two posterior, from the back of the bladder to the rectum in the male and the uterus in the female; two lateral, from the iliac fossæ to the sides of the bladder; and one superior, from the summit of the bladder to the umbilicus. In addition, the bladder is attached to the ureters, urethra, and rectum; also to the prostate in the male, and to uterus and vagina in the female.

The *arteries* are the superior, middle, and inferior vesical, and branches from the obturator and sciatic, all from the internal iliac; in the female, there are additional branches from the uterine and vaginal arteries. The *veins* form plexuses around the neck, base, and side of the bladder, and end in the internal iliac vein. The nerves are derived from the hypogastric plexus of the sympathetic, and from the third and fourth sacral nerves.

PHYSIOLOGY.

1. DIGESTION. (1) *In the mouth* the food is crushed, mixed with saliva, and reduced to a pulp; a certain amount of starch is converted into maltose and rendered slightly alkaline. Fats and proteids are unaltered. (2) *In the stomach*, the contents are rendered acid, conversion of starch into sugar ceases, connective tissue of fats is dissolved, and fats are set free. Proteids are disolved and proteoses and peptones formed. The albuminous foods are dissolved for the most part, and a grumous mixture of peptones, liquid fats, and starches is formed, which is termed chyme, and is gradually passed through the pylorus into the intestine. (3) In the *small intestine* the chyme is mixed with the bile and the pancreatic juice; the reactions become alkaline. Proteids are split up into proteoses and peptones, and these are further split into polypeptides and amino-acids; starches are converted into maltose; fats are emulsified and saponified; and the products of digestion are now ready for absorption.

The products of digestion find their way into the blood by two routes: (1) By the blood vessels of the gastrointestinal tract, which unite to form the portal vein; and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids and sugar go by way of the portal vein to the ascending vena cava; and the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

The process of digestion is carried on mainly by various enzymes:

DIGESTIVE SECRETION.	ENZYMES.	ACTION.
Saliva	Pytalin.	Changes starch into dextrin and sugar.
Gastric juice...	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic juice.	Trypsin.	Changes proteids into proteoses and peptones, and afterward decomposes them into polypeptides and amino-acids; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.

2. *The temporary teeth* are twenty in number, ten in each jaw. The order of their eruption is as follows: Central incisors, at about six months; lateral incisors, at about nine months; first molar, at about twelve months; canine, at about eighteen months; and second molar, at about twenty-four months.

3. *The columns of the spinal cord*, are the anterior, the lateral and the posterior columns on each side. *The anterior column* is divided into: (1) the direct pyramidal tract, whose fibers are efferent; and (2) the anterolateral ground bundle, whose fibers are efferent. *The lateral column* is divided into: (1) the anterolateral tract of Gowers, whost fibers are afferent; (2) the lateral limiting tract, some of whose fibers are afferent, and some efferent; (3) the crossed pyramidal tract, whose fibers are efferent; (4) the direct cerebellar tract, whose fibers are afferent. *The posterior column* is divided into: (1) the column of Burdach, whose fibers are afferent and associative in function; (2) the column of Goll, whose fibers are afferent; (3) Lissauer's tract, whose fibers are afferent.

4. The *chemical defenses of the body against infection*, are: The acidity of the gastric juice and of the urine; the bactericidal action of the blood and lymph; the action of the leucocytes and phogocytes; the alkalinity of the blood; the agglutinating action of the blood; the power of the blood to form antibodies.

5. The *nerve supply of the heart muscle* is threefold: (1) From the vagus nerve (inhibitory); (2) from the sympathetic system (accelerator); and (3) from the intrinsic cardiac ganglia. The cardiac center is in the medulla.

The *cycle of the circulation of the blood* is the course or circuit of the blood from the heart, through the body, and back to the heart. Beginning at the left ventricle of the heart, the blood flows through the left semilunar valve into the aorta, from which branches are distributed to every part of the body, through the capillaries to the veins, from the veins to the venæ cavæ, thence to the right auricle of the heart. From the right auricle, through the tricuspid valve to the right ventricle, thence through the right semilunar valve to the pulmonary artery to the lungs, from the capillaries in the lungs to the pulmonary veins, thence to the left auricle, and through the mitral valve to the left ventricle, to begin the circuit again.

6. The blood system is relieved of effete material, by: (1) The lungs; (2) the liver; (3) the kidneys; and (4) the skin. It is supplied with new material by: (1) the alimentary canal; (2) lungs; (3) skin; (4) lymphatics; (5) liver; and (6) spleen.

7. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, coccygeal, pituitary, and pineal glands.

The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blod corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is

produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

The *function of the thyroid* is not definitely settled; (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

The *function of the thymus* is not settled; it is said: (1) To be a blood-forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body; muscle tone and blood pressure are increased.

8. THREE SECRETIONS: (1) *Milk*, secreted in the mammary glands; *function*, to nourish the infant. (2) *Saliva*, secreted in the salivary glands; functions, (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

(3) *Gastric juice*, secreted in the stomach; functions, to change proteids into proteoses and peptones, and to curdle the casein of milk.

THREE EXCRETIONS: (1) Urine, excreted by the kidneys. (2) *Sweat*, excreted by the skin. (3) *Carbon dioxide and water*, excreted by the lungs.

9. The *rectus femoris* is a type of voluntary muscle tissue. Its *function* is to flex the hip joint. Its *nerve supply* is the anterior crural.

10. In *aphasia*, there is (1) loss of power of speech, and (2) inability to understand spoken or written language.

Myopia is near-sightedness; parallel rays of light are brought to a focus in front of the retina.

In *muscular fatigue*, the muscle loses its irritability.

Atrophy of a part may occur from disuse, from pressure, or from interference with its blood or nerve supply.

Inability to maintain equilibrium results from disturbance of the semicircular canals, and from disease of the cerebellum.

MATERIA MEDICA AND THERAPEUTICS.

1. *Two drugs that raise blood pressure:* Strychnine, epinephrin. *Indicated in:* Collapse, shock, hemorrhages.

Three drugs that lower blood pressure: Aconite, nitroglycerin, amyl nitrite. *Indicated in:* Eclampsia, angina pectoris, high arterial tension or in chronic nephritis, Raynaud's disease, erythromelalgia.

℞ Spiritus glyceryis nitratis 5j
Sig.: One or two drops in a teaspoonful of water q. 3 h.

2. *Emmenagogue* is an agent used to restore menstruation. *Three examples:* Manganese dioxide, gr. ij; Potassium permanganate, gr. jss; Extract of aloes, gr. j.

℞ Extracti aloes .....gr. 1
Ferri sulphatis exsiccati 5j
Asafœtidæ ..... 5ij Misce.
Fiant pilulæ No. 1
Signa.: Take one or two pills, three times a day.

3. The official preparations and doses of iodine and the iodides are: Iodine, 1/10 of a grain; compound solution of iodine, 3 minims; tincture of iodine, 1½ minims; potassium iodide, 7½ grains; sodium iodide, 7½ grains; ammonium iodide, 4 grains; strontium iodide, 7½ grains; zinc iodide, 1 grain; diluted, hydriodic acid, 15 minims; syrup of hydriodic acid, 1 dram.

"*Iodine* is alterant, rubefacient, vesicant caustic, antiseptic, and parasiticide. It is used locally in the form of the tincture in sprains and bruises, over the chest in various lung troubles, in lupus, in chronic rheumatism, in pleurodynia and intercostal neuralgia, in ringworm, and in erysipelas. It is administered internally in diseases associated with nutritional disorders, as tuberculosis in its various forms, in hypertrophy of the thyroid gland and tonsils, in cervical and ovarian cysts, and in the late stages of syphilis. It may be employed in inhalations. It is of value as a local application in rhinology, laryngology, and even in ophthalmology.

"The *iodides* are used to aid in the absorption of inflammatory products, as in pneumonia, pleurisy, etc., and in tertiary syphilis, chronic rheumatism, etc. In tonsillitis and sore throat they are used as a gargle (gr. 2/5 to 5i). The most generally used iodide is that of potassium, dose, gr. 5-5i in solution. Sodium iodide and strontium iodide are often used. Dose, gr. 5-5ss. Ammonium iodide is the most irritant and most energetic in action. Dose, gr. 2-10. Hydriodic acid in 1 per cent. solution is frequently employed in the form of syrup. Dose, 5i-4. The compound solution of iodine, or Lugol's solutions, is given internally in doses of ɱj-5, diluted.

"The tincture of iodine is used locally only. An ointment of iodine may be applied locally in certain inflammations."—(Gould and Pyle's *Pocket Cyclopedia.*)

4. *The specific treatment for diphtheria* is diphtheria antitoxin.

"Diphtheria antitoxin is obtained from the horse, the animal having been rendered artificially immune by repeated injections extending over a period of several months of gradually increasing quantities of the strongest diphtheria toxin. As the bacilli themselves are not injected, the horse does not become infected with diphtheria, but he gradually acquires a tolerance for the toxins of the disease and develops in his blood a substance (antitoxin) which has the power to neutralize those toxins. At the proper time, when it is thought that his blood has acquired the requisite degree of potency, the animal is bled, and the serum—the part of the blood containing the antitoxin—is carefully separated from the cloth, filtered, and standardized. The last procedure is accomplished by determining the quantity of antitoxin serum required to offset the effects of the minimum quantity of toxin necessary to kill a guinea-pig in a definite time. The strength of the antitoxin is measured in units, a unit containing the amount of antitoxin required to save the life of a guinea-pig which has been injected with 100 fatal doses of toxin."—(Stevens' *Materia Medica.*)

The antitoxin is injected into the loose subcutaneous tissue of the back, flank, or abdomen. The *immunizing dose* is from 500 to 15,000 units. The *curative dose* is from 5,000 to 20,000 units.

5. *In scarlet fever:*

℞ Potassii citratis 5j
Spiritus ætheris nitrosi.....3iv
Aquæ destillatæ ....q. s. and 5iij Misce.
Signa: One teaspoonful every two hours if the urine is highly colored.

6. *Salvarsan is indicated* in: "(*a*) Early cases of syphilis in which contagious manifestations are appearing in rapid succession, in spite of efficient mercurial medication. (*b*) Cases in which, for family or social reasons, it is of special importance to limit the production of infective material or cause the disappearance of symptoms in the shortest possible time. (*c*) Cases in which the symptoms are recalcitrant to the action of mercury, or in which, from idiosyncrasy, that drug cannot be exhibited in sufficient dose. (*d*) Cases of syphilophobia and syphilomania, whether showing symptoms or not; its psychic action in these instances being of greater importance than its therapeutic effect. (*e*) Very early cases of the sequelæ of the luetic infection, before organic changes have occurred."

Salvarsan is contraindicated in: "(*a*) Cases that are doing well, *i.e.* in which the disease is pursuing its normal mild course under ordinary medication. (*b*) Cases with serious organic lesions of the eyes, kidneys, heart, or other internal organs. (*c*) Cases with postsyphilitic or parasyphilitic disease of the internal organs, more especially of the nervous system."—(*Progressive Medicine.*)

The *action of salvarsan* is unsettled; it was at first believed that it combined with and destroyed the protoplasm of certain parasites found in the blood and tissues; it has also been taught that its action is of the nature of a complement-fixation reaction. Besides its

use in syphilis, it has been used in yaws, malaria, relapsing fever, trypanosomiasis, leprosy, anemia, filaria. Its *toxic results* resemble those of arsenic. There is no generally recognized antidote; intramine is said, by some, to be the antidote.

7. *Five official preparations of opium, with dosage:* Powdered opium, 1 grain; extract of opium, half a grain; powder of ipecac and opium, 7 grains; tincture of opium, 7 minims; camphorated tincture of opium, 2 drams.

Antidote, potassium permanganate.

8. The Latin name for theobromine is Theobromina. Dose is 5 grains. It is used in dropsy, as a diuretic, particularly in renal dropsy; it is non-irritating to the kidney.

9. The Latin name for camphor is Camphora.

Action: "It is a cutaneous stimulant and anesthetic; internally it is stomachic, carminative, antiseptic, and a cardiac, cerebral and medullary stimulant. Large doses cause delirium with hallucinations and epileptiform convulsions, which are followed by collapse. In fever it has some antipyretic action.

Uses: "Externally as a counterirritant and anodyne; internally in vomiting, flatulence, diarrhea, acute coryza, bronchitis, emphysema, socalled typhoid pneumonia, typhus and typhoid fever, the strangury caused by cantharides, nervousness and hysteria, nervous dysmenorrhea, after-pains, and delirium tremens; by suppository in cystitis, enlarged prostate, and other affections of the genitourinary organs; by enema for thread-worms. It is an excellent remedy for the night sweats of chronic tuberculosis."—(Wilcox's *Materia Medica.*)

Camphor increases the blood pressure.

10. EUCALYPTUS. *Action:* "Antiseptic; disinfectant; rubefacient; stomachic; carminative; large doses cause severe gastrointestinal irritation. By small doses the heart's action is stimulated and a rise in blood pressure is produced, but large doses depress the heart and cause a fall of blood pressure, with great muscular weakness and lowered temperature. It restricts the movements of the white blood corpuscles. Stimulation of the central nervous system is only very transient, and is followed by marked depression. Toxic doses paralyze the respiratory center in the medulla. Eucalyptus has been thought by some to have slight antiperiodic properties and also cause contraction of the spleen to a limited extent. It is somewhat irritant at the points of elimination, and therefore has more or less action as a diaphoretic, expectorant and diuretic, and as a stimulant to the genitourinary tract."

Uses: "Locally, wounds; indolent or unhealthy ulcers; as a counterirritant in affections of the chest and of the joints; diphtheria; pharyngitis; tonsillitis; cancer of the rectum or uterus; bromidrosis; alopecia; chronic eczema. By inhalation, ozena; diphtheria; bronchitis with fetid expectoration; phthisis; gangrene of the lungs. Internally, atonic dyspepsia; chronic gastric and intestinal catarrh; vomiting and indigestion caused by sarcinæ; convalescence from acute diseases; hysteria; neurasthenia; headaches; cerebral anemia; subacute and chronic catarrhal affections of the bronchial mucous membrane and that of the genitourinary tract; malarial poisoning and cachectic conditions generally."—(Wilcox's *Materia Medica.*)

It is usually administered in the form of the oil of eucalyptus.

CHEMISTRY.

1. *Normal urine* is a yellowish fluid secreted by the kidneys to the amount of about 1,200-1,500 c.c. daily; specific gravity, about 1.015 to 1.025; acid reaction (due to acid sodium phosphate); it has a characteristic odor and a salty taste. Its normal constituents are: Water, urea, uric acid, urates, hippuric acid, kreatin, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide.

2. For *poisoning by mineral acids*, a convenient antidote is magnesia (magnesia usta) in a small quantity of water.

3. *Alkaloids* are nitrogenous, basic substances, of alkaline reaction, and capable of uniting with acids to form salts in the same way that ammonia does. Most alkaloids are solid, crystalline, contain carbon, hydrogen, nitrogen, and oxygen, are sparingly soluble in water, but are soluble in alcohol, their salts are freely soluble in water, they are generally bitter in taste. A few alkaloids are liquid.

4. BLOOD. *Composition:* Plasma and corpuscles. The *plasma* consists of water, solids (proteids, carbohydrates, fat extractives, and inorganic salts), and gases in solution (oxygen, carbon dioxide, and nitrogen). The *red corpuscles* consist of water and solids (hemoglobin, proteids, fat, and inorganic salts). The *white corpuscles* consist of water and solids (proteid, leuconuclein, lecithin, histon, etc.).

5. ALCOHOLIC POISONING. *Symptoms:* "The symptoms presented will depend upon the amount, character, and rapidity of the dose, together with the susceptibility of the individual. They will vary from the ordinary symptoms of drunkenness to those of acute narcotic poisoning, the most common being irritation of the gastro-intestinal tract, muscular incoördination, weakness, and hallucinations; the temperature is as a rule lowered, unconsciousness and coma follow. If a large quantity of concentrated alcohol is taken and the stomach is not relieved by vomiting, collapse and death may follow. The pupils are as a rule dilated, the conjunctivæ congested, respiration stertorous, and there may be a considerable amount of lividity. Convulsions may sometimes appear, and death may follow either from paralysis of respiration or from overstimulation of the heart. Death may occur within one-half hour after the taking of the toxic dose. In some instances a considerable amount of froth may appear upon the lips.

Treatment: "The stomach should be emptied of its contents; strychnine, ammonia, or other stimulant administered. Black coffee is sometimes indicated; fresh air, artificial respiration, and electricity."—(Dwight's *Toxicology.*)

6. *General properties of organic compounds:* They may be solids, liquids, or gases; if solid, may be crystalline or amorphous; they may be volatile or non-volatile, and they are very liable to undergo change when acted upon by heat or reagents. The more complex they are the more readily they undergo change.

7. The *chemical antidote to strychnine* is solution of potassium permanganate.

8. *Five poisonous vegetable alkaloids:* Aconitine, atropine, strychnine, nicotine, morphine.

Antidote for morphine, solution of potassium permanganate.

Antidote for most alkaloids, solution of tannin.

9. *Hemoglobin* is the coloring matter of the blood: it is found in the red corpuscles, and is composed of carbon, hydrogen, oxygen, nitrogen, sulphur and iron; it carries the oxygen from the lungs to the tissues of the body. When pure, it is a crystalline solid, red or purple in color, more or less soluble in water; it dialyzes very slowly.

10. *Characteristics of a good drinking water:* (1) It should be clear and limpid. Cloudy and muddy waters should be avoided. (2) It should be colorless. A greenish or yellowish color is usually due to vegetable or animal matter in solution or to organisms. (3) It should be odorless; especially free from sulphuretted hydrogen or putrefactive animal matter. (4) It should not be too cold, but should have a temperature of from 46° F. to 60° F. (5) It should have an agreeable taste; neither flat, salty, nor sweetish. A certain amount of hardness and dissolved gases give a sparkling taste. It should contain from 25 to 50 c.c. of gases per liter, of which 8 to 10 per cent. is carbon dioxide and the rest oxygen and nitrogen. (6) It should be as free as possible from dissolved organic matter, especially of animal origin. (7) It should not contain too great an amount of hardness. A certain quantity of saline matter is necessary, however, to give it a good taste. It should not contain over three or four parts of chlorine in 100,000 parts of water.—(From Bartley's *Chemistry.*)

(*To be continued.*)

Combination of Cancer and Tuberculosis of the Colon.—Hartmann and Renaud removed a tumor of the cecum found to consist of epitheliomatous and tuberculous tissue intimately associated. The neoplastic seems to have developed in the tuberculous tissue.—*La Presse Médicale.*

Medical History.

NEW AND OLD BOOKS.

XVII. THE HISTORY OF ST. BARTHOLOMEW'S HOSPITAL.

By JOHN RUHRÄH, M.D.,
BALTIMORE, MD.

THE thirty years' labor of Norman Moore on the history of St. Bartholomew's Hospital finally resulted in two large, beautifully printed volumes of some fifteen hundred pages, illustrated with a large number of copies of the charters and some views, not to overlook a beautiful reproduction of a photograph of the tomb of Rahere, the founder. Very fortunately the volume has as a frontispiece the portrait of the author, placed there at the request of Lord Sandhurst, the treasurer of the hospital, and it is very gratifying to the many readers of the works of Norman Moore that this has been done. It is a reproduction by Emery Walker of a portrait by Richard Grenville Eves.

It would not be possible in the short space allotted me to do justice to this wonderful piece of historical research. It is a record based on a very careful study of the many documents that have been preserved either at the hospital itself, or elsewhere, and for the term of years mentioned above these have been an object of loving study by the author. How well he has done his work will readily be appreciated by those who have been fortunate enough to have read any of the other writings on similar topics by the genial historian, whose life has been so largely associated with "Barts." Some of the material is taken from the cartulary of John Cok, and a large number of charters from this work, as well as others have been reproduced in part or completely.

When Rahere founded the hospital in the time of King Henry I, London was surrounded by a wall and Smithfield was a suburb to the eastward. Here were fields and forest lands and swampy ground, and here on Fridays was held a horse fair. Rahere was of lowly origin, but had managed to worm his way into the houses of the nobles and princes, but becoming convinced of the error of his ways, he determined to go to Rome, which he did. There he fell ill, and fearing death, vowed that if he were allowed to return to his own country he would build a hospital for the poor. He recovered and on his way home he had a vision that a four-footed, winged beast carried him to a high place. A stately figure appeared to him and said, "I am Bartholomew, the apostle of Jesus Christ. I am come to help thee in difficulties and to show thee the hidden things of heavenly mystery. Know that by will and command of the Trinity on high, I have chosen a place in the suburb of London at Smithfield where, in my name, thou shalt found a church and it shall be there a house of God, a tabernacle to the Lamb, a temple of the Holy Ghost."

After the building was started a great many cures were obtained, some of which are recorded. For example, a woman with a swollen tongue came to Rahere who had a relic of the true cross. He prayed for her recovery and then washed her tongue in water in which he had dipped the relic, and made the sign of the cross with it on her tongue, and she recovered. An interesting occurrence which one fears might shock the inhabitants of this land of ours is one in which it is recorded that Edena, wife of Edred, in the parish of St. Giles, was brewing and had only seven loads of malt and feared that less would prevent her beer coming off. However, she gave one to the men of St. Bartholomew's and then found she yet had seven, so counted them again and there were eight, and again, and there were nine, and the fourth time, and there were ten. She sent off the superabundance to the church. "The History of St. Bartholomew's" is filled with marvellous cures and miracles, many of which Moore has recounted. Rahere was succeeded by Thomas of St. Osyth's and to him the institution owed much, as Moore states that, "By his regulation of the relations of the hospital and the priory he gave to the former that independence which enabled it to weather the storm of dispossession which raged in the reign of King Henry VIII."

Another benefactor of the hospital was Henry Fitz-Ailwin, the first Mayor of London, and he is mentioned among the many who made grants to the institution. Moore devotes a long chapter to the state of St. Bartholomew's Hospital during the time of Fitz-Ailwin, and at the end pays a fine tribute to the early benefactors.

I cannot pass without mention of Alexander of Smithfield, one of the thirteenth century scribes who did so much to preserve the records of the time and whose fine vellums with their unfading ink and beautiful handwriting are still preserved. Moore has had reproduced some of the charters written by Alexander and they are beautiful examples of the vertical script of the period. The writing is in regular lines and the words spaced very much as in the printing of the present day.

In the reign of King Edward III, Thomas Sutton built his addition to the hospital, and the bells which called the brethren to prayers or to meals have, as Norman Moore points out, been commemorated in an immortal passage of literature: "And just as the last bell struck, a peculiar sweet smile shone over his face, and he lifted up his head a little, and quickly said 'Adsum,' and fell back. It was the word we used at school when names were called, and, lo, he whose heart was as that of a little child, had answered to his name, and stood in the presence of the Master." And so passed Colonel Newcome.

In the reign of King Richard II, one very notable piece of history is connected with the hospital, and that is that Wat Tyler, whose revolution took place at that time, fell from his horse and was carried to the hospital.

Among the notables connected with the history of the hospital is John Mirfeld, a well-read and industrious physician who will long be remembered as the author of the Breviarum Bartholomei. Brother John Cok, who wrote the cartulary of the hospital, also spent the greater part of his life within the walls and it is to his industry and forethought that future generations have a knowledge of the hospital during the Middle Ages. His portrait comes down to us in the cartulary, being woven in one of the illuminated initials. The page showing this has been reproduced as the frontispiece of the second volume of the history.

In the chapter about the Mediæval Property belonging to the hospital, Moore gives us many little views of various places and quotes a number of interesting lines from various authors relating to Duck Lane, in which some of the property of the hospital was situated and in which Norman Moore lived for twenty-one years. With the banishment of the religious orders from their ancient homes, the old order of the hospital came to an end. To quote Moore on this subject:

The good they did was put an end to, but the spoliations of the king, great as they were, could not extinguish benevolence in the land; and, though many men would no longer pray for the faithful departed, they still saw a duty in the care of the sick and the poor. St. Bartholomew's Hospital was one of the few places where the injured tree of charity began to put forth new branches, and soon flourished again.

King Henry VIII was petitioned that St. Bartholomew's and some of the other hospitals be placed under the order and governance of the Mayor of London and his brethren. The first petition is:

For the ayde and comforte of the poore, sykke, blynde, aged and impotent persones beyng not hable to helpe theymselffs nor havyng any place certeyn wheryn they may be lodged, cherysshed, and refreshed tyll they be cured and holpen of theyre dyseases and syknesse.

Since the charter of King Henry VIII, the receipts and the expenditures of the hospital have been recorded in a long series of ledgers of which the author of the history has made a remarkable account. At one time he notes that the ale consumed in a month cost the hospital 3 pounds, 12s., and the bread 53s. 6d. Much information also has been gleaned from a book called the Repertory in which the debts, leases, obligations, and so on, have been entered. Still other historical records are the journals of the meetings of the governors. I cannot do more than mention these, but on the day in which I write this, the House of Representatives has voted against the use of medicinal beer, so that one entry of a few lines may be quoted:

That the Cellar for stronge beare in this hospitall shalbe shut upp every Sabboth-day untill fiue of the clock in the afternoon, and then not to continue open longer than one hower, and alsoe that dureing that hower noe person or persons bee suffered to drinke therein but only to fetch what beare or ale they shall want into their severall wards.

We also read that on January 17, 1701, Sir Godfrey Kneller was admitted a governor, which recalls the fact that Sir Godfrey was a great friend of the famous Dr. John Radcliffe, who when he died left 500 pounds a year forever to St. Bartholomew's "for mending the diet of the patients." These names recall an incident not recorded by Moore. Kneller and Radcliffe lived in Bloomsbury and their gardens joined. For the convienence of both a door was cut in the wall, and Kneller, being annoyed by Dr. Radcliffe's servants breaking off his fine roses, wrote to the doctor and said that if he did not stop this he would be forced to nail up the door, whereupon Dr. Radcliffe replied that Sir Godfrey could do what he wished with the door as long as he did not paint upon it, to which the artist replied that he held Dr. Radcliffe in such high esteem that he would take anything off of him except his pills.

Dr. John Freind was admitted governor in 1722. He was the celebrated author of "The History of Physick from the Time of Galen to the Beginning of the Sixteenth Century."

Dr. John Caius has a chapter all his own, as he had much to do with the life of the hospital. He was born in 1510, and after being admitted a fellow of the College of Physicians, soon after came to live within the hospital and was a tenant there until his death. His benefactions to Cambridge and his publication, "A Boke of Counseill against the disease commonly called the sweate or sweatying Sicknesse," have kept his memory green.

I wish that space permitted me to mention more of these old worthies connected with the hospital. The most famous of all, of course, is William Harvey, to whom Moore devotes a long chapter. Of his successors I must mention the name of William Pitcairn who received from Dr. Askew the famous gold headed cane preserved at the Royal College of Physicians. Another chapter is devoted to the surgeons of the old guild and contains much interesting biographical material; and still another section is devoted to the corporation of surgeons, while the history of the teaching of medicine at St. Bartholomew's is outlined in the chapter devoted to that great teacher, John Abernethy. The apothecaries have not been forgotten, and part of the book tells of them. The remainder of the volume is given up to a consideration of the nurses, administrators, the medical school, present buildings, and the patients. In this last chapter there are a large number of fine incidents outlined in Norman Moore's inimitable style.

The volume closes as follows: "Such has been the history of St. Bartholomew's Hospital during eight centuries. Surely everyone who reads it will join in the wish always expressed at the feasts in the Great Hall:

"Prosperity to St. Bartholomew's Hospital, and Health and Ease to the Poor Patients."

Two Discourses by Samuel Bard on Medical Education in Early New York.—The Columbia University Press has recently published a reproduction in fac simile of two discourses dealing with medical education in early New York by Samuel Bard, professor in the Practice of Medicine in King's College and later president of the College of Physicians and Surgeons. In his introduction to the book Dr. Nicholas Murray Butler points out that at this time when Columbia University is undertaking a long step forward in the better organization of medical education and research it is important that there should be reprinted for the benefit of this generation the prophetic "Discourse Upon the Duties of a Physician; with some Sentiments upon the Usefulness and Necessity of a Public Hospital," delivered before the president and governors of Kings College at the commencement held on May 16, 1769, and also the "Discourse on Medical Education" delivered at the commencement at the College of Physicians and Surgeons on April 6, 1819, when Dr. Bard was president of the college. Dr. Bard lived to be seventy-nine years of age and died on May 25, 1921. Dr. Bard served not only as Professor of the Theory and Practice of Medicine,

but later as Professor of Chemistry, of Natural Philosophy and of Astronomy, and was considered an ornament to the profession wherever he served. Though time has wrought many changes and the science of medicine made much progress since Professor Bard defined the ideals and duties of the physician, his advice is as timely to-day as it was one hundred and fifty years ago. He says, "And be not alarmed, if I set out with telling you that your labors must have no end. No less than life and its greatest blessing, health, are to be the objects of your attention; would you acquit yourselves to your own consciences, you must spend your days in arduous inquiries, after the means of rendering those of others long and happy. Do not imagine, therefore, that from this time your studies are to cease; so far from it you are to be considered as just entering upon them; and unless your whole lives are one continued series of application and improvement, you will fall short of your duty." "You are," he says, "accountable for the errors of ignorance, unless you have embraced every opportunity of embracing knowledge." Professor Bard gives interesting advice as to the relative merits of ancient and modern medical writers and lays down rules for the guidance of the physician in his dealings with his fellow practitioner and his patients. At the present time when so many of the developments of modern medicine tend to smother the human element Professor Bard's advice is peculiarly fitting: "In your behavior to the sick, remember always that your patient is the object of the tenderest affection, to some one, or perhaps to many about him; it is, therefore, not only your duty to endeavor to preserve his life, but to avoid wounding the sensibility of a tender parent, a distressed wife, or an affectionate child. Let your carriage be humane and attentive, be interested in his welfare, etc." Professor Bard scores the slovinless of shotgun prescriptions and declares that it is impossible to learn the true virtue of medicines from compound prescriptions. The importance of autopsies as a means of improving knowledge and making further and useful discoveries in the healing art are set forth and the establishment of public hospitals, both as a means of furnishing medical care for the poor and as a teaching institution is urged.

In the discourse on medical education we find the question as to the value of classical learning discussed in truly modern fashion and the conclusion reached that "classical learning may justly be considered, and has been proved by long experience, to be the best preparation for any employment above those of the mechanical arts." The great error of the system of education of that day, according to Professor Bard, was that they were too much in a hurry and that young men began the practice of their professions at a period so early and after a preparation so slight that very few had acquired the prudence or the knowledge requisite to govern their conduct. He says "Could we keep our youth at school until sixteen, at college until twenty, in the counting house or at the study of the professions, until twenty-four or twenty-five years of age, they would be more generally useful in life." We learn, too, that the disparity between the compensation of the practitioner and an expensive medical education was a source of disquietude in those days as it is to-day. Professor Bard further insists that the practice of medicine can only be properly taught in a public hospital and dwells on the advantages of the laboratory, the dissecting room and the botannical garden over those of mere didactic teaching. Great progress has been made toward the realization of Dr. Bard's ideas of teaching medicine. From the material side the future bids fair to exceed his rosiest dream. In the pride of our material advantages and scientific advances it is, indeed, befitting to keep steadily in view the professional ideals he so ably inculcated.

Laennec.—The *Bulletin Medical* for August 24-27, 1921, xxxv 35, is devoted entirely to the memory of Laennec, whose death occurred about a century ago. For the past year the French medical journals have abounded in references to the activities and accomplishments of the deceased and it is clear that the world has never appreciated the genius and greatness of one whom they know of chiefly as the inventor of the stethoscope. Without the least bias toward hero worship one must admit that Laennec seems to have been not only a good example of a so-called universal genius, but that he was also in all respects a great man. Aside from his medical career he, who began life speaking two tongues, French and the Celtic Breton, became a polyglot, and as a child wrote poetry in both his mother tongues. He was a remarkable musician as well. He had all the precocity of genius, while his greatness of character is shown by the unfailing test that all he accomplished in his short life was the work of a confirmed invalid. He made his way in a worldly sense, beginning in poverty and rising in a short time to a state of financial prosperity. He succumbed only to incurable disease.

As to his medical career he was accomplished in nearly all of its possibilities. He was a born journalist and controversialist and at the age of 25 owned and edited a periodical. He made several discoveries in anatomy. Nominally a physician he was accomplished as an operating surgeon. As a medical diagnostician his skill was uncanny. Only the accident of being born ahead of the microscope prevented him from being a Virchow. His recognition of peritonitis and cirrhosis of the liver were samples of his pathological work. His epoch-making work in intrathoracic diagnosis was the fruit of his pathological knowledge as much as of his invention of the stethoscope. His most magisteral work, on pulmonary tuberculosis, paved the way for our present developments and he is said to have anticipated the greater portion of our modern lore on that disease. That his reputation was not much greater in the decades which followed his death, was due very largely to the fact that much of his best work was never published, although largely preserved in manuscript notes.

We know of no better way to aid in the rehabilitation of the former French prestige than the publication of an English translation of Rouxeau's recently completed life of Laennec for English and American readers.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 20.
Whole No. 2662.

NEW YORK, NOVEMBER 12, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

MENSTRUAL DISTURBANCE AND PAIN IN TUBAL PREGNANCY.*

BY LEROY BROUN, M. D.,

NEW YORK,

ATTENDING SURGEON TO THE WOMAN'S HOSPITAL.

FOR the purpose of clearly understanding the cause of the hemorrhage in tubal pregnancy, let me make a comparison between the commencement of pregnancy in the uterus and in the tube.

Within a few hours after the entrance of the impregnated ovum in the uterus, the villi of the chorionic sac surrounding the ovum begin to burrow into the mucous lining of the uterine cavity in their search for nourishment and a resting place. Under the influence of the presence of the impregnated ovum, the uterine mucosa has become thickened and spongy, and within a few days the ovum is covered by a continuation of this thickened spongy mucosa, completely surrounding the impregnated ovum with its chorionic sac and villi.

When the impregnated ovum fails to reach the uterus and finds a resting place in the tube, a similar process takes place, yet under very different circumstances; in fact, these circumstances become pathological. There is no thickened spongy decidua or at least only an excuse for one. The chorionic villi in their erosive action, searching for nourishment, having no thickened spongy mucosa into which to imbed themselves, as in the uterus, rapidly make their way through the mucosa of the tube and become imbedded in its muscular wall.

Under the influence of pregnancy, the blood vessels of the uterus and of the tube become enormously dilated in the neighborhood of the implanted ovum. In the uterus the spongy thickened mucosa (decidua) is a protection against the erosive action of the villi; only the smaller capillaries are reached from which the villi obtain their nourishment.

In the tube, the spongy layer being absent, the villi eroding their way into the muscular wall itself, literally riddle it and perforate the larger blood vessels. The resulting hemorrhage is greater than can be taken care of, the escaped blood crowds the villi together, enters the capsularis, over-distends and ruptures it, and escapes through the open fimbriated end of the tube. If this escape is sufficient to relieve the pressure of the steadily forming clot in the intervillous spaces around the chorion, the thickened muscular wall of the tube, though weakened by the invasion of the villi, does not give way; the capsularis, however, becomes separated from its base of nourishment by the intervening clots and death of the impregnated ovum results.

If, however, the leakage through the open mouth of the tube is not sufficient to relieve the pressure above, a rupture of the riddled tubal wall must take place with a resulting hemorrhage of greater or less profuseness, depending on the size of blood vessels involved.

In nature's economy under the influence of pregnancy, whether in the tube or uterus, the lining membrane of the uterus becomes thickened and spongy. This decidual membrane in instances of tubal pregnancy differs from that of uterine pregnancy in having a more abundant blood supply on its surface, and in the spongy layer being not so well developed.

After the death of the fetus in the tube, uterine bleeding from the thickened uterine mucosa (decidua) becomes evident, and in the large majority of cases gives the patient the first symptom that something is wrong, causing her to seek the advice of her physician. In the majority of cases the uterine bleeding is simply a slight continued show extending over days or weeks; in others it amounts to a distinct hemorrhage and impresses the physician that a miscarriage has taken place, and frequently a curettage follows, especially if the patient shows the physician parts of the thickened decidua, similating the secundines of an abortion.

The appearance of uterine bleeding in the presence of tubal pregnancy does not at all times follow the classical course described in many texts, and which is usually prominent in the mind of the general practitioner. I refer to the classical description of the patient failing to menstruate at the expected time and later having irregular and recurring bleeding.

An examination of the history of fifty-five consecutive patients, who were operated on at the Woman's Hospital for tubal pregnancy, brings out the fact that sixteen followed the above classical course of having missed a period and later having irregular bleeding; 17 patients commenced the irregular uterine flow at the time of the expected normal period, and 16 others continued with an irregular flow within a few days after the occurrence of the normal period. In other words, two-thirds of the number did not follow the classical course of missing a period, suggestive of pregnancy.

Farrar, in her excellent paper on tubal pregnancy, brings out the same fact: in 100 consecutive cases she found that only 34 followed the course ordinarily accepted, of missing a period be-

*Presented to the West End Medical Society of New York City, May 28, 1921.

fore the onset of the flow; 30 dated the irregular flowing from the time of the expected period, and 35 commenced irregular bleeding after the cessation of a normal flow.

In the majority of cases the death of the impregnated ovum takes place within a few weeks after its implantation in the tube, on account of the hemorrhagic infiltration of the intervillous spaces by the increasing blood clot from the eroded blood vessels of the tubal musculature. The excess of blood finds its way through the open end of the tube and gradually forms a hematoma in the pelvis, which is plastered over by intestinal adhesions. Coincident with, or shortly after the fetal death, uterine bleeding from its richly supplied decidual vessels begins to take place. This is fortunately the pathological history of the largest number of cases.

In other instances, and these are in the minority, the erosive action of the villi has been sufficient to perforate the tube and the first evidence the patient has is an intensely severe lancinating pain, often attended by collapse. This may occur after an overdue period, or, as shown, without having missed a period or without any warning by previous uterine hemorrhage. The immediate danger of such an occurrence depends on the size of the enlarged tubal vessels that have been perforated. In some instances the hemorrhage is sufficient to cause death.

This brings us to the subject of pain in tubal pregnancy with its escape of blood into the cul-de-sac or in the general peritoneal cavity. Recently there was placed under my care by Dr. J. Gardner Smith, a patient upon whom he had made a diagnosis of tubal pregnancy, with an hematocele rupture in the cul-de-sac. Upon her entrance into the hospital Dr. Smith's diagnosis was confirmed and the patient was kept in bed for observation on account of her temperature being almost 103° and the differential blood count being considerably higher than that usually associated with extra-uterine pregnancy. The possibility of a superimposed colon infection of the blood clot was the reason for this precaution.

During the three days the patient was being studied, she had practically no pain, excepting a vague tenderness in the pelvis. I was called to her on the evening of the third day on account of severe abdominal pain, which required almost three-fourths of a grain of morphine before even a slight cessation of the pain was noticeable. She was operated on at once. The findings were about an ounce of free clotted blood among the intestines and a large hematocele in the cul-de-sac, which was walled off by intestinal adhesions. There was no colon infection and an even recovery followed. The severity of the pain of this patient was most impressive and one that the surgeon rarely has the opportunity of seeing, the physician in attendance having usually controlled it before he arrives.

The desire to know the frequency of such occurrences and the condition under which they occurred was the reason of the search of the histories from which this paper is the result. Ninety-nine consecutive histories were examined: of these forty-four were of private patients, and they were not utilized in the present study.

Among the remaining fifty-five, twenty-two gave a history of sharp, severe pain, which recurred at intervals and lasted for a varying time at each recurrence. Cases of this class have as the cause of the recurring intense pain in abdomen, the escape of *free blood* into the general peritoneal cavity and not the presence of encapsulated blood in the cul-de-sac. As examples of this

Hospital No. 21,129 had an abortive flow of one day on June 30, and commenced to flow irregularly July 16, with a severe four days' abdominal pain and backache. *Findings*—Large quantity of free blood in the general cavity; tube ruptured; fetus in cul-de-sac with much clotted blood.

Hospital No. 19,117 had a delayed period; two weeks later severe pain in the right lower quadrant attended by uterine bleeding; decidua expelled one week later. *Findings*—Free clotted blood in peritoneal cavity with clots in cul-de-sac; right tube involved.

Hospital No. 20,216 had a delayed period; has been flowing since January 25, and entered hospital a month later. Pain sudden and of much severity, causing marked shock. *Findings*—Abundant free blood in general cavity, also in cul-de-sac.

Hospital No. 18,152 had a delayed menstruation, severe abdominal pain for two hours which followed sexual intercourse; two other attacks of like severity at intervals of two and four days. *Findings*—Abdominal cavity full of blood, fresh and clotted; right tube ruptured.

The remaining cases in this series are a repetition in a varying degree of the above histories cited. In every instance of sudden severe pain, the finding at the operation was *free clotted blood* in the general cavity in addition to the encapsulated clots in the pelvis.

In another class are twenty who stated that the pain was chiefly pelvic and varied greatly in character; with some of these patients the pain was slight, amounting to little more than a constant pelvic discomfort; in the majority the discomfort was more marked, yet was confined to the pelvis and constant in character, being more marked when in the upright position.

In this class of cases, which are practically as frequent as those having sudden severe pain, the distress as noted is not so striking and in many instances would even pass unnoticed by the patient, except for the continued flow, which causes them to seek advice. As examples of such instances we note:

Hospital No. 17,784 had bleeding since the period of January 1, 1917; admitted to hospital January 14, 1917. The patient complained of no pain. *Findings*—Ruptured ectopic, small amount of encapsulated blood in pelvis.

Hospital No. 19,053 began to bleed shortly after regular period of January 21, 1917; this continued until admission to the hospital, a month and a half later. The patient complained only of slight abdominal cramps at the beginning of flow; none during the flow. *Findings*—Right ruptured tube with encapsulated pelvic clots. Again

Hospital No. 18,173 has been flowing since March 5, 1917. Soreness, but not marked pain. *Findings*—Small amount of blood in right tube, encapsulated blood in pelvis.

Hospital No. 18,529 has been flowing since last period on April 10. Entered hospital May 17. No pain. *Findings*—Small amount of blood in cul-de-sac.

The pain is not, however, uniformly so mild as in the above cases, as for example:

Hospital No. 18,431 had bleeding one month; pain intermittent, with steady backache. *Findings*—encapsulated pelvic blood.

Hospital No. 18,323, bleeding two months, with dragging as if the pelvis floor was giving way. *Findings*—Much clotted blood in pelvis.

Hospital No. 19,358, bleeding since September 3, the last period being in June. The pain is severe and sharp. *Findings*—Large organized clot in pelvis.

It will be seen that the pain, in instances of escaped blood encapsulated in the pelvis, is not of the same character and severity as in the escape of free blood in the peritoneal cavity. The pain is not only of a different character, but varies greatly in degree, from instances of mild discomfort to that of much pelvic distress. Apparently this depends on the amount of blood effused in the encapsulated area.

It is in the less typical cases of absence of or slight pain that the diagnosis is most apt to be overlooked. The continued abnormal flow, however, should attract our attention to the possible conditions present and cause a careful pelvic examination.

Another class includes seven, who were operated on before any rupture or escape of blood had occurred, the only pain symptom in these instances was that of discomfort on the side involved. A striking illustration of the lack of severe pain in the absence of escaped blood was in a case of abdominal pregnancy:

Hospital No. 20,942. This patient missed her period in April, 1917; felt life in November, 1917; began to menstruate in February, 1918, from which time her abdomen began to grow smaller, until the time of her admission to the hospital in June, 1918. An unruptured sac, 20 cm. in diameter, containing a mummified fetus was found. There was no mention of pain in her history.

The other extreme of size is in Hospital No. 17,147. The last period was on October 4, 1916. Continuing to bleed and having had a former operation for tubal pregnancy of the left side, she sought advice, and entered the hospital October 13. The pain in the right side was only a slight discomfort. The finding at the operation was a tubal pregnancy in the middle third of the tube of 2 cm. diameter.

In the remaining unruptured cases, the recognition of the condition present was made by the persistence of bleeding after a regular period, associated with which was a slight pain or recurring cramps on one side, when no discomfort of this character had been noted before.

In one instance, Hospital No. 18,068, a double ectopic, the rupture was almost complete. Here the pain was greatest. This patient had been curetted for a supposed miscarriage. The flowing continued, as also the pain. The finding at operation was a clot protruding from the open end of the right tube, and from the center of the left tube an unruptured ectopic sac was showing through the peritoneal covering.

The remaining four of the histories examined do not fall under any of the above three classes. They were chiefly instances of the almost constant symptomatic uterine flow with discomfort of varying degree on one side. The findings were encapsulated tubal hematocele, with closed fimbriated extremity of the tubes. In one the pain complained of by the patient was located by her under the liver. The operative finding showed right tubal pregnancy.

Farrar, in her excellent paper covering the examination of 186 cases of ectopic pregnancy at the Woman's Hospital, to which I have already referred, states, after an exhaustive tabulation study of the character and location of the pain, that "in only 18.8 per cent. of the cases was the pain of the character ordinarily considered peculiar to ectopic gestation. In the remaining cases it was not to be differentiated from that of any severe pelvic lesion."

In my own experience, and from the study of the cases on which this paper is based, it would have been nearer correct if she had omitted the word "severe," since, as shown, a certain percentage of the cases have very slight pain and in rare instances none. Such instances occur in early unruptured tubal gestation and in cases where the fetus has probably died early, giving only a slight distention of the tube and only a small amount of encapsulated blood around the open end of the tube.

The possibility of such an absence of pain or that of a mild discomfort should always be borne in mind to avoid overlooking the true condition and possibly subjecting the patient to a sudden rupture that might be most disastrous. When such a condition exists in the presence of a delayed menstruation followed by a continued show or an unusual continued show independent of the delay of menstruation, the suspicion of ectopic should be strongly in our minds and a careful pelvic examination should be made.

It has been stated that in the early death of the fetus the symptoms of ectopic gestation may be so mild, that among women not accustomed to noting abnormalities, unless of a severe character, many such conditions go unoperated on. The small effusions in the pelvis and tube may in such instances be absorbed without the patient seeking advice or the true nature of the condition being recognized. This I believe to be undoubtedly true.

In Farrar's paper, in which the histories of 309 consecutive extra-uterine pregnancies were examined, 123 were private patients and 186 were hospital. In my own series, 44 were private and 55 were hospital patients. The ratio of ward patients to private patients should have been much greater and it proves unquestionably that many do not seek relief unless severe symptoms arise.

The old "pelvic hematocele" with its expectant treatment of forty years ago we know to be ruptured ectopic. While many of these women died and the large majority of the remainder were made invalids for life, yet some of the milder types made good recoveries. Lawson Tait, in 1883, blazed the way for complete recovery by operating for ruptured tubal pregnancy. While patients may, and do, recover without operation from the milder types, the danger of such conditions is grave, on account of the possibility of continued hemorrhage. The operation itself is far safer than the risk of waiting and inaction assumed by the patient.

The diagnosis of tubal pregnancy can be made in the majority of cases, yet there are cases in which the examiner must confess a doubt in his own mind.

On account of the immediate and changing pathological condition present, there can be no constant symptoms existing in all cases. In early cases, when the impregnated ovum is still viable and there is no leakage in the pelvis, our only symptom is that of pain in a varying mild degree, due to the distention of the tube by commencing hemorrhage.

When this is associated with a delayed menstruation, a pelvic examination is necessary. When the escaping blood in the tube has been sufficient to cause the separation of the chorionic implantation and death of the fetus uterine flowing commences, adding another diagnostic sign, which is probably the most constant of all symptoms of tubal gestation. Even this is absent, however, in some of our most serious cases, in which the erosive action of the villi has been sufficient so to weaken the tube wall as to permit of rupture and profuse abdominal hemorrhage—the first symptom to call the patient's attention to her serious condition.

These occurrences are fortunately not common, and our continued reliance on the abnormal persistent uterine bleeding, associated with localized pain of a new kind, as diagnostic signs to awaken our closer questioning and more careful examination, will not carry us far astray.

To the patients giving classical symptoms as depicted in every text, I will not refer, for here the "going is good," and the diagnosis is practically certain.

BIBLIOGRAPHY.

Litzenberg: Microscopic Studies of Tubal Pregnancy, *Amer. Jour. Obst. and Gyn.*, December, 1920.

Farrar: An Analysis of 309 Cases of Ectopic Gestation in the Woman's Hospital, etc., Surgical Report of Woman's Hospital, 1919.

148 WEST SEVENTY-SEVENTH STREET.

THE IMPORTANCE OF THE HISTORY IN THE DIAGNOSIS OF SURGICAL AFFECTIONS OF THE RIGHT UPPER QUADRANT.*

BY CHARLES GORDON HEYD, B.A., M.D.,

NEW YORK.

PROFESSOR OF SURGERY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

(From the Surgical Department of the New York Post-Graduate Hospital, Dr. John F. Erdmann, director. The material and cases upon which this paper is based are from the collective surgical service of the department.)

THE primitive gastrointestinal tract is a simple tube occupying a midline position. Embryologically it is divided into three portions—the foregut, the midgut and the hindgut. Anatomically, the stomach, duodenum, liver, biliary ductal system and pancreas are derivatives of the foregut, and in this alimentary segment every digestive enzyme is secreted and the mechanical processes of digestion carried out.

Our physiological conceptions of the stomach have undergone a rather extensive revision since the day of Beaumont. We may conceive, however, of the stomach as exercising primarily two important functions, that of secretion and that of motion. Contrary to the usually accepted idea of gastric physiology, the terminal portion of the stomach is alkaline, and in the fasting or resting phase of the stomach there is a reflux of duodenal material into the antral portion of the stomach, the acidulation and acid digestion of stomach contents taking place in the proximal two-thirds.

In interpreting the symptoms that arise from disturbances of the gastrointestinal tract we should have firmly in our minds two fundamental conceptions, one called by Bayliss the "law of the intestine," which states that stimulation of any part of the intestine leads to contraction above and relaxation below. This is a general law and is applicable to the entire alimentary canal. Essentially it means that under normal conditions contraction in one place is associated with relaxation just below. Meltzer called this the law of contrary innervation. The second fundamental conception is what is called the "law of average localization," which explains why visceral pain is most accurately located in viscera which do not move, such as gall bladder, esophagus, duodenum, ascending and descending colon, and rectum, and less accurately in the more freely movable organs, such as the small intestine and stomach. The brain learns to localize sensations in the area of the average position of the part from which they originate. The importance of these two laws in the interpretation of the symptomatology of abdominal conditions is very great, and we must recognize that disturbance of one part of the alimentary tract may manifest itself by symptoms in some distant portion.

Probably the most frequent symptom numerically in abdominal conditions is that of dyspepsia. The stomach, by reason of its muscular apparatus and rather close proximity to the outside world by way of the esophagus, may be spoken of as the voice of the upper abdomen, and malfunction of the upper intestinal tract induces quite early the symptoms of indigestion. Again, dyspepsia is one of the most common reflex disturbances of general constitutional disease. The elaborate statistical work of Cabot classifies indigestion, in so far as the etiological factor is concerned, as follows: (1) Tuberculosis, (2) cardiac disease, (3) affections of the kidney, (4) neuroses and psychoneuroses, (5) nephritis; while dyspepsia from exhaustion, debilitation, industrial overstrain and alcoholism are so commonplace as to be beyond statistical computation. The classification of causes of dyspepsia from large clinics has shown that of 100 persons complaining of indigestion, approximately 40 per cent. have the cause of their dyspepsia in organs entirely remote from the abdomen, while 40 per cent. have the etiological factor within the abdomen, but remote from the stomach, and less than 20 per cent. have actual organic disease of the stomach. The last decade has witnessed the gradual reduction in the number of the so-called neuroses of the stomach with an extension of the organic causes of stomach disease. As a very commonplace example of indigestion from causes entirely remote from the abdomen one has only to recall that approximately 10 per cent. of all cases of locomotor ataxia have been operated upon for a supposed abdominal condition and usually for a supposed ulcer of the stomach, gall-bladder condition, or a diseased appendix. For practical purposes, when we consider ulcer of the stomach, cancer of the stomach, affections of the biliary system, and disease of the appendix, we will have considered 95 per cent. of the surgical affections of the abdomen. We believe that in the symptomatic evolution of each

*Read before the Luzerne County Medical Society, Pocono Manor, Pa., Wednesday, June 22, 1921.

of these conditions there is, as a rule, a clear-cut and distinct picture, and that the history, properly interpreted, will lead to the correct anatomical diagnosis in at least 90 per cent. of the cases.

The appendix in the adult has a very definite anatomical conformation. It is a blind tube with its narrowest portion at the cecum, known as the valve of Gerlach. It is essentially an organ with a terminal blood supply, except in 16 per cent. of females, where there is a connecting artery to the right ovary. It has a strong submucous layer which represents the distention strength of the appendix. This submucous layer is absent in children, and hence accounts for the ease of perforation in children. We believe that the symptomatology of acute appendicitis is one of the most fixed and well ordered of all abdominal conditions. Its symptomatology is precise and, within the first 24 hours of its evolution, embraces the following chronological order of symptoms: (1) Pain; this pain is epigastric, confined to the region of the navel, and is colicky in type; (2) is followed by nausea or vomiting or both; (3) generalized abdominal sensibility; (4) temperature; (5) leucocytosis and ascending polynucleosis. One can explain this chronological evolution of symptoms by a consideration of the pathological sequence of events in the infected appendix. The infection arises on the mucosa in 95 per cent. of cases; it is associated with tumefaction and intumescence and we have an angulation of the appendix with occlusion of the lumen or occlusion of the lumen at the valve of Gerlach. At this stage we have essentially an empyema, and the products of the infection are retained within the lumen of the appendix under pressure. One of three things occurs: (1) Gangrene of the appendix; (2) rupture, or (3) resolution by intracecal drainage of the contents of the appendix. These pathological states distinctly parallel the symptomatology. At the time the infection begins in the appendix we have a point of irritation below the small intestine and we have a disturbance of the law of the intestine with the small intestine participating in an exaggeration of its normal peristaltic activity. As a result we have colicky epigastric pain from hyperactivity of the small intestine. The exaggeration of the function of the small intestine brings about generalized abdominal sensibility, and the activating agent in this trend of events is an infective process which produces the constitutional reaction of temperature, leucocytosis, and polynucleosis. At the end of 18 to 24 hours the infection of the appendix has progressed to such a point that there is a periappendicitis with exudation or extravasation of appendiceal contents and the clinical picture is changed. The pain becomes constant, not colicky, is confined to the right lower quadrant, associated with local tenderness and spasticity over McBurney's point, while temperature may or may not be elevated. The leucocytosis and polynucleosis, however, remain present.

Turning to chronic appendicitis one is confronted with an entirely different evolution of symptoms. Here we have an affection that disturbs the rhythmic working of the law of the intestine in that contraction is followed by relaxation. The most typical example of this neuromuscular mechanism is found at the cardiac, pyloric, ileocecal, and anal sphincters which normally relax as peristaltic waves come to them. The presence of a minor degree of irritation in the appendix brings about a disturbance in the neuromuscular apparatus of the ileocecal valve and pylorus. Barclay has shown that spasmodic closure of the pylorus follows stimulation of the terminal ileum. At the ileocecal valve we have a great biological partition. Here the chemical reaction of the intestinal contents changes, the bacterial flora reaches its maximum development, the fluidity of the contents is at its greatest, there is an anistalsis rather than peristalsis, and this is the place of predominant lymphoid tissue development within the abdomen, together with a natural point of stasis or delay. The history, then, of chronic appendicitis is characterized by variability and lack of that precision which characterizes acute appendicitis. There stands out, however, in the history of these patients almost invariably the history of an acute attack, and one is surprised to find on checking up "after results" that the cases that complained only of pain in the right lower quadrant have uniformly not been cured by the removal of the appendix, but that the cases that complained of atypical dyspepsia due to a supposedly diseased appendix have been almost uniformly cured of their distress by an appendectomy.

If disease of the gall bladder and stomach can be eliminated, then it is ordinarily possible to make a diagnosis of appendicular dyspepsia. A chronically infected appendix produces epigastric distress of indefinite intermittency. The symptoms are those of pain and distress more prolonged than similar occurrences in disease of the gall bladder, with increased acidity, vomiting, and eructations of sour material. Articles of food which at one time are associated with indigestion are eaten at other times with zest and relish. There is a long interval between the attacks in which the patient is free from symptoms. Each succeeding attack has a tendency to be more severe than the previous one by reason of the increased stenosis and stricture of the lumen of the appendix after each exacerbation. We believe that these symptoms are due to pylorospasm associated with hyperactivity and hypersecretion of the stomach, and may be designated as the pyloric syndrome of chronic appendicitis. This variability in the indigestion from disease of the appendix has been emphasized by Moynihan, who states that the most frequent site for the production of the symptoms of ulcer of the stomach is in the right lower quadrant.

It must not be forgotten that chronic disease of the appendix may occasion a rather severe hematemesis. Hutchinson records 24 cases of fatal hemorrhage from the stomach after operations of various kinds upon the abdominal viscera. Of these 24 cases, 21 were cases of appendicitis with septic complications. I have records of 4 cases of pronounced gastric hemorrhage which, on very extensive abdominal exploration, revealed no morbid process except in the appendix and, following an appendectomy, there was a cessation

of the gastric distress and gastric hemorrhage. Gastric hemorrhage has been experimentally produced by Rogers by injecting chemical irritants into the cecum and ascending colon, while irritation of the colon, per se, has been shown to bring about a gastric stasis and the delayed passage of food material through the small intestine.

In disease of the biliary system we are confronted with a pathologic and symptomatic sequence of events that is rather characteristic and definite. The basis from the production of symptoms is essentially due to infection in the gall bladder whether stones are present or absent. One recalls the rather high percentage of hepatitis that coexists with chronic cholecystitis, and the relationship of pancreatitis to disease of the biliary system is so thoroughly elaborated as to require little comment. The end-result of cholecystectomy conclusively demonstrates that the patients are apparently in as excellent condition of health after cholecystectomy as before, and that, so far as the general metabolic processes of the body are concerned, the presence or absence of the gall bladder is not of much importance.

If one made a study of a sufficiently large number of cases of biliary disease he would find that he could catalog the patients into four distinct clinical groups: (1) Those that complain of indigestion only (2) those that give a history of acute attacks of biliary colic, with or without preceding indigestion; (3) those that give a history of biliary colic and also the history of jaundice; (4) those who give any of the above histories and develop the complications of biliary disease—carcinoma, pancreatitis, duodenobiliary fistula, etc.

The early symptoms of cholecystitis, whether calculous or non-calculous, are the symptoms of an indigestion of which the chief complaint is gas in the stomach. For a variable period of time these patients complain of a sense of weight and fullness in the stomach, present after small meals and relatively worse after large meals. Upon belching gas there is obtained some relief, and a not uncommon history is that of a patient leaving the dinner table and inducing vomiting with complete amelioration of symptoms. The gas production is in a measure dependent upon the quality of the food—carbohydrates, fats, starches, nuts, and some fruits induce a greater degree of gas production. These patients are treated for nervous indigestion or gastritis when they have a chronically diseased gall bladder with thickened walls and a loss of the normal distensibility of the gall bladder. Into this history there may ensue at a later period or without this history of indigestion the first indication of biliary trouble is ushered in by an attack of acute, sharp, agonizing pain which comes on like a stroke of lightning, is of maximum intensity, and is associated with restlessness and movement upon the part of the patient. There is a strong desire to lean over a chair or to grip the lower portion of the thorax. With this is usually associated nausea and vomiting. The attacks of pain have a predilection for nocturnal occurrence and are so severe as to require hypodermics of morphine for their control. The characteristic and outstanding feature is the lightning-like onset of the pain, without premonition or warning, and its intensity requiring morphine. After four to eight hours the pain disappears almost as rapidly as its onset, leaving behind a residual soreness along the right costal margin. The third clinical group is characterized by a history somewhat after the fashion of the preceding types, with the exception that after an attack like the above they find themselves jaundiced, and in this group we have a trinity of symptoms—colic, jaundice, and sepsis—cholangitis. This jaundice is associated with colic and usually with chills, fever, and sweating and for many years masqueraded under the title of Charcot's intermittent hepatic fever and was variously ascribed to malaria.

Jaundice is a symptom of sufficient magnitude to make the patient apprehensive. If one considers the diagnostic possibilities of jaundice he will find that aside from catarrhal jaundice—a condition founded upon insecure pathological information—which is characterized by slight constitutional disturbance and uniformly resolves and clears up in four to six weeks, we have essentially a differentiation of jaundice produced by neoplasms and the jaundice produced by calculous disease of the biliary apparatus. Stupor is only associated with jaundice in cirrhosis and acute yellow atrophy, while emaciation is uniformly present in all types of chronic jaundice, irrespective of the etiological factor. The onset of jaundice with colic predicates an infective process, and, since 98 per cent. of all gallstones have had their origin in infective changes in the gall bladder, we find that the gall bladder in chronic calculous cholangitis is atrophied, thickened, or undergoing fibroid contracture and is non-palpable on physical examination unless there is an accidental occlusion of the cystic duct with hydrops of the gall bladder.

Calculous cholangitis predicates a chronic cholecystitis with cicatrization and contracture. In 187 cases of obstruction of the common duct reported by Courvoisier, in 100 obstruction was due to causes other than stone, and in 87 the obstruction was due to calculous impaction. Of the 100 cases in which obstruction was due to causes other than stone, in 92 there was a dilatation or distention of the gall bladder and in 8 cases there was a normal gall bladder or an atrophy of the gall bladder. Of the 87 cases in which obstruction was due to stone, in 70 cases the gall bladder was atrophied and in 17 cases the gall bladder was dilated. Courvoisier then enunciated his law: "In cases of chronic jaundice due to blocking of the common duct a contraction of the gall bladder signifies that the obstruction is due to stone; a dilatation of the gall bladder that the obstruction is due to causes other than stone."

In 84 per cent. of cases with stone in the common duct we find a contracted gall bladder. Therefore, a case of obstructive jaundice with (1) history of colic, (2) distinct variations in the intensity of the jaundice (remittent and intermittent) "ebbs and flows," (3) absence of distention of the gall bladder, (4) presence of septic reaction—chill, fever, sweat, leucocytosis, (5)

chronicity—the diagnosis is almost positively calculous cholangitis.

The jaundice that is due to extrinsic encroachment on the common duct is due ordinarily to neoplasms. It comes on slowly, imperceptibly, deepening day by day, and neither remits nor intermits, but becomes progressively deeper in color until it becomes a typical black jaundice—icterus melas. Its development is without pain until late, and without temperature, so that the evolution of the jaundice of malignancy is decidedly distinct and separate from that of jaundice associated with biliary disease.

Ulcer of the gastroduodenal segment is located anatomically in three main places: (1) In the silent area of the stomach with no pyloric involvement; (2) on the pyloric segment with obstruction from spasm or invasion; (3) in the duodenal segment. Eighty-eight per cent. of all ulcers are characterized by a regular and uniform symptomatology and three symptoms stand out in unusual prominence: (1) Pain that bears some relationship to the time of ingestion of food; (2) chronicity—the symptoms extending over a considerable period of time, and (3) periodicity—in that the symptoms recur in exact similarity day after day with almost unvarying precision. Eighty-five per cent. of all ulcers of the stomach are situated on the pylorus, antrum, or the adjacent three-fourths of the lesser curvature, and it is the regularity in the symptomatology of ulcer that makes the diagnosis possible. A loss of the periodic element with symptoms which suggest ulcer makes one suspicious of malignancy, for 99 per cent. of malignant growths of the stomach show an absence of periodicity in their symptomatology. Depending upon the localization of the ulcer we have certain specific features that go with each one. The ulcer in the silent area of the stomach is, as a rule, characterized, in addition to the above-mentioned symptoms, by the early habit of vomiting, the vomiting of undigested food with a tendency to be blood-streaked. The pyloric ulcer has early induced in its symptomatology a motor insufficiency with stagnation of gastric contents and vomiting of large quantities of retained gastric content and food remnants of a previous day's ingestion. The duodenal ulcer has characteristically added to these three major symptoms nocturnal occurrence, usually after 12 p. m., and the complete alleviation of symptoms upon the ingestion of food, while all three types of ulcer acquire early and independent of the physician's advice the bicarbonate of soda habit.

The ulcer near the cardia frequently, but not invariably, produces pain almost immediately after the ingestion of food; the ulcer at or near the pylorus from an hour and a half to two hours, while the pain in duodenal ulcer is much more constant in the time of onset, being between two and a half to three hours after a meal.

There are no symptoms which are pathognomonic of cancer, and at the time that one most desires to make a diagnosis of cancer there is no outstanding clinical picture that renders this possible. The presence of carcinoma of the stomach is made known only when ulceration occurs or when there is an interference with the evacuation of the stomach contents. In general, carcinoma of the stomach manifests itself early by mechanical factors rather than by changes in chemistry. Cachexia is one of the most prominent symptoms, being present in approximately 85 per cent. of cases that are diagnosed as carcinoma. A palpable tumor exists in about 58 per cent., food remnants in 65 per cent., and pain is present in over 85 per cent. of cases. We find cancer of the stomach clinically portrayed by three quite distinct types of history: (1) The first group, constituting about 60 per cent., occurs in patients who have had a history of gastric distress covering at least a period of eight to ten years. This previous gastric history entitles us to believe that the patient was suffering from chronic gastric ulcer. There were repeated attacks of pain occurring day after day, with a time relationship to the ingestion of food and with a periodic reproduction of the same symptoms day after day. Into this history there comes one attack from which the patient does not recover or does not respond to a form of medical treatment that has heretofore proved beneficial. The pain becomes constant, marked distaste or aversion to food is acquired, blood is constantly present in the stool and the patient has a duration of cancer symptoms of six months. The second group constitutes 30 per cent. and occurs in the type of man who has been previously perfectly well. He has an attack of gastric distress which suggests an acute ulcer of the stomach, with or without hemorrhage. At the end of a few months the man has lost physically beyond anything that could be expected in a simple ulcer, and all too soon a progressive anemia and emaciation and beginning cachexia make known the diagnosis of rapidly growing carcinoma; his cancer symptoms average about eight to ten months. The third group is represented by approximately 10 per cent., with the history that is suggestive of simple ulcer from which he nearly recovers, but never quite wholly, and after a variable period of time—14 to 18 months—slowly but progressively becomes worse, acquires a marked aversion to food, and progresses into the well-defined cachexia of malignancy.

46 West Fifty-second Street.

DETAILS IN DERMATOLOGY.

By Charles Mallory Williams, M.D.,

New York,

Attending Physician, New York Skin and Cancer Hospital; Professor of Dermatology, University of Vermont; Associate Professor of Dermatology, New York Post-Graduate Medical School and Hospital.

It has been well said that more mistakes in diagnosis are due to carelessness than to ignorance, and this is as true in dermatology as in any other branch of medicine. Of course, there are cases where the diagnosis is evident at a glance, but even here careful examination may reveal special features which will be of the greatest value in treatment. Do not be deceived by the patient's statement, "The only spots are those on my hands—there is nothing at all on the rest of my body." It is probable that he is trying to tell the truth, but it is also probable that he is mistaken, and

if there is any reason to believe that the eruption is more extensive than the patient has indicated, or if the lesions shown are not absolutely characteristic, make a complete examination. It is also important to approach any problem in diagnosis with an open mind. In Prof. Trimble's service at the University and Bellevue Medical College it used to be the custom to enjoin absolute silence on the patients until the examination was completed, and this rule should be followed as far as possible in both public and private practice. It removes, indeed, a valuable source of information, though only temporarily, but it often avoids also a great deal of misinformation. What is much more important, it teaches observation as nothing else can. It is seldom necessary, for instance, to ask if an eruption itches—tell-tale scratches are there at least ninety-nine times in a hundred. A very shrewd estimate can also be made of the duration of the process in most instances. Acute congestion, vesicles, pustules denote a continuing process, and if these alone are present the eruption is fairly recent. Stains and scars, on the other hand, indicate a considerable interval since the first outbreak, and from the color one may infer whether the interval is to be measured in weeks or months or perhaps years. This estimate is often more reliable than the patient's statement. For instance, in a small epidemic of tinea circinata, derived from cats, one of the patients showed me a lesion nearly as large as the palm of the hand, with typical clearing center and advancing border, which she told me had been present less than twenty-four hours. It must have been there a week, but she had not noticed it. After the investigation has been pushed as far as possible by examination alone, questions may be asked, and in some cases the diagnosis will rest on the answers received, though this is rarely the case in dermatology.

The first thing to be noted after stripping the patient is the distribution of the lesions. The individual lesion of scabies, for instance, may be indistinguishable from an inflamed follicle or the papulovesicle of eczema; the diagnosis is made by observing the parts affected. Next, note the presence or absence of a tendency to form groups and the arrangement of the lesions in each group. Are they all of the same age? Is the process most active at the center or at the periphery? Is the margin sharp or vague and indefinite? If the margin is well defined, is it a continuous band, or composed of separate elements which tend to coalesce? Is the skin between the active lesions normal, or is it congested, stained, or infiltrated? The next step is to determine the elemental lesion of the eruption, whether erythema, papule, or vesicle, and to trace it through its evolution to its healing. The elemental lesions are usually found at the periphery; where the disease is most active, the lesions may be too far advanced or too closely set to help much in a diagnosis.

The trained touch may be of almost as much help as the sight. A papule may look solid, but prove to be soft under the finger, while the size, contour, and consistency of some of the deeper lesions can be determined by the touch alone.

Lastly, the laboratory tests. These are at times the only way of establishing a diagnosis, as in some forms of tinea of the hands and feet, and are always a great help, but laboratory tests can never replace clinical observation. A Wassermann reaction which is persistently positive may prove that the patient has syphilis, but it cannot prove that the lesion which you are studying is syphilitic. Take, for instance, a carcinoma of the tongue developing on a syphilitic glossitis or an ulcerated gumma. To rely on a positive Wassermann and give antisyphilitic treatment only is to condemn the patient to death. To perform a biopsy and await the report of the microscopical findings is to open channels for metastases, no matter how short the interval between biopsy and operation.

If it is true that carelessness is responsible for most of the errors in diagnosis, it is equally true that a large proportion of the errors in treatment are due to lack of precision in the directions given by the physician.

In cases of skin diseases, in particular, the laity are profoundly ignorant of what to expect; they generally expect a single visit and the use of a prescription for a week to work a prompt cure. Of course this is incorrect. The majority of skin diseases are notoriously chronic, and the patient should therefore be warned that he must be content to progress slowly and that perseverance on his part is quite as important as skill on the part of his physician, and indeed is essential to success. Many diseases also—notably eczema—are prone to recur after apparent cure, and the patient should be warned of this also and instructed to watch for the first sign of a fresh outbreak, and to report it at once to his physician. If a patient can be made to realize these simple facts he is much more apt to persist in treatment, and it is only by persistence that he can hope to recover. The worst offenders in this respect are probably the syphilitics of the poorer classes, who generally cease treatment as soon as the visible signs of the disease are removed and who therefore suffer from constant relapses, especially in the tertiary stage.

But perseverance in treatment is not, by itself, enough, for the character of the disease changes from time to time, partly because of its natural evolution, partly as a result of therapy, and to meet these variations the treatment must not only be persevered in but must also be altered from time to time. The physician knows this, of course, but the patient doesn't know it unless he is told, and if he doesn't know it he will persist in measures that have become useless or even harmful, and then seeing no further improvement he is apt to abandon treatment altogether, or perhaps seek another physician. The treatment which is efficacious in acute eczema, for example, is valueless in the chronic types; that which is beneficial in chronic cases may be harmful in an acute exacerbation. The patient must be made to realize this and that repeated visits to the physician are therefore essential. In acne, also, treatment must be varied. The local applications must be strong enough to produce a slight exfoliation but not strong enough, in ambulant treatment, to produce a severe dermatitis, and the only way to de-

termine the strength required by each case is by trial. When the comedones cease to form the exfoliating treatment is no longer indicated—but the patient cannot be expected to know this intuitively.

It is folly to give a patient a prescription for a salve or lotion, saying only, "Use this twice a day." An amusing instance of this came to my notice some years ago. A poor woman suffering from some uterine disorder was told to use salt dissolved in hot water. There was no improvement, and questioning by the visiting nurse revealed the fact that the woman had dissolved the salt in hot water, as directed, and then had soaked a sheet in the solution and sat down upon it! Take it for granted that your patients know nothing, absolutely nothing, about the correct method of local applications. In the treatment of acne, for instance, there is no better preparation than the familiar lotio alba—but it must be properly used and properly made. I have even known druggists, unfamiliar with the preparation, to filter out the precipitate, which is the active part. Instruct your patient always to shake the bottle before using, to pour out only what is required, to sop it on with a clean cloth and not to use a sponge or absorbent cotton, as these two would hold the powder in their meshes, instead of leaving it on the face. Warn also against rubbing; say definitely that it is to be sopped on, not rubbed on. And tell exactly the hours when it is to be used. Explain that the powder is the active ingredient and that the longer it is left in contact with the skin the better. It takes time to give such minute directions, but they are the secret of success. In using a stimulating and antiseptic lotion on the scalp, on the other hand, rubbing is essential, and it should be explained to the patient that mere wetting the hair will not do. It is the same with salves and pastes—for protection or for mild action they are smeared on, for penetration and vigorous action, rubbed in. The patient doesn't know which is indicated, and he must be told. He must be told also how much to use. For instance, a very little sulphur cream, properly applied, may be sufficient for the entire scalp, while if a subacute eczema is to be treated with Lassar's paste, a thick layer must be applied and left on. In the inunction treatment of syphilis it is, of course, essential that the dosage be regulated—yet I have known patients use half an ounce or less of mercurial ointment in a week, for lack of proper directions, and to make the application to the same part of the body repeatedly, because the reason for using different parts had never been explained to them.

One would think that anyone would know how to use tincture of green soap for a shampoo, yet I have known patients to declare that they could get no lather with it and that it always left the hair sticky. The only explanation I can think of is that they were deceived by its liquid character and did not use enough water either in shampooing or in rinsing afterward. Tell your patients therefore that after shampooing the hair should be rinsed till the water comes away perfectly clear.

These may serve as examples, but the principle is universal. Thoroughness in observation is essential to a correct diagnosis, and minute instructions as to details of treatment are essential to successful therapy. In some cases it is even advisable to make the patient repeat the instructions, in order to be sure that they are understood. It has been said that genius is the infinite capacity for taking pains. Whether this capacity is all that is required to constitute genius may be questioned, but it will certainly carry a man a long way in the practice of medicine, or of any other profession.

4 West Fiftieth Street.

CHRONIC NEPHRITIS WITH BENCE-JONES PROTEINURIA.

EFFECT OF RADIUM EXPOSURES ON QUANTITATIVE OUTPUT OF BENCE-JONES PROTEIN.

By WALTMAN WALTERS, M.D.,

ROCHESTER, MINN.

FELLOW IN THE MAYO FOUNDATION.

In 1847 Henry Bence-Jones reported the incidence of a peculiar type of protein formed in the urine of a patient of whose condition he had made a diagnosis of osteomalacia fragilis rubra. The reactions of the protein which distinguished it from serum albumin were its precipitation from an acid urine at 56° C, its dissolution on boiling, and its reappearance again on cooling. At necropsy the ribs cut with the greatest ease and the bodies of the vertebrae could be sliced off with a knife. The kidneys were reported to have been sound clinically as well as when examined microscopically.

In more than 200 cases of Bence-Jones proteinuria which have been reported since 1847 satisfactory evidence of renal insufficiency has been reported in but four cases[1,2,3,4] in only one of which[3] was there a "damming back" of Bence-Jones protein in the blood stream. Folin and Dennis have noted the frequent occurrence of a few hyaline and granular casts in cases of myeloma without clinical evidence of nephritis.

A case of Bence-Jones proteinuria is reported here in which there was definite evidence of progressive renal insufficiency denoted by extremely low excretions of phenolsulphonephthalein and the retention of large amounts of uric acid, urea, nonprotein nitrogen, and creatinin in the blood. The effect was studied of radium exposure over two inguinal masses which may have been the primary causative factor in the production of the Bence-Jones proteinuria. This is the fourth case of Bence-Jones proteinuria which was discovered in the examination of 31,487 patients by the members of the staff of the Mayo Clinic during the period from June 20, 1920, to March 2, 1921.

Case 351167. Mrs. C. D., aged 42, entered the Clinic March 2, 1921. She had not been well since an attack of influenza two years before. Shortly after this attack she missed two menstrual periods, but she does not believe that she was pregnant. During this period she lost considerable weight. In May, 1920, after having urinated on the ground, she noticed that a yellow milky material remained on the surface, which she believed was due to drinking alkaline water; as she felt well she dismissed the fact from her mind. Three months later, after a chill following a wetting, she noticed stiffness of the neck which persisted. During the fol-

lowing two weeks she had a polyarthritis, which first involved the right shoulder joint, later the wrist joints, and finally the left shoulder joint. These joints were painful on motion, and the periarticular tissues were red and swollen. Her urine was examined and Bence-Jones protein was discovered. At this time she noticed that her inguinal glands were swollen, but not tender. She gradually lost in weight and strength, and her skin, which had been of a pinkish hue, gradually faded and became brownish. Three weeks before she came to the Clinic a sudden sharp shooting pain appeared in the anterior surface of the right lower leg, beginning at the inguinal fold and extending below the knee. These pains appeared most often when she was in bed, and were of but a few seconds' duration.

Physical examination revealed an under-nourished woman not acutely ill; she weighed 115 pounds. The skin of the entire body was hyperpigmented; the lips and bulbar conjunctiva were pale. The head could not be rotated beyond certain points to the right and left without considerable pain. The tissues about both left and right wrist joints were swollen and somewhat painful on forced movement. A circumscribed fluctuating swelling over the distal end of the left ulna, dorsal surface, was approximately 1 cm. in diameter.

A mass palpable in the left femoral region just above the saphenous opening measured 9 by 8 cm.; a mass in the right femoral region measured 6 by 7 cm. These masses were smooth and indurated, and appeared to be fixed to the rami of the pubic bones. A few small glands were felt in both inguinal regions. Roentgenograms of all the bones did not reveal evidence of a pathologic condition; the masses failed to cast a shadow. The blood Wassermann reaction was negative. The systolic blood pressure was 124, the diastolic was 80. Repeated blood counts showed the marked secondary anemia characteristic of patients with Bence-Jones proteinuria. In addition, the relative increase in the percentage of small lymphocytes was marked. (Table 1).

TABLE 1.

BLOOD PICTURE (CASE 351167).

	March 7	March 10	May 21*
Hemoglobin, per cent	54	61	....
Red blood cells in millions	2.75	3.14	1.29
Color index	0.91	0.91	....
Leucocytes	7,300	9,700	9,200
Cells counted	200	200	100
Polymorphonuclear neutrophiles	45	50	42
Small lymphocytes	51	42	54
Large lymphocytes	1.0	4.0	....
Eosinophiles	1.5	3.0	....
Basophils	1.5	1.0	1.0
Anisocytosis	Slight	Slight	Present
Poikilocytosis	Slight	Slight	Present
Transitionals	....	....	3

*Blood count made by Dr. G. F. Gibson, Fort Dodge, Iowa

Repeated two-hour specimens of urine examined quantitatively for Bence-Jones protein, by a slight modification of the method of Folin and Denis, showed a constant excretion of from 2 to 3 gm. every twelve hours, with the patient on a general diet. The excretion was the same during the twelve hours of night as the twelve hours of day.

Bence-Jones proteinuria occurs in 80 per cent. of all cases of myeloma; it has been reported by Askanazy and Decastello to have been present also in three cases of lymphatic leukemia. Since the patient (Case 351167) had a history of enlargement of the inguinal glands and from 42 to 51 per cent. small lymphocytes by the differential blood count we wished to have a microscopic section removed from one of the femoral masses to aid in the diagnosis, but this was refused repeatedly. We believed radium exposure over the femoral masses, whether they were bone tumors or evidence of early lymphatic leukemia, to be a logical procedure. Therefore, 3,000 mg. hours were given, equally divided between the left and right masses, and the amount of Bence-Jones protein excreted was estimated daily. The first radium exposure, March 11, and the second, March 15, lasted for twelve hours. There was little, if any, constant reduction in the quantity of Bence-Jones protein excreted in the sixty-four day period following the exposures (Tables 2 and 3). The day after the first exposure the patient had a moderate general reaction, with loss of appetite, nausea, and the desire to vomit. The next day the patient complained of headache and a feeling of depression, but this gradually disappeared in twenty-four hours. There was no reaction following the second exposure.

Repeated examinations of the urine failed to show serum albumin, casts, or erythrocytes; an occasional leucocyte was found. The specific gravity of both night and day specimens of the urine varied from 1.010 to 1.020. A phenolsulphonephthalein functional test was made March 4, and but 10 per cent. of the dye was recovered at the end of two hours. The test was repeated March 12, and but 7 per cent. of the dye was recovered. Because of this extremely low phenolsulphonephthalein excretion, the patient's blood was examined for further evidence of renal insufficiency and values of 3.24 mg. uric acid, 3.3 mg. creatinin, 74 mg. urea, and 63 mg. nonprotein nitrogen were found for 100 c.c. Blood taken six days later showed an increase in the uric acid

TABLE 2.

OUTPUT OF BENCE-JONES PROTEIN IN URINE BY TWELVE-HOUR PERIODS.

Date	March 7		March 8		March 9		March 10		March 11		March 12		March 13		March 14		March 15		March 16	
Specimen	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
Amount, c.c.	....	670	610	690	560	660	640	810	440	680	595	820	610	690	500	460	710	585	Specimen lost because of drastic cathartic	625
Reaction	....	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid	acid		acid
Specific gravity	....	1.017	1.015	1.017	....	....	1.020	1.020	1.019	1.020	1.022	1.020	1.020	1.020	1.018	1.018	....	....		1.010
Bence-Jones protein, gm.	....	3.5	3.8	3.4	3.5	2.3	3.2	3.0	3.1	2.7	3.9	3.8	2.9	2.21	2.6	2.0	3.48	2.6		2.7
Total nitrogen, gm.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....		2.5
									Radium over left mass								Radium over right mass		

TABLE 3.

OUTPUT OF BENCE-JONES PROTEIN BY TWENTY-FOUR-HOUR PERIODS.

Date	March 17	March 18	March 19	March 20	March 21	March 29	April 4	April 11	April 26	May 18
Specimen	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour
Amount, c.c.	1100	1245	1010	1385	1040	1900	1800	1650	1650	2000
Reaction	acid	alkaline	neutral	acid	acid	acid	acid	acid	acid	acid
Specific gravity	1.010	1.015	1.020	1.016	1.020	1.015	1.015	1.021	....	....
Bence-Jones protein, gm.	5.1	5.6	5.5	5.9	5.0	5.0	5.2	4.4	4.0	4.4
*Total nitrogen, gm.	5.44	4.75	4.7	4.15	....	6.9	6.5	6.3	7.3	....
Creatinin	....	....	....	0.61	0.61	....	0.75	....	0.64	....

*Total nitrogen by micro-Kjeldahl method of Folin.

to 5.4 mg., of the urea to 109 mg., of the creatinin to 7.5 mg., and of the nonprotein nitrogen to 86 mg. for 100 c.c. (Table 4).

TABLE 4.
RENAL FUNCTIONAL DETERMINATIONS.

	Normal figures	March 4, 1921	March 12	March 14	March 19
Phenolsulphonepthalein test (2 hours), per cent	50 to 70	10	7	....	....
Blood uric acid per 100 c.c., mg.	2.5	....	....	3.24	5.4
Blood urea nitrogen per per 100 c.c., mg.	20 to 45	....	....	34.5	51
Blood creatinin per 100 c.c., mg.	2	....	....	3.3	7.5
Blood nonprotein nitrogen per 100 c.c., mg.	21 to 40	....	....	63	86

Because of the renal complication we believed that we could do little to change the course of the patient's disease and she was sent home to her family, with the request that she send us occasionally twenty-four hour specimens of urine for analysis. In these analyses little variation in output of the Bence-Jones protein has been found up to May 18, 1921 (Table 3). The patient consulted Dr. Gibson May 21. She refused to have a phenolsulphonephthalein test or to have any blood removed for functional examinations. Her systolic blood pressure was 150, the diastolic 70; the eye grounds were negative. Her husband states that the masses in the femoral regions are larger than before the radium exposure, that she has felt a great deal weaker, and has had frequent attacks of nausea and vomiting.

After a definite renal insufficiency had been proved a portion of the patient's blood serum was examined for Bence-Jones protein, by the method described by V. C. Jacobson, in which 10 c.c. of serum is kept at 58° C. for thirty minutes. A dense milky precipitate was removed by filtration. Four cubic centimeters of 10 per cent. sodium carbonate run over the filter paper dissolved the precipitate, a portion of which was added to 10 c.c. of normal urine. To this 1 c.c. of concentrated hydrochloric acid was added; a cloudiness appeared which became more pronounced at 60° C., and disappeared at 100° C. The amount of precipitate obtained was so small that no attempt was made to estimate its quantity.

The patient died August 19, 1921. Consent for necropsy could not be obtained.

Summary.—1. This case is of interest because it shows clearly a renal insufficiency of a marked degree appearing in a patient with Bence-Jones proteinuria, with a retention of the protein in the blood stream.

2. Radium exposure over two femoral masses caused no reduction in their size or in the amount of Bence-Jones protein excreted in the sixty-four days following the exposure.

BIBLIOGRAPHY.

1. Askanazy, S.: Über die diagnostische Bedeutung der Ausscheidung des Bence-Jones'schen Körpers durch den Harn. *Dent. Arch. f. klin. Med.*, 1900, lxviii, 34-53.

2. Decastello, A.: Beiträge zur Kenntnis der Bence-Jones'schen Albuminurie. *Ztschr. f. klin. Med.*, 1909, lxvii, 319-343.

3. Groat, W. A., and Brewer, R. K.: Bence-Jones Protein. A Preliminary Report, *Jour. Lab. and Clin. Med.*, 1916, i, 895-896.

4. Hopkins, F. G., and Savroy, H.: A Study of Bence-Jones Protein, and of the Metabolism in Three Cases of Bence-Jones Proteinuria, *Jour. Physiol.*, 1911, xlii, 189-250.

5. Jacobson, V. C.: A Case of Multiple Myelomata with Chronic Nephritis Showing Bence-Jones Protein in Urine and Blood Serum, *Jour. Urol.*, 1907, i, 167-178.

6. Thomas, J. J.: A Case of Myeloma of the Spine, with Compression of the Cord, *Boston Med. and Surg. Jour.*, 1901, cxlv, 367-373.

7. Walters, W.: Bence-Jones Proteinuria. Report of Three Cases with Metabolic Studies, *Jour. Am. Med. Assn.*, 1921, lxxvi, 641-645.

A CASE OF PERMANENT HOMONYMOUS HEMIANOPSIA FOLLOWING AN ATTACK OF MIGRAINE.

BY ALFRED WIENER, M.D.,

NEW YORK.

THE occurrence of an organic lesion in the brain, during or following an attack of migraine, has been reported by various writers. Some have reported aphasia, others cerebral palsies, and still others a permanent hemianopsia. It is the occurrence of a permanent hemianopsia in a patient of mine which has prompted me to place this case on record.

Such types occurring in young people are uncommon. Up to the present time, no satisfactory explanation has been offered just why such lesions should occur. In older people in whom arterial disease exists one might naturally expect that migraine might precipitate such a lesion.

In the transactions of the *Ophthalmological Society of the United Kingdom*, xxxiii, 1913, p. 138, A. W. Ormond reports two cases of permanent hemianopsia occurring after severe attacks of migraine. A short abstract of these cases follows.

CASE 1.—A female, aged 33 years, was subject for ten years to severe migraine. An unusually prolonged attack, lasting for three or four days, was followed by inability to see anything on the right side. The vision in both eyes is 6/6 with correction. The fundi are normal. The defect in the field is not absolute. The condition of fields has been stationary for five months, the date of the last note.

CASE 2.—A female, aged 52 years, had suffered from bilious headaches since she was eighteen years of age. When three months pregnant she had headache followed by sickness on July 20, July 27 and August 3. On the morning of August 4 she awoke with a headache and later in the day, after running to catch a train, found she could see nothing on the left side. On examination it was found that the vision in the right eye was 6/5 and in the left eye 6/6. Homonyous hemianopsia involving the left side of the field of vision was present. The fundi were normal. The Wassermann reaction was negative, and nothing was found wrong in the patient's general physical condition. Thehemianopsia was still present when examined seven months later.

The author offers as an explanation the occurrence of an arterial spasm of that branch of the posterior cerebral artery which supplies the visual centre. This results in a permanent interference with the visual function of that side, and so leads to blindness on the opposite side. In the *Neurolog. Centralblatt*, 1903 vol. xxii., entitled "Eine merkwürdige Complication eines Migraine-Falles," Hoeflmayer reported a case in a woman 57 years of age. The condition lasted one month, and then cleared up. He thought the condition a toxic one added to a neurasthenic exhaustion. Hysteria was ruled out. The cases reported by Fere, Charcot, and Infeld are such as make one believe that there existed organic lesions of the brain, in which migraine appeared as a symptom pure and simple.

In the *Journal of Nervous and Mental Diseases*, vol. xxxiv., 1907, J. J. Thomas reports three cases occurring in younger individuals.

Case 1.—A young woman, 30 years of age, had suffered for some time from periodical attacks of headache. After mental strain and worry, a severe headache followed by vertigo and loss of consciousness occurred. On the next day she suffered severe frontal headache with general numbness on the left side of the body, and slight paresis took place. For the first three weeks there was complete amnesia. She improved rapidly. Mental dullness and a weakness on the left side remained. In addition there was a left hemianopsia. The hemianopsia was permanent.

Case 2.—A single woman, 27 years of age, with neurotic family history had suffered from migraine for ten years. The sudden death of a sister brought on a severe attack. Paresthesia over the entire left side of the body was noticed together with a partial loss of power. This was accompanied by a loss of sight in the left field of vision. She regained her power but a left hemianopsia remained.

Case 3.—This young woman, 27 years of age, had a negative family history with the exception of the father, who suffered from periodical attacks of headache, beginning in youth, and continuing for many years. The patient's headache began at the age of twelve. During one of these attacks, occurring at the time of examination, a right hemianopsia was found. These headaches always occurred about two weeks after menstruation. The patient was free from all other nervous symptoms. A permanent hemianopsia remained.

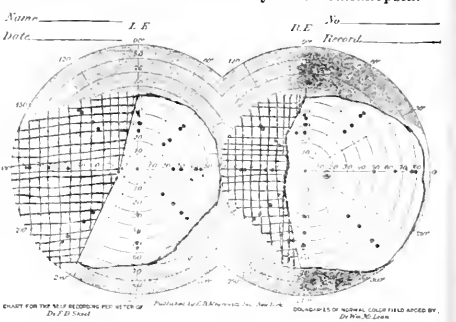
In reference to his own cases, Dr. Thomas says that in the first patient, judging from the history, viz., the father died of apoplexy and the mother of cardiac disease, the absence of heredity, and the nature of the attacks, the lesion might have been due to arterial disease. It is probable that the migraine was no more than an exciting cause for the vascular lesion, and possibly a symptomatic migraine. The second, and particularly the third case, seem to be clearly instances in which we can ascribe the cerebral softening to nothing else than an attack of migraine. In none of the cases was there any evidence of syphilis, kidney, heart, or arterial disease.

In addition to the above recital of cases, I am sure there are others, though I have not been able to find any accurate records of them. I am adding to this list, the history of my own case, which came under my observation at St. Luke's Hospital in the latter part of May.

This patient was a young married woman, aged 40 years. Her illness dated back to only a few weeks previous to the time that I first saw her. Suddenly while at work, everything became unsteady. There were dancing lights in front of her eyes. She could still see the utensils with which she was working. On looking around the room all familiar objects were plainly visible. She was much alarmed and went out into the street. She then found that she could see those objects which were directly in a straight line of vision, but those in the periphery were very indistinct. About two hours following the onset, she was taken with a severe headache. This lasted two days. She knows of no exciting cause, except that she thought it might have been due to the eating of a cake of yeast two hours previous to the time of the onset of the attack. There had been no respiratory, cardiac or gastrointestinal symptoms, and no urinary symptoms. She has been rather constipated of late, but was not previously so. She drinks three to four cups of tea daily; takes no coffee, drugs or alcohol. Previous history: She has been subject to sick headaches for many years. Some similar in character to the last attack of migraine. These have not been so frequent in the past six months. She has had no infectious diseases or operations.

Family History.—Married 17 years. Husband is living and well. Has four children living and healthy. One miscarriage after the second pregnancy. Her father died of fatty heart. Mother is living and well. Had an uncle who died of fits. Menstruation began at ten years of age; always regular and painless. Her period was synchronous with the onset of this attack.

Eye Examination.—Vision of right eye with a —3.00 sph. = 20/20. Vision of left with a —3.50 sph. = 20/30. Pupil ÷ Response to light, accommodation, and consensual reaction perfectly normal. Hemianoptic pupil reaction uncertain. There are no extraocular muscle disturbances. An examination of the fundi reveals nothing of any significance. Both discs are sharply defined and of normal color. The vessels show no anomalous condition and are not diseased. The fields show a distinct left homonymous hemianopsia.



There are no scotomata. An *x*-ray picture of the skull and sinuses showed no abnormal findings.

Our attending physician, Dr. Austin Hollis, who made a painstaking and careful physical examination of this patient, reported the following: "Patient is a well developed and well nourished woman 40 years of age. She is lying quietly in bed and not apparently acutely ill. There is no edema, no petchiae, no jaundice, no cyanosis, no rash, no dyspnoea. The temperature is normal. Posterior cervical, axillary and inguinal nodes can be felt. The thyroid is not palpable. Ears, nose and mastoid region externally are negative. The upper part of the mouth has a plate. The lower teeth are dirty and carious; the gums are retracted and pus is exuding from their edges. The tonsils are not enlarged nor unhealthy looking. The percussion of the heart is normal. There is no thrill, and the place of maximum impulse is normal in location. The heart sounds are regular and distinct. The radials are palpable and the pulse is full and compressible. The blood pressure is 105/70. The lungs are clear throughout to percussion and auscultation. There are no masses to be felt in the abdominal cavity. There is no tenderness. The liver, kidneys, and spleen are not felt. The extremities show no edema. There are no deformities. The biceps, triceps, knee and ankle reflexes are present and hyperactive. There is no clonus, however. There is a suggestive Babinski, Gordon and Oppenheim on both sides.

Urine Examination.—Acid, specific gravity, 1020; albumin, faint trace; no casts; no sugar.

The blood Wassermann was negative. Spinal puncture showed fluid under slightly increased tension; no cells to speak of. The spinal fluid, Wassermann and colloidal tests were negative.

Blood.—Red cells, 4,500,000; white cells, 8,700; differential, 72; eosinophiles, 3; lymphocytes, 25.

Here is a case of a young woman, with no evidence of heart, kidney, or arterial disease. No syphilis nor tuberculosis. All examinations are negative. With the exception of repeated attacks of migraine, this patient has been free from any serious disease or complaints. During a severe attack of migraine she suffers a left hemianopsia from which she at the present time shows not the slightest improvement.

Remarks.—We know that migraine itself does not involve any danger to life. The vascular disturb-

ance however, may in time lead to local vascular degeneration, and this explanation, according to Gowers, may account for the vascular lesions of the brain seen comparatively early in the degenerative period of life. He believes that this is likely to occur in a part of the brain which has been the seat of a periodical functional derangement, like migraine. In my own case we have such a history. Eventually, after a severe attack a permanent hemianopsia remained. As no anatomical changes are known to underlie migraine, the nature of the malady is an inference. Gowers tells us that there are two chief theories which have been held regarding the attacks of migraine. The one is based on the state of the alteration of the blood vessels. As it was found that this condition varied in different people, the Germans, Eulenburg especially, urged that we consider two varieties, viz., the sympatheticotonic and the sympatheticoparalytic. The other chief theory is the one advanced by Moebius and Liveling. They believe that migraine is due to a primary derangement of the nerve cells of the brain. Their function from time to time is disturbed in a peculiar manner, and the visible vasomotor disturbance is of secondary origin. Most authors, I believe, are now agreed to the fact that migraine attacks are due to plain vasomotor disturbances, brought about by some toxemia.

I feel inclined to accept the following explanation in the above case. A vasoconstriction, sufficient to produce an ischemia, resulted in a destruction of the visual area and a probable softening of the same. Whether the eating of the yeast may have been a factor, or some toxemia which resulted in an unusual viscosity of the blood, thus encouraging the formation of a thrombus in such a constricted vessel, is simply a suggestion offered for consideration. It is well to bear in mind also that the last attack of migraine, preceding this occurrence of permanent hemianopsia, occurred during the menstrual period, when we know that the viscosity of the blood is naturally raised.

550 Park Avenue.

FURTHER STUDIES ON THE APPLICATION OF OZONE TO THE PURIFICATION OF SWIMMING POOLS.

By WALLACE A. MANHEIMER, Ph.D.,

NEW YORK.

SECRETARY, AMERICAN ASSOCIATION FOR PROMOTING HYGIENE AND PUBLIC BATHS.

The application of ozone to the purification of swimming pool water has been under the writer's observation for the past five years. In a comparison of methods for disinfecting swimming pools[1,2] preliminary results were set forth in tests on drinking water. Subsequently the results of tests performed in a miniature pool were reported.[3]

During the latter part of 1917 a large installation was made for experimental purposes in the Twenty-third Street Municipal Bath, New York City. The details of installation, bacterial data, and cost data were reported in the U. S. Public Health Reports March 1, 1918. A summary of these results in part, follows:

3. Ozone when properly applied to the water of a swimming pool effectively purifies the water. When one part of ozone per million parts of water is used, the result is sterile water. When half part ozone per million parts of water is used, a bacterial reduction of 99.8 per cent. results, except when too great an excess of air is introduced with the ozone.

4. A study of the cost of operation of the ozonator has shown that a current consumption of two (2) kilowatts per day with alternating current, and of four (4) kilowatts per day with direct current, plus 1 cent a day for calcium chloride, represents the total operating cost for a 60,000 gallon pool. This amounts to 11 to 15 cents a day for alternating current (at 5 to 7 cents per kilowatt) and to 21 to 29 cents a day with direct current. The cost of refilling the pool is at least $30. The use of the ozonator decreases the number of times the pool must be emptied to such an extent, that the cost of the installation is soon paid for.

5. The application of ozone to the purification of swimming pools is automatic in control, reliable in action, and inexpensive in application. Accordingly we recommend the consideration of this chemical as a standard procedure in the sanitary control of swimming pools.

An extensive series of tests conducted over a period of three weeks was reported later[4], in order to demonstrate the reliability of the process under the varying conditions which obtain in a large swimming pool. The conclusions resulting from these tests were as follows:

"Ozone is recommended for swimming pool purification because:

"1. It is reliable as a disinfectant.

"2. It is capable of purifying heavily polluted pool water.

"3. It produces no objectionable substances in the water.

"4. It improves the appearance and transparency of the water, permitting a longer continued use of the pool, a consequent reduction in the cost of maintenance and a reduction in the hazard of drowning.

"5. It is inexpensive in application."

Additional reports and tests[5,6] were published confirming the above conclusions.

Tests at U. S. Military Academy, West Point, N. Y.

A large ozone equipment installed in the swimming pool of the U. S. Military Academy at West Point came under the writer's observation during the early part of 1920.* Series of tests were taken and sent to the Research Laboratory of the New York City Department of Health.† A summary of these results follows:

The bacterial counts of the water from the deep end of the pool were comparatively low at all times. The counts after filtration showed a noticeable and dependable reduction. The counts after ozonation were as low as average drinking water counts and B. coli were entirely eliminated.

The ozone plant at West Point has been in operation now for over two years and has given continuous and uninterrupted service. In a personal communication to the writer, Col. Timberlake states, "The system is working satisfactorily and no complaints have been received relative to any defects in this system."

*The writer desires to express his thanks to Col. E. J. Timberlake for his kindness in permitting and assisting in the tests herewith reported.

†These tests were made by the Research Laboratory of the New York City Department of Health through the courtesy of Dr. William H. Park, Director.

Sample from	Total Bacterial Count			Gas Produced in Lactose Broth				B. Coli	Interpretation
	at 37°	at 24°	acid col.	by 10cc	1cc	1/10 cc	1/20 cc	present	
Deep end of pool	27	350	2	50%	trace	0	0	1cc	fairly clean
Deep end of pool	23	380	0	0	0	0	0	0cc	clean
Deep end of pool	3	400	0	0	0	0	0	0cc	clean
after filtration	27	125	2	0	0	0	0	0cc	clean
after filtration	14	135	0	10%	0	0	0	10cc	fairly clean
after filtration	4	150	0	0	0	0	0	0cc	clean
after Ozone	17	10	0	0	0	0	0	0cc	clean
after Ozone	18	49	0	0	0	0	0	0cc	clean
after Ozone	11	60	0	0	0	0	0	0cc	clean
Tap water control	10	52	0	0	0	0	0	0cc	clean

TESTS AT CLEVELAND CENTRAL BRANCH, Y. W. C. A.*

An extensive series of tests by the Department of Health of the city of Cleveland were conducted in order to test the efficiency of the ozone disinfecting plant. The tabulated results are herewith reported.

TABULATED RESULTS OF THE BACTERIOLOGICAL EXAMINATION OF THE Y. W. C. A. SWIMMING POOL, MAY 9, 1921.

Sample No.	Source	Day	Number of colonies per c.c. on 1% lactoseagar plates	Gas production in 1% lactose bile		10cc
				1/10cc	1cc	
				%	%	%
13142	Pool	4 25	1440	0	bub.	10
13143	Filter	4 25	75	0	0	100 Anaerobic
13144	Ozon.	4 25	3	0	0	0
13147	Pool	4 26	9280	0	0	bub.
13148	Filter	4 26	1920	0	0	10
13149	Ozon.	4 26	0	0	bub.	10
13157	Pool	4 27	Overgrown	0	0	10
13158	Filter	4 27	275	0	0	10
13159	Ozon	4 27	0	0	0	0
13166	Pool	4 28	Inumerable	0	0	bub.
13167	Filter	4 28	1760	0	0	0
13168	Ozon.	4 28	6	0	0	0
13177	Pool	5 2	1190	0	0	15
13178	Filter	5 2	235	0	0	60
13179	Ozon.	5 2	3	0	0	0
13184	Pool	5 3	Inumerable	0	0	bub
13185	Filter	5 3	1860	0	0	0
13186	Ozon	5 3	4	0	0	0
13193	Pool	5 4	11720	0	50	15
13194	Filter	5 4	4960	0	bub.	35
13195	Ozon.	5 4	1	0	0	0
13197	Pool	5 5	Inumerable	0	0	10
13198	Filter	5 5	8900	0	0	bub
13199	Ozon	5 5	11	0	0	0

In the eight series of tests reported the gross bacterial count after ozonation dropped to 3, 0, 0, 6, 3, 4, 1, and 11. *B. Coli* were entirely eliminated.

A similar installation was made in the Lincoln High School, Lincoln, Neb. No copies of recent tests were available at this time. Dr. H. H. Waite, State Bacteriologist, however, in a personal communication, stated, "After the installation of the ozone equipment I made a number of tests to determine its efficiency and found that it was accomplishing all that had been claimed for it. The number of bacteria in the pool was low and the colon bacillus was entirely eliminated."

The Twenty-third Street Bath, originally installed as an experimental plant, has with a few modifications been retained as the permanent apparatus for disinfecting the pool. After a period of nearly four years this plant continues to operate satisfactorily both from the points of view of its bacteriocidal efficiency and its control from an engineering and practical standpoint.*

Conclusion.—The reports of the writer as well as those of several other investigators have shown that the application of ozone to the purification of swimming pools is satisfactory from the practical engineering, and sanitary standpoints.

*The writer is indebted to the City Bacteriologist, Cleveland, Ohio, for the extensive series of tests herewith reported.

REFERENCES.

1. *Jour. Inf. Dis.*, 1917, 20, p. 1.
2. *American Physical Ed. Rev.*, January, 1917.
3. *Mind and Body, January*, 1918.
4. *Jour. Am. Med. Assoc.*, June 29, 1918, vol. 70, pp. 1991-1992.
5. *Med. Rev. of Rev.*, July, 1918, vol. xxx, No. 7, p. 395.
6. *Boston Med. and Surg. Jour.*, vol. clxxlx, No. 21, p. 642, Nov. 21, 1918.

1776 WEEKS AVENUE.

QUINO-FORMOL SOLUTION IN THE TREATMENT OF INFECTIONS.†

BY JAMES T. PILCHER, M.D.,

BROOKLYN, N. Y.

THE formation of any new procedure or agent must have a *raison d'être* for its conception. The mechanico-chemical solution which I wish to discuss was primarily conceived during the height of the Chateau Thierry push, owing to the obvious ineffectiveness of Dakin's solution in the treatment of gas gangrene cases with which our wards were filled, and which at that time were subjected to amputations as the only means of saving life. The reason for failure is easily appreciated when one considers the basic pathology of the condition, in that a toxic fluid is first developed which spreads longitudinally along a muscle fiber, between it and the interstitial tissue, killing off the former as it advances, and that it is only after the death of the fiber itself takes place that the anaerobic bacteria invade it acting merely as saprophytes, catalyzing the sugar contents with the consequent formation of gas. The treatment indicated then, appeared to us to be one which would deplete the muscle sheaths of their imprisoned toxic fluid, and sterilize the wound surfaces at the same time.

The use of any solution presupposes the primary employment of the most thorough surgical procedures, and should be used as an adjuvant in the treatment and not allowed to be considered in the rôle of the principal agent—such solutions are not "cure-alls" and must in all instances be used with judgment.

The mechanical problem had apparently been met previously by Colonel Wright in the use of an hypertonic salt solution, although its continued use so changed the local physiological and chemical reactions as to render its ultimate effects harmful. The reason was that the 5 per cent. solution employed was too strong. It undoubtedly does act as a very effective lymphagogue. Its beneficial

*From a communication of Col. Frank H. Hines, Superintendent of Public Buildings, New York City.

†Read before the Alumni of the Mayo Clinic, Rochester, Minn., May, 1921.

action is particularly marked and grossly noticeable where the tissues are lymphbound, infiltrated, and sloughing. It further inhibits protein coagulation and thus prevents the sealing of the wound surfaces. Thus not only is the infected tissue depleted of its toxic fluid, but the spent lymph and inhibited phagocytes are drawn out into the wound and replaced by lymph in which the bacilli present become susceptible to phagocytosis. Again this strong solution caused edematous and unhealthy granulations. The salt solution however does not appear to act as a real germicide. This is to be accomplished in two ways, namely, by bringing active leucocytes to the wound surface or by introducing into the wound some active germicidal agent. The former we accomplished by using a much weaker salt solution and the latter by adding to it a modification of Major Taylor's solution and adding formol and thymol.

The antiseptic problem had been attacked by many methods. Major Taylor evolved a solution of quinine and acetic acid which did not appear to have the irritating properties of other solutions in current use and which was apparently fairly effective. It was thought therefore that by modifying and combining these two formulæ that we would have a basis upon which to work in order to more correctly meet the problem. The hypertonic salt solution was reduced to 1¾ per cent., hydrochloric acid was substituted to put the quinine into solution, and formol and thymol dissolved in alcohol added, not only because of their antiseptic action but because they also very definitely prevented muscular disintegration and materially reduced the presence of the essential media for further bacterial growth.

Our hypotheses were apparently justified by the immediate decrease in the number of amputations, following the use of this quino-formol solution. They indeed became so infrequent as to cause remark. Certainly a great many useful limbs were saved which otherwise unquestionably would have been sacrificed.

The formula eventually found to give the best results consists of

Quinine sulphate	1 gm.
Hydrochloric acid	.50 c.c.
Glacial acetic acid (99 per cent.)	5.00 c.c.
Sodium chloride	17.50 gm.
Formol (40 per cent.)	1.00 c.c.
Thymol	.25 gm.
Alcohol (90 per cent.)	15.00 c.c.
Aqua q.s. ad.	1 liter

It is used exactly as Dakin's solution is employed.

The solution is absolutely unirritating to the skin and mucous membranes. It is stable and capable of concentration. The strength of any of its constituents may be increased or diminished at will, without impairing the action of the other ingredients. It is very easily prepared and is not expensive.

In a preliminary report (*Annals of Surgery*, Nov. 1918) is to be found a detailed account of the character of wounds treated and the results obtained in military hospital work in France.

Since returning to civil practice it has been used by me with the most pleasing results in the treatment of a great many conditions. Stone reports that its use in a large series of empyemas has given better results than he was able to obtain in controls on which Dakin's solutions was used. Several of the Brooklyn Hospitals use it in the majority of their infected wounds. The nose and throat men prefer it, particularly in sinus work, to any of the irrigating solutions previously used. In carbuncles, impetigo and furunculosis its action is most satisfactory, and in all instances of lymphadenitis, cellulitis and phlebitis in which it has been employed the beneficial results have been almost immediate. In such cases one uses a continuous wet dressing of quino-formol, which is most simply applied by laying Carrel tubes over a single layer of gauze next to the skin and then covering them over by more gauze.

Captain Fauntleroy, U. S. N., reports that it has proven of the utmost service in the treatment of very extensive burns, with large areas of sloughs, such as occur in severe scalds in which class of cases he has had an extraordinary experience.

There is nothing which gives better results in the treatment of compound fractures, indeed we have closed two widely opened knee joints, primarily full of filth, after two days preliminary treatment with this solution. It makes an ideal immediate treatment of a mangled, infected hand or limb resulting from industrial or railroad accident, and, being a stable solution, it may always be kept ready at hand in a first aid armamentarium.

These observations are therefore offered for your confirmation and with the hope that in its use may be found a lessening of some of the tedium which so frequently attends the treatment of infective processes.

145 Gates Avenue.

REFORM OR FANATICISM?

By LUCIUS FELIX HERZ, Ph.B., M.D.,

NEW YORK.

Within recent years, we have been deluged with laws intending to improve the human race, and while good in theory, are often worse than no laws, in actual practice,—because those who wish to break them chafe at the restrictions imposed, and generally break them. In all cases, education, and proper exercise of will power would be far more effective than such laws. The three fields in which these laws have been passed are sexual morality, drug addiction and alcoholism. In all three cases, the problem is far from solved in spite of all the laws we have passed.

In the case of sexual matters, we have wiped out the "red light" districts. We have abolished the brothels. We have stopped soliciting upon the streets. Have we wiped out venereal disease? Most emphatically not. The clandestine prostitute has been with us since history began, and will continue to be with us until we are considerably more advanced in civilization. Education in regard to sex hygiene is a long step forward. Suppression of books on sexual topics,—when they are written in a clean, scientific manner, without any ulterior motive, and with the real object of enlightenment and sparing marital unhappiness,—is a long step backward. It brings

us back to the middle ages. Birth control should be permitted, as large families are unfair to both the mother and the children, and neither would be in fit physical condition to be a true asset to the race. However, disinclination to have any children at all should be vigorously condemned, and by proper education, this undesirable feature should be eliminated. Our reformers of the type of Anthony Comstock, who receive erotic sensations when gazing at pictures of the Venus de Milo, are sexual perverts, pure and simple,—more simple than pure, and should be placed where they can do no harm, rather than making them arbiters of our morals.

In the field of drug addiction, the Harrison Act is excellent in theory, while in practice it leaves much to be desired. A physician who is conscientiously treating a drug addict, with the earnest desire to cure him, may be convicted by a jury of laymen of practising in bad faith, and may be sent to jail. The majority of physicians have been so terrorized by court decisions, and the opinions of reformers within our own profession, who attempt to tell us the correct way to practise medicine, that the greater part of the medical profession will not treat addicts at all. As a result, most addicts receive unlimited supplies from peddlers, and go their own way, drifting from bad to worse. The excuse that the reformers give is that drug addiction cannot be treated satisfactorily except in hospitals. Then, they calmly admit that those treated in hospitals generally have relapses! If drug addicts are to be treated solely in hospitals, let us provide enough hospitals for them, or keep quiet. If every hospital in the country would turn out all its other patients, and accept nothing but drug addicts, we would still have to look around for more places to put them. What are we going to do? Is it not better to use a less effective treatment, but one that cures a definite percentage of cases, than to leave them entirely to their own devices as we are now doing? The majority of cases are not cured by either institutional or ambulatory treatment. However, those possessing sufficient will power can be cured by either method. Gradual reduction, combined with supportive measures, is a recognized method of treatment, and should be permitted. A drug addict is usually of a subnormal type, bordering upon insanity, and hence extremely difficult to cure. But why destroy a method of treatment, when we have not the means or facilities to provide something better?

The drug addict's clinic that had been tried in New York City was unsuccessful for several reasons. In the first place the clinic was conducted by State Commissioners, of whom only one was a physician, and the rest politicians. They got out beautiful sets of statistics, but accomplished nothing of practical value. They were unable to eliminate the peddler, and peddlers were present within a few yards of the clinic ready to supply addicts with more than their allotted dose. Those who took institutional treatment were forced to wear prison garb and were treated as prisoners, even though they had committed no crime. As a result, their morale was poor, and they easily fell prey to the ubiquitous peddler, ready to meet them upon the dock, as soon as they were discharged. The social service part of the institution was entirely neglected.

If our state narcotic commission had been composed of four physicians and one lawyer, probably something constructive would have been accomplished. There has been less progress in the field of narcotic addiction than in any other branch of medicine. Considerable research is indicated. Chemical blood analyses, basal metabolism, studies of shock upon sudden withdrawal, and a careful comparison of the several institutional methods of treatment are all indicated, and their results checked against a number of patients given the ambulatory treatment, in an institution, so as to guard against deception. We will then have a working basis, can standardize our methods, and know definitely the percentage of cures in institutional as compared to ambulatory cases. If the institutional method offers a vastly larger number of actual cures, let us gradually adopt that method, as soon as we can get the necessary number of institutions. There will be, of course, a vast number of institutions required. In the meantime, the other cases must be taken care of in some way, and let us give them the ambulatory treatment, under close supervision. Give them identification cards, force them to be registered, photograph them, even finger-print them, and make it impossible for them to obtain doses from more than one doctor. Give all peddlers heavy jail sentences. Insist that physicians and druggists act in good faith—that is actually try to cure the addict by a reduction of the dose, and that druggists take pains to see that no deception upon the part of the addict, such as getting it for a friend, takes place. I am sure we would obtain encouraging results.

Recently there appeared an article in one of our leading medical journals by a physician who is a member of the narcotic control committee of our State Medical Society. He strongly advocates institutional methods, as he has a right to do. He attempts to back his arguments in favor of immediate complete withdrawal by a statement of a convicted felon, not an addict, who states that drug addicts do not suffer when complete withdrawal is practised. Anybody who has made even a superficial study of this type of case, knows that this is untrue, that they do suffer, and suffer cruelly. They have abdominal cramps, pains in the back and legs, diarrhea, vomiting, the skin breaks out in in a cold sweat, the entire body trembles, they frequently faint, and a few cases of actual death have occurred. The addict is in such distress of mind and body that he would even commit a crime, although it be his first one, in order to obtain his supply of drug. Shall we as scientific men accept the word of a convicted felon with no medical training, or shall we accept the word of Sir William Osler, who states: "The sufferings of the patients are usually very great, more particularly the abdominal pains, sometimes nausea and vomiting, and the distressing restlessness." Osler, by the way, advocates gradual withdrawal. The physician who wrote the article that I object to has every right to his own opinion.

He has, however, no right to tell the rest of his profession that his is the only method they should use, while also admitting that after his method the majority have relapses. Furthermore, he has no right to slur those members of our profession that try to cure addicts by methods different from his own, unless he can prove their method valueless. His *ipse dixit* does not suffice. I do not speak from personal motives, as I no longer treat drug addicts. Not that they do not need treatment, or that I have not the right to treat them, but because the "Pussy-foot Johnsons" of the medical profession have so succeeded in terrorizing their brother practitioners that it is not considered "respectable" to treat these unfortunate patients, and a physician, who from humanitarian motives treats them, frequently has his motives misconstrued, and is sent to jail by twelve laymen, misled by the eloquence of another layman—the prosecuting attorney. When I did treat addicts it was not for the money—nine times out of ten I treated them free and sometimes I actually lent them money. Our friend (?) who wrote the article before referred to is trying to insinuate that all physicians who treat addicts are human vultures and that they are treating them only to extort large fees and know they are not helping them. This is a vile slander against a noble profession.

I know physicians who are practising medicine without ever prescribing narcotics or dispensing them. They do so, not because they never need to, but in order to avoid the amount of keeping of records entailed, and because they do not even want a faint suspicion of prescribing for addicts on account of the odium attached to it. Cases of painful incurable carcinoma, they refuse to treat. That is carrying circumspection to extremes, but that is one of the results when an entire noble profession is treated with suspicion. Some of our would-be reformers would even pass laws prohibiting the prescribing of narcotics in cases of true pain. That law may still come. More surprising things than that have happened.

In regard to alcohol, it was perfectly justifiable to abolish the saloon. It was also advisable to stop strong liquors, because a certain percentage of our population abused them. It was not justifiable to stop beer and light wines. Drunkenness is a curse. The indulgence in moderation of slightly alcoholic beverages, is not only harmless, but often beneficial. Alcohol is a protein sparer and a preventer of tissue waste. It is therefore indicated in many fevers and many wasting diseases. Beer is a harmless beverage, a digestant, and a true food. It is rich in carbohydrates, dextrins, and also vitamines from yeast, besides being a stomachic on account of its malt and hops. Its pleasant taste stimulates the gastric juice and aids digestion. Williams recommends it as a galactagogue. Furthermore, it is our most harmless soporific. In cases where beer is ineffective ale or stout will rarely fail. It is entirely devoid of depression the next morning, such as all other soporifics and sedatives, even bromides, give. By eliminating its use we are forced against our wishes to prescribe more harmful medicaments. I see that our newly elected Chief Justice of the Supreme Court, William Howard Taft, at one time advocated the use of beer and light wines. I hope he has had no reason to change his mind.

As to reformers, the professional reformer is generally a paid propagandist, who earns his living by lecturing upon the subject. Backing him are our narrow-minded extremists, who would give us Sunday Blue laws, regulate the dress of women, stop prize fights, etc. I would suggest that all reformers be first psychoanalyzed. We will then discover what particular disappointment in their own lives determined them to destroy all joy in the life of others. After a proper classification of these human neoplasms has been made I would suggest that they be sentenced to spend the rest of their life in a place where all agreed with their views—Zion City, for instance, having no drinking, no smoking; women wearing dresses trailing the ground, etc. Not seeing any evil left in life, these reformers would soon find no more joy in trying to destroy evil, and so as their mainstay in life, publicity, would be stopped, they would soon grieve themselves to death and would die forgotten and unmourned.

441 WEST FORTY-FOURTH STREET.

SENSITIZATION TO FOWL PROTEIN MISINTERPRETED AS OF MENTAL AND NERVOUS ORIGIN.

BY JAMES L. TRACY, M.D.,

TOLEDO, OHIO.

THIS paper aims to record data that will be helpfully diagnostic of the condition of sensitization to fowl, that were gathered from a mistake in diagnosis. Singularly enough, scientific conclusions are reached only through the analyses of mistakes. While many diseases may be diagnosed by a single glance at the patient; and while a like glance at the charted temperature, pulse, respiration, and blood-pressure is sufficient for the diagnosis of other diseases, the scientific fact remains that such skill has been obtained at the price of many miscalculations.

The process of ferreting out data of real diagnostic worth, from anomalous or not well understood disease conditions, is bound to be time consuming. No individual case contributes very much. Of course, too, disease conditions may be anomalous or regular, depending upon whether the type of medical skill employed in making the examination be of narrow, or of broad observation. One grade of skill has not yet formulated data, while the other has; one is making diagnostic mistakes in the present, the other has made them in the past. Other than in the vague statement that emanations from fowl may produce asthmatic conditions, I do not know of any data regarding human physical effects from sensitization to fowl that are aids to such diagnosis.

Then, given such data, there is the confusing fact that the physical effects from sensitization will vary in different persons, as do the different mental and nervous peculiarities that invite the sensitization. There would still remain the problem of properly classifying the individual patient with the corresponding type of sensitization so that to publish the data in one case, as is done here, may not

be of great help in diagnosis in any other one case. But to record the different sensitization effects, as they show up in people of different temperaments, may after a while work out a composite picture of sensitization to fowl protein that will be of diagnostic value. The following is the report of the case:

Manifestly to know all about the personal history of the patient is of prime importance. In this case, however, the clue given by a long acquaintance with the patient, a man, actually contributed, as was seemingly demonstrated later, to the covering up of the real source and cause of the disease conditions. I have known him all his life. There is nothing contributory in his personal habits, except possibly the fact that he chews tobacco and smokes two or three cigars a day.

He is 32 years old, 6 feet tall, and weighs 125 lbs. He is a telephone operator, receiving police messages. For two years he has been working night tricks from 11 P. M. to 7 A. M. He thinks the nature of the telephone messages makes him nervous. He has had attacks of follicular tonsillitis (submerged tonsils) several times a year; sometimes bronchitis sets up, but seldom lasting more than a week.

He was married seven years ago. I take it that all physicians have noted the change in facial expression of a young man when his wife has become pregnant! The expression is hard to define, but added responsibility, thoughtfulness, ageing, etc., are shown in the face. This change of expression was very noticeable during his wife's first pregnancy, increased in the second, and very marked in the third pregnancy. Once only during the last pregnancy, and that in the early part of it, did he come to me about himself. But every month or so he consulted about his wife, at which times his facial expression and evident mental perturbation were matters of interest to me. Normally, the man is easily excited, easily angered, but the excitement and anger soon pass.

The Functional Disturbances.—A month before the expected confinement, he came to me about his own condition. As he put it, "He came because of shortness of breath." In coming he had walked a half square. Standing, respiration was 60 a minute. Pulse 140. Reclining, respiration 50, pulse 120. Inspiration and expiration were normal in rhythm. Pulse was regular. Temperature was 96° F. at 9 A. M.; blood pressure 96 and 58. Auscultation detected no râles in any part of the lungs. The very thin chest walls made critical examination of respiratory sounds easy. There was a vesicular murmur over every part of both lungs; but the murmur was lessened, and gave the impression that aeration was increased. Possibly this increased aeration resembled the vesicular murmur in asthma, though there was entire absence of the bronchial sounds of asthma. Respiration was easy, free, regular, and satisfying as far as it went. There was no pulmonary spasm, hence there was not the air hunger as in asthma. Apparently there was no bronchial congestion. The action of the diaphragm was not increased. About two spoken syllables to a respiration were as much as the patient could voice. The act of talking would frequently cause coughing, which was violent and lasted for a half minute, but without expectoration. The quality of the percussion note was normal, but everywhere increased. The intercostal spaces bulged slightly upon inspiration, while vocal and tactile fremitus were lessened.

The heart sounds were normal, with no heart enlargement or displacement. Heart action regular. There was no edema or cyanosis, except that the tonsils and fauces seemed darker than normal. The body surface was pale, but the lips were of a healthy color. Patient had been noticing frequent periods of shortness of breath upon slight exertion for a long time. He thought he might have noticed difficulty in breathing for the past seven months, but as he was principally troubled when going upstairs and when walking fast, he had not paid much attention to it. He apparently had had many coughing spells during that time. I judged that the coughing spells reported had resembled the attacks I was witnessing as he talked to me. I was completely misled regarding the nature of these coughing spells.

As I had never seen any combination of symptoms such as his trouble presented, I diagnosed his condition as a bizarre psychosis production; and thought he would get well after his wife's confinement, and so told him!

Subsequent Course of the Trouble.—Two months after my first examination, and one month after the confinement was over, he was examined by a throat specialist. Nothing more was found by the examination than has been mentioned above, except that all the conditions were a little more aggravated, and a nasal condition existed that resembled atrophic rhinitis. The specialist agreed with me that it was possible that the trouble had originated in the tonsils, and advised their removal as soon as the man could be put in condition safe for operation. He prescribed for the nasal trouble, ordered the man to bed, and recommended morphine to quiet and relax the nervous tension. Digitalis and strychnine were also given. After a few days the patient became quiet and did little else but eat and sleep. He was soon taking three times as much food as before going to bed. Evidently he was assimilating the food. Too, he was making up for much lost sleep.

The nasal douches ordered by the specialist brought away, particularly in the morning, a great many crusts and much mucopus. He coughed considerably during the day, and upon awakening in the morning would be seized with an attack which would last incessantly for nearly two hours. A half dram of sputum showed only pavement and a few columnar epithelial cells. Temperature taken every three hours for a week never showed higher than 97° F.

After ten days' rest in bed pulse was 108 and respiration 36 when he was not talking and was quiet. The lung condition had not changed. Shortly after this the temperature and blood pressure began to very slowly rise, and at the end of the third week in bed the temperature remained at 98°, and blood pressure was 100. The nasal trouble was greatly improved. Coughing in the morning had entirely stopped and in every way he was very much better. Respiration, though, remained at 36. Then one day, while auscultating the chest, I heard the air enter the lung normally, while the patient was making an effort to take a deep breath. Respiration immediately came down to 20 and pulse to 84.

For recreation, this man sported with homing pigeons. He was around the house for a few days, and then walked out and into the pigeon house. Presently he came back coughing, and coughed incessantly for two hours. During this time there was a profuse discharge from the nostrils, and he expectorated large quantities of mucus. Temperature soon went to 102.5°.

Then! I obtained from the wife the information that every day since he had first had the pigeons—nearly a year—he had had a coughing spell every time he went into the pigeon house. Sometimes he was coughing most of the time, because he was often with the birds. The wife had often thought that the birds were in some way responsible for the attacks of coughing. The man's interest in the sport, however, would not let him entertain the idea. He told me that some of the birds had died of what he thought was tuberculosis, and that others had had "canker" (Roup), which he had treated. No specific infection, however, could be found in the patient.

In about ten days he had recovered from the condition and was again as well as when he went into the pigeon house. Then disregarding advice, because of his infatuation for his hobby, he went, but only looked at the pigeons. In a half hour he was again coughing as violently as before. After four or five days in bed and as many more sitting around the house, he was back again to normal. It took one more attack to convince the man!

Now, a diagnosis so tediously worked out legitimately raises the question as to whether or not the refinements of group practice, including basal metabolism and other tests, would have short-cutted to a diagnosis?

Data Diagnostic of Fowl Sensitization.—1. Sensitization to fowl is dependent upon a preexisting cell receptivity to fowl emanation.

2. The presence in the patient of mental and nervous peculiarities should suggest lack of cell integrity.

3. Absence of reasonable pathological foci as a cause for existing functional derangements points toward inept nerve cell condition.

4. The nerve cell sensitized to fowl works out the inhibition of the terminal distribution of the autonomic nervous system.

5. Frequent infection in some way ultimately brings about constant subnormal temperature, subnormal blood pressure, with the functional subnormal trend further showing up in the rapid work of the heart trying to make up for the air stagnation in the vesicles.

6. Sensitization to fowl differentiates itself from the asthmatic group in that (a) it is not a seasonal or periodic disease. (b) It is febrile in its commencement. (c) Nasal passages and large bronchi secrete profusely. (d) Bronchial secretion is easily expelled. (e) It is entirely free from bronchial spasm. (f) Single infection tends to recovery in ten days. (g) It leaves no structural change. (h) Complete recovery of all functions occurs after daily exposures extending over many months.

West Woodruff Avenue and School Place.

EDUCATION IN ITS RELATION TO THE USE OF MEDICAL KNOWLEDGE.

By H. S. BENNETT, A.B., M.D.,

WASHINGTON, D. C.

Is the term "Medical Education" a misnomer? There has been much written about and around the subject of medical education regarding the prerequisites for the general practice of medicine. No small amount of this discussion in print has centered in the question of medical economics as related to (1) the needs of local communities and (2) the ambition of aspirants to the medical field; and comparatively little stress has been laid upon the deeper need—unrecognized oftentimes—of the physiologic body as the dwelling of the individual consciousness. All of the varied forms of expression and the opinions advanced have been of value, as honest opinions must ever be, in showing the trend of thought and in acquainting us all at large with the composite individuality in our midst; but the cumulative effect upon my own mind has been to make me feel that licensure and not maximum efficiency has been regarded as the goal. If this is a fact, it is of course a grave error.

But what is the essential primary need for the attainment of maximum efficiency along any line of higher endeavor? Assuredly it is, first, the best material and, second, the ability to use that material to the best advantage. Obviously, with regard to the first, the material presented is largely the result of an autogenic conception of fitness on the part of the individual—the instances in which outside influences are brought to bear are comparatively so few as to be negligible. Time and attempted training will, to the conscientious aspirant, prove to be a selective process in which elimination will eventually contribute to other fields of endeavor and leave those to whom the second essential need is applicable. It is in the fulfilling of the requirements of this second need that I believe we find the *sine qua non* of professional efficiency upon which the best medical knowledge and training in the use of that knowledge will alone produce the desired end.

Up to this point we have not reached the medical school except as a distinct point of magnetic attraction but have to do solely with the individual and his development, morally, intellectually, and spiritually. In other words, we are ready to educate, *i.e.* to awaken, to develop, and to activate those genetic qualities and abilities which are already existent and which comprise the sum-total of all education except that obtained in the school of experience which is never closed. Quite distinct from, although allied to education is the acquirement of knowledge, and to furnish this is the function of the professional school.

This is true of all of the so-called learned professions, but of none is it true to such an extent or so dependent upon the undeviating order of its attainment as of the medical profession. In the practice of our profession we are dealing with not merely a finely adjusted and highly sensitive mechanism called the organic body, but with that triune entity called man in whom the will to do and to be is coexistent with his somatic elements and is correlated with, and dominated by, that supreme power under which the sentient man becomes the living being capable of reproducing his kind in the likeness of his Creator. We have to do with this triune being made further complex by association with others of his kind, each having his individuality with certain points of correspondence and contact which modify or accentuate, stimulate or retard the process that we see reflected in the end results known as "cases." In fine, we have a super-complex of direct and referred, related and interrelated psychic and somatic manifestations which, if once in disequilibrium, no amount of acquired knowledge or scientific training of a strictly medical nature can properly restore to its even normal balance.

Just as the "greatest study of mankind is man," so the greatest and essential study of man is himself, which alone can enable him to know and wisely treat his fellow man. There is inherent in man a modicum of mental equipment which is the possession of everyone and added to this there is, in individual instances, a variant of plus ability all of which, through the individual intellect, may become subjective knowledge, but I believe that every thinking mind will bear me out in the assertion that no knowledge may be claimed as a possession until the intellectual processes have become able to demonstrate it and to utilize its worth. In this respect, and in this only, knowledge is power—a power without which the mind is little more than a warehouse with doors locked, but with which it is enabled to illuminate the minds of others and to read thereby the story of their needs.

The correlative instincts of mankind—if I may use that term as applicable to psychic phases—trend ever each toward its known or unknown

counterpart, and toward the recognition and correct interpretation of these instincts the mind of the physician applies itself. He must be able not only to interpret to himself these instincts and their various trends but he should be able so to project his own mind into that of his patient as to draw out and interpret to him those feelings, thoughts and influences which are inducing either expression or repression with a maleficient effect.

To-day more than ever before within the memory of man we have to deal with the emotional complex—a condition in the train of which there follows an ever increasing number of symptoms which to the average practitioner point unmistakably to localized disease of either a functional or an organic nature, and a diagnosis is rendered and treatment initiated accordingly with the well known result of a long-continued attendance upon a series of varied recurrences following upon new developments accompanied by a resistance that falls in direct ratio to the length of such treatment. The patient is kept continually in hope by the temporary relief afforded and gladly pays for what he believes are slow but sure steps toward the goal of health. To the physician it is a lucrative procedure and is carried out in all sincerity of purpose and belief in the warrant and wisdom of his chosen course—for, bear in mind, I am not accusing any one of the medical profession of intentionally protracted treatment solely for his own monetary gain. In this very fact, however, lies the reason for a reform which shall, by diminishing ignorance on the part of the profession, increase the benefit to the patient and hasten his restoration to health.

But this ignorance, which might more properly be termed inability, cannot be diminished to the extent required by the further acquisition of technical knowledge; it represents an ignorance of the autogenetic in the physician as well as in his patient and an inability to utilize his full capabilities because of an ignorance of their existence. If Hahnemann's dictum, "Similia Similibus Curantur," is true as applied to the uses of Materia Medica, it is certainly true as applied to the correlated instincts, emotions, and tendencies of mankind which are intangible and undiscoverable save through a mutuality of understanding. How often have we heard the remark: "He understands me and helps me so much." There is truth and sanity in that statement, and the "help" comes not simply because he "understands" but because, by reason of that understanding, he has been able to neutralize the mental toxins of unrest and disproportion and thereby stabilize and clarify the perspective of life. After that we have a clear picture, be the condition simple or complex. The physician should be able to produce a sympathetic antidote for primary emotional ills and thus prepare and cultivate a physiological medium for the germination, growth, and ultimate fruitage of proper medical therapeusis.

Taken by and large, there is and can be no substitute for the preliminary general education which a first grade university offers to the prospective medical student, no matter how broad, thorough, or highly specialized the course of the medical college may be. The process of individual mental development, to be effective, must come at a period of life when the student is too young safely to enter a medical college; it should be among surroundings which are free from any restrictive influence, either real or implied, that would tend to build up a mental bias and hamper the outgrowth of a selective choice of avocation; and it should be under influences which would develop and solidify those immutable moral principles of life and conduct without which no one should be permitted to enter upon a course of training for the medical profession.

There is too low an estimate placed to-day upon the value of the man. The proportionate appraised value of his technical equipment to his moral worth is not a safe one. While there should be no limit placed upon professional efficiency, the high calling of the physician is such as to place within his free control all that is most sacred in life and most holy in conception, and demands the absolute subservience of personal ends to the highest type of Christian altruism. The time has come when it is eminently in order to renew our allegiance to those fundamental principles upon which rests the honor of the medical profession, and to do this without making every effort to safeguard it for the coming generations would be to shirk our responsibility and ultimately to defeat our purpose.

4127 Harrison Street, N.W.

Medicolegal Notes.

Liability of Charitable Hospitals as Regards Negligence of Servants.—In an action against a charitable hospital for injuries alleged to be due to the negligence of a nurse employed by the hospital, it appeared that the patient was a pay patient, who did not know that the hospital was a charitable institution, and who provided her own doctor. In an exhaustive opinion, in which it reviews the prior cases on the question of the liability of charitable hospitals for negligent injuries inflicted by their servants, the Supreme Court of Appeals of Virginia arrives at the conclusion, two judges dissenting, that the duty which the hospital owed to the patient in this case was the exercise of due care in the selection and retention of the nurse in charge of the patient; and that, negligence in respect of this duty not having been shown, no error was committed by the trial court in sustaining the defendant's demurrer to the plaintiff's evidence.—Weston v. Hospital of St. Vincent of Paul (Va.), 107 S. E., 785.

Error in Admission of Evidence Held Invited by Complaining Party.—In a personal injury case the petition alleged that the plaintiff's injuries were a fractured skull and concussion of the brain, and that as a result her entire nervous system had been seriously and permanently deranged, her vision, memory, and hearing had been impaired, etc. After a doctor had testified that he had seen the plaintiff about three weeks prior to the date of the trial, and made an examination of her, at which time he found that all the contusions and bruises had been cleared up, the defendant's counsel then asked the following question: "And, objectively, did you find anything objectively?" The defendant's counsel, after an answer had been given, insisted that the doctor state further, and the doctor testified that the plaintiff did not seem to have the full degree of intelligence that she ought to have. It was held that if the admission of this answer was error, it was invited by the defendant's counsel, who therefore could not complain.—Albert v. United Rys. Co. (Mo. App.), 232 S. W., 793.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Susbcribers.

New York, November 12, 1921.

SUDDEN DEATH IN STATUS THYMICO-LYMPHATICUS.

THE matured opinion of those who interest themselves in this subject is that the causes of sudden death in this state represent a congeries of restricted types rather than a single autonomous condition. It is conceivable that if the thymus has attained certain dimensions it may exert compression on the trachea and cause suffocation or chronic dyspnea according to the degree of pressure. A much smaller thymus could produce the same result by acting as a wedge between the sternum and trachea. In such cases there would have to be shown flattening of the trachea. But in some newborn infants who have evidently succumbed to suffocation the flattened trachea could not have been due to the pressure of the thymus, which was normal in size. The mere coincidence of enlarged or persistent thymus with asthma can hardly be due to compression, but to some other factor. The symptoms may be very mild and have no suggestion of obstruction.

Ryser, who attempts to throw new light on this subject in an article in the *Schweizerische medizinische Wochenschrift* for June 16, 1921, li, 24, says there is a syndrome of thymus pressure which comprises other organs besides the trachea in which the heart and vessels and nerve trunks may be involved. Compression of the important vessels and nerves in this area may presumably disturb the circulatory and respiratory rhythm and cause dyspnea and even possibly death by vagus compression. In cases of sudden thymic death so called, in the absence of symptoms of compression an exhaustion of the supply of adrenalin has been accused. It is known that in status lymphaticus the chromaffin system is often underdeveloped and to explain this coincidence it has been thought that the chromaffin and lymphatic systems are antagonists. Hypoplasia of the chromaffin organs is associated with general hypoplasia and functional insufficiency and many sudden deaths in the water, during mountain climbing, etc., have been attributed to exhaustion of adrenalin. In such cases the presence of hyperplasia of the lymphatic system is to be regarded not as a cause of death but as a mere index of the subject's physical constitution. In certain of these cases of sudden death the only find mentioned at autopsy is destruction of the adrenals. Death during chloroform narcosis may be due to the same mechanism, and in fatal preoperative fright in the absence of chloroform, adrenalin exhaustion has also been accused. Another endocrine factor accused in sudden death is hyperthymization, from hypersecretion of the often greatly enlarged thymus. Thymus extract is said to be a physiological antagonist of adrenalin. The author is no partisan of this view, for which there is only a meagre laboratory foundation. However, one may speak of a general perturbation of the endocrine balance in connection with sudden deaths.

Recently an advance has been made along these lines as far as a single type of cases is concerned. Riesenfeld has isolated a group of cases in children learning to walk who have made their first draft against the muscular reserve power. In autopsy following sudden death these children showed hypertrophy of the heart. Some form of status lymphaticus was present in each but there was no constancy of finds. Two out of five presented enlarged thymus and one hypoplasia of the adrenals. In a parallel case Celeen found that the myocardium was permeated with lymphoid tissue suggesting the cardiac lesions of lymphatic leucemia. But sudden death does not often occur in leucemia patients, so that we must assume that a defective heart muscle is itself part of the status thymicolymphaticus and its near congener the status hypoplasticus.

Professor Sternberg, who discusses the advances of our knowledge in this field in the *Wiener klinische Wochenschrift* for June 16, 1921, xxxiv, 24, introduces a note of scepticism. The doctrine of thymic death began with the discovery at autopsy after sudden death of an enlarged thymus, which fact was placed in association with socalled thymic asthma. Virchow decided that as a purely mechanical process thymic death was very rare and that other unknown factors were operative. Paltauf eliminated mechanical compression entirely, deciding that enlarged thymus was only one expression of a general constitution, the status thymicolymphaticus. The death of these patients, he thought, was probably due to heart failure. It was next learned that subjects with this constitution could be robust and vigorous. Among the many anomalies found in them was hypoplasia of the adrenals. Of great importance also was the discovery that hyperplasia of the lymphoid structures could end in atrophy. The picture of this status became widened to an exaggerated degree, so all those who perish suddenly from the most trivial causes, such as bathing and light narcosis, are placed automatically in this category. One result of the exaggeration has been a dissociation into lymphatic and true thymic cases. There are three conditions, known respectively as status lymphaticus, status thymicus, and a hybrid of the two. The

experience of the war has taught the great frequency of the first named. In fact it is so very frequent as to be almost universal and must be ruled out wholly as a factor in disease processes. It is in other words physiological to find hyperplasia of the lymphnodes in young men of military age. As a factor in sudden death it must be thrown overboard. The part in the latter of an enlarged thymus, with or without lymphatism, must be ascertained anew, but the outlook along this line is not promising.

THE SYMPTOMATOLOGY OF HERNIA OF THE FALLOPIAN TUBE.

In the majority of the reported cases of tubal hernia the condition was not suspected before operation. There is no pathognomonic sign which might give a clue to the diagnosis and many of the case histories merely give the symptoms of ordinary hernia. There is no variation in size with painful phenomena at the time of the menses, as is the case in hernia of the ovary, while during the intervals of menstruation an ovary in a hernial sac is the seat of a special sensitiveness, analogous to that of a testicle in ectopia, when pressure is made on the hernia. This is also wanting in cases of hernia of the tube alone, with very few exceptions. In one recorded case pain was present and a diagnosis of hernia of the tube was made. For some time the menses had been less abundant and palpation of the inguinal hernia gave rise to very sharp pain. Therefore, the symptomatology of this lesion requires little comment, but it is to be remarked that what symptoms there may be will differ in children and adults. In the child there is nothing to note but the physical signs. In the groin or labium majus an elongated, pedunculated tumor will be found directed toward the inguinal ring, which can be partially reduced or may be irreducible. Occasionally a rounded, pedunculated body can be felt which is assumed to be the ovary. But generally speaking the symptoms are those of ordinary congenital hernia.

In adults the great majority of cases offer no symptom by which the condition can be distinguished from ordinary inguinal or femoral hernia. The tumor varies in size from a walnut to a closed fist and when the intestine, omentum, bladder, or uterus is in the sac the size may be considerable. Some cases of tubal hernia in the adult have presented symptoms of affections of the fold of the groin. In one the lesion was mistaken for an acute abscess, in another for a bubo of venereal origin, and in a third case for an epiplocele. Even in three cases of tubal pregnancy forming the contents of the hernia a correct diagnosis was not made; therefore it is clear that the solution of the problem is one of great difficulty.

An examination of these cases from the obstetrical viewpoint should never be neglected; the external characters of the tumor should be noted and the functional disturbances ascertained. Vaginal examination and abdominal palpation may give some important data. The positions of the uterus and cervix are to be noted, and the ovaries must be located. If the uterus is drawn forward and to the side of the hernia, an ectopic tube should be thought of. In children, these diagnostic measures are out of the question. Cysts of Nuck's canal, fibromyoma of the round ligaments, and hernia of the ovary offer about the same symptomatology, excepting in the latter there are the periodical painful phenomena and swelling coinciding with the menses, and this should lead to the diagnosis of hernia of the ovary.

Should the tube in the hernial sac be the seat of cystic degeneration, or should it be in the midst of a mass of extravasated blood, the diagnosis cannot be made before operation. In some cases the tube is the seat of salpingitis, or of ectopic gestation, and in one reported case rupture of the tube had taken place into the hernial sac. In most cases strangulation occurs after a long period of tolerance. Sometimes the strangulation is sudden and is the first symptom of the tubal hernia. Adhesions are extremely rare, so that when strangulation does occur it is very acute and peculiarly serious. The tube, often in a pathological state, may pour its infectious products into the hernial sac through the patent orifice of its pavilion. It is needless to insist upon the causes and mechanisms of strangulation in these cases, as they offer nothing particular in tubal hernia; the phenomena are similar to those presented by ordinary hernia.

THE "NO MAN'S LAND" BETWEEN LIFE AND DEATH.

The subject of resuscitation from the condition of accidental death, as expertly diagnosticated, was treated recently in *Indépendance Médicale*, by Halluin of Lille, and is commented on by Cruchet, the editor of the *Journal de Médecine de Bordeaux* in the issue of July 25, 1921, xcii, 14. Halluin made some original investigations on animals killed by asphyxia or chloroform. Of death there could be no question, as controls are easily supplied in animal experiment. There is a short period of 15 or 20 minutes during which these animals may be revived completely and permanently by heart massage. The twenty-minute period is somewhat arbitrary, for in the case of certain dogs resuscitation was successful after that period. In one case an hour had elapsed after cessation of the heart beat, in another ninety minutes. But in neither of these two cases could the animals be kept alive after revival.

If we turn to the clinic, Halluin has a series of 81 collected cases of death following surgical operation in which resuscitation methods were tested. In 45 there was total failure. In the other 36 resuscitation was successful for the time, but in 19 cases it was not permanent. The remainder, 17 cases, were all eminently successful. These data are of enormous importance, says Cruchet. For one thing they show the presence of a borderline—a sort of

No Man's Land, during which resuscitation is possible with about an even chance that it will be permanent. But there is danger of a war of words, because someone will say that during this period the man is not yet dead. The comparative brevity of the interval, however, should lay the fears of those who fear inhumation alive. From another angle there is an apparent distinction between death following an accident, and death which is spontaneous. This No Man's Land—is it also present in death following pneumonia or other acute lethal affection? We know that when death seems inevitable and imminent in an acute illness, the subject is usually allowed to die in peace, and there is no attempt to give nourishment or even to stimulate organs which have apparently lost all ability to respond to treatment. No doubt to a layman it would sometimes appear that something more might have been done to prolong life for a few moments: and with life thus extended, who can be certain that something favorable might not have happened in the natural course of events?

Cruchet states that according to common sense a man is either dead or not dead. During the twenty-minute interval during which resuscitation is possible he is most certainly not dead; therefore he is still alive. But the public will be certain to make much out of this intermediate state, and in fancy prolong it to an hour, and then longer. It is one of the cases in which enlightening the public will return to plague the enlighteners and make them wonder if it is not better at times to keep certain knowledge esoteric.

INFECTION FROM SWIMMING POOLS.

Not long ago, in the newspapers of a large American city, there appeared a story to the effect that a boy had died of meningitis which his family physician ascribed to his habit of bathing in a municipal swimming-pool. This idea was at once taken up by the laity, of course, and a phobia of swimming-pools followed. For some time it made a good news story and much space was given to it. No so much room, however, was given to an open letter from the Health Officer of that city, published after he had made a complete investigation of the circumstances. He referred to the statement of the family physician and asked the latter if he had made any bacteriological investigation of the water in question, which had been frequently examined by the Health Department with negative results so far as related to the presence of pathogenic bacteria. He also called attention to the fact that the boy in question had had a middle-ear disease with a chronic discharge for some six months or so before the meningitis developed and asked quite properly whether the cause might not be sought there instead of alarming a community by guessing at a public bath as the source of infection.

While in this particular case it would seem that the pool was probably innocent, owing to the effective measures of the local Health Department, the discussion may serve to call attention to conditions not quite so ideal in other pools. The general public is too likely to regard a dip in a public swimming-pool as a sanitary and cleansing measure, ignoring the fact that the large numbers who use such a place must inevitably contaminate it. There is a popular lay idea, too, that sea-water contains in itself some substance that renders it mildly antiseptic. As a matter of fact, bacteriologists have repeatedly grown such organisms as *B. coli communis* from specimens of sea-water taken from an open beach. Naturally those enclosed sea-baths which exist at every seaside place are much more dangerous, lacking constant renewal.

It is probably true that a slight danger of infection can not be avoided, even with the most rigid cleanliness. Certain routine measures will diminish this danger to an almost negligible point, however. Refilling the tank in the morning and emptying it in the evening is of course the ideal, and where there are large crowds of bathers, it would be desirable to do this not once, but several times a day. The expense of this is, however, often prohibitive, and recourse must then be had to sterilization of the water. A very practical way of effecting this is by means of ozonization as described by Dr. Mannheimer in this issue of the Medical Record. This is Nature's method of purification of ponds and streams and man can hardly improve upon it. The precautions adopted in many private swimming pools, Y. M. C. A.'s and the like, are admirable, that is, the use of a cleansing bath before the plunge and the issuance to each bather of suits which have been cleaned and sterilized.

If purifying and preventive measures of this sort could be instituted generally in all municipal swimming-pools there is no doubt but that there would be some reflection of them in the morbidity statistics for those particular localities.

Fat-Soluble Vitamine and Plant Carotinoids.

The fact that animals must obtain their vitamines from plants has been brought into association with the belief that the yellow pigment of animal fat (lipochrome), including butter, is derived from the plant xanthophylls, which include carotin, the yellow pigment of carrots, yellow maize, etc., and the socalled carotinoids of the plant plastids. It has actually been shown, according to Palmer and Kennedy, *Journal of Biological Chemistry*, May, 1921, xlvi, 3, that this is to some extent a demonstrable fact, although at present it would be going too far to assert that all fat pigment is simply unchanged xanthophyll. Naturally the question soon came up as to the possible identity of the carotinoids and fat-soluble vitamine, and numerous experiments have been conducted with foods poor in the pigment. The results show beyond doubt that carotinoids have no vitamine functions. Two substances were especially used in the authors' experiments—the milk of ewes and eggs from a strain of White Leghorn fowls which had been fed always on foods free from carotinoids. Ewe's milk normally contains but a trace of these substances. The strain of fowl in

question had been fed since hatching on white corn, skim milk, bone meal and oyster shells. Only at long intervals were they given a little fresh pork liver, which contains lipochrome. The powdered yolk from the eggs of these fowls was quite free from coloring matter. When albino rats were fed on either ewe's milk or the eggs in question, they grew and developed as usual, showing plainly that these substances retained all of their fat-soluble vitamine. All fat-containing organs of the same animal were tested for the presence of carotinoids, and the latter were found to be completely lacking. Hence it appears to be evident that while animal lipochromes are closely related to plant xanthophylls, they have absolutely no connection with fat-soluble vitamine.

The Value of Drugs.

Has the value of drugs depreciated in the minds of the members of the medical profession? For some considerable time there have been those who have denied to all but a very few drugs any real therapeutic virtues, while there are cynics as to the merits of drugs, and there are even yet drug nihilists. Moreover, there have sprung up within recent years various other methods of treating disease and conditions of ill health, such as vaccine therapy, radiotherapy, and lastly those much overrated methods of diagnosing and treating certain affections, psychoanalysis and psychotherapy. All this at a first glance would seem to imply that belief in the efficacy of drugs in the treatment of disease has diminished. Perhaps, however, when the matter is looked into more closely it will be realized that it is not the use but the abuse of drugs that is on the wane. As is pointed out in a recent number of the *Prescriber*, it is drug superstition, a belief in the magic power of "something in a bottle," that is dying out and is being replaced by other superstitions, such as psychoanalysis. There are, indeed, a few drugs which are really specifics, or as nearly specifics as may be, such as mercury, arsphenamine, and quinine, not to mention certain sera and antitoxins, while there are not many who will deny the value of morphine in acute pain. Also when may a substance be differentiated as a drug? For example, sodium chloride is an article of diet in the first place, and is also used with good effect as an intravenous injection and in other therapeutic ways. In both cases its action is, to all intents and purposes, identical. Again, certain mineral salts and organic acids are contained in fruits. When fruits are not available these salts and acids are employed as drugs, so that in many instances the line of demarcation between drugs and foods is difficult, almost impossible to draw. Drugs are not out of date, but, on the whole, are more efficient than ever. What is required to place drug therapy on a sound basis is to reorganize the entire system, to weed out those that are useless and sometimes even dangerous, to improve and perfect those which have proved themselves of true value. Drugs also to exert their best effects must be prescribed with more or less exact knowledge of their action and especially must be furnished with discretion. It is sometimes the fault of the physician that drug therapy fails.

News of the Week.

Federal Board of Hospitalization Created.—Budget Director Dawes, with the consent of President Harding, has created a Federal Board of Hospitalization for the purpose of doing away with wasteful methods in the purchase of hospital and other surgical equipment for the hospitalization activities of the Army, Navy, Public Health Service, and United States War Veterans' Bureau. The duty of the board, as defined by Mr. Dawes, is to safeguard the Treasury against unnecessary expenditures by standardizing requirements for hospitals operated by the Government, to systematize building operations and the purchase of supplies.

Deaths From Motor Vehicle Accidents in 1920.—The Department of Commerce, through the Bureau of the Census, announces that during the year 1920, 9,106 deaths resulting from accidents caused by automobiles and other motor vehicles, excluding motorcycles, were recorded within the death-registration area of the United States, which area contains 82 per cent of the total population. This number represents a death rate of 10.4 per 100,000 population, as against 9.4 in 1919, 9.1 in 1918, 8.9 in 1917, 7.3 in 1916, and 5.8 in 1915. Between 1915 and 1920, therefore, the death rate per 100,000 population from motor vehicle accidents and injuries increased by about four-fifths. The actual number of deaths resulting from motor vehicle accidents in the twenty-five States from which data for 1915 are available increased from 3,571 in that year to 7,433 in 1920, the rate of increase being 108.1 per cent. During the same period, according to data obtained from the Bureau of Public Roads, of the Department of Agriculture, the number of registrations of automobiles, motor trucks, and commercial motor vehicles in the same States increased from 1,767,055 to 6,085,150, the rate of increase being 244.4 per cent. The death rate per 1,000 motor vehicles in use in the 25 States in question decreased from 2 in 1915 to 1.2 in 1920, being only three-fifths as great in the later as in the earlier year. In New York City last year there were 27,550 vehicular accidents, in which 23,279 persons were injured. Of these 864 were fatal. Almost three times as many men were injured as women, the men totaling 17,133 and the women 6,146.

Health Bill for Marriage in Spain.—According to the *Correspondencia España*, a bill has been prepared by the Minister of the Interior for introduction into the Spanish Parliament by which persons intending to marry will be compelled to produce a medical certificate showing that the would-be husband and wife are in good health.

Richmond Favored as Site of Merged Medical Colleges.—The Medical Society of the State of Virginia, at its annual meeting held in Lynchburg, Oct. 20-22, 1921, adopted resolutions favoring the merger of the medical department of the University of Virginia and Medical College of Virginia and the location of the institution in Richmond.

Surgeons to Make Radium Research.—The American College of Surgeons, at its recent meeting in Philadelphia, voted to devote a year of intensive research work in an effort to establish the value of radium as a cure for cancer. Specialists all over the world will be asked to furnish statistics

on the results they have obtained in the use of radium. A committee will soon be appointed to carry out the work, with a research director-general who will not only conduct experimental work in his own laboratory but will be constantly in communication with similar laboratories all over the country.

American Surgeons Honored by Royal College of Surgeons in Ireland.—At the closing session of the American College of Surgeons, held in Philadelphia during the week of October 24, Honorary Fellowship in the Royal College of Surgeons in Ireland was conferred upon eight Americans. Those receiving the honor were: Drs. George E. Brewer, New York; George W. Crile, Cleveland; John M. T. Finney, Baltimore; Robert J. Ochsner, Chicago; Charles H. Mayo and William J. Mayo, Rochester, Minn.; John B. Deaver, Richard Harte, and W. W. Keen, Philadelphia. The fellowships were conferred to Sir Harold J. Stiles, Sir William Taylor, and Sir Robert Woods.

Hospital Notes.—The Volunteer Hospital, New York, is facing foreclosure of a $65,000 mortgage on its building, and has other financial obligations bringing its indebtedness up to $150,000. A campaign is being conducted to raise funds to meet this indebtedness which, if not defrayed, will necessitate the closing of the hospital.

The entire fund for a new Community Hospital at Keene, N. H., has been pledged. Ground will be broken in April for the new building and the following December, it is believed, will find it completed.

Plans have been drawn calling for a building which will provide eighty beds as a part of the general plans for the enlargement of the South View Hospital, Milwaukee. The estimated cost of the addition is $160,000.

A new hospital is soon to be erected by Sacramento physicians with the aid of local capitalists, at a cost of $500,000. The present plans call for a 150 bed hospital with all modern conveniences.

Cancer Week in New York.—As a part of the observation of National Cancer Week during the first week in November, the American Society for the Control of Cancer, with headquarters in New York City, opened booths in the Grand Central Terminal and the Pennsylvania Station, where it circulated pamphlets explaining the nature of the disease and its cure. During the week over 4,500,000 pieces of literature were distributed, much of it in a house to house canvass. Many lectures on the subject of cancer were delivered throughout the city, the most important of which was one held at the New York Academy of Medicine on Nov. 2, at which Dr. Edward L. Keyes, Jr., presided. Addresses were made by Dr. Joseph A. Blake, Dr. Howard C. Taylor, Dr. William H. Woglom, Dr. Douglas A. Quick, and Mr. Wendell M. Strong, secretary of the Actuarial Society of America.

New Post-Graduate Courses Opened.—The new post-graduate school of medicine established at the Broad Street Hospital especially for ship's doctors desiring to obtain special instruction, has been opened. The first courses to be given are in electrotherapy and *x*-ray clinical pathology and diagnosis. Dr. William H. Dieffenbach is president of the school.

Dr. George Chaffee of Binghamton, N. Y., was presented with a case containing $222 in gold from the members of the New York and New England Association Railway Surgeons at the annual meeting of this organization held in New York on Oct. 29, in recognition of his faithful service to the association. He is founder, ex-president and corresponding secretary of the association.

Gifts and Bequests.—Under the terms of the will of the late Daniel J. Carroll, St. Vincent's Hospital and the Roman Catholic Orphan Society, New York, each receive a bequest of $100,000.

The Ohio Valley Medical Association will convene in Evansville, Ind., Nov. 15 and 16, 1921, under the presidency of Dr. Charles F. Souther of Cincinnati.

The Institute of Cancer Research (formerly the George Crocker Special Research Fund) of Columbia University, announces the appointment of a Consulting Board, the membership of which includes eminent biologists, chemists, physicists, statisticians, and surgeons who are interested in the experimental study of cancer. The surgical members of the board are Drs. William J. Mayo of Rochester, Minn., and Eugene H. Pool and George H. Semken of New York.

The American Electrotherapeutic Association and the New York Electrotherapeutic Society have arranged a mid-winter Clinical Session to be held Dec. 29 and 30, 1921, at the United States Public Health Service Hospital No. 61, at Fox Hills, Staten Island, N. Y. The purpose of this session is the demonstration of apparatus and its actual application, and of the results obtained by all physical modalities. Cards of admission may be obtained from Dr. Richard Kovacs, 223 East 68th Street, New York City.

Medical Society Elections.—THE NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS, at its thirty-first annual session held in New York, Oct. 29, 1921, elected the following officers for the ensuing year: *President*, Dr. Donald Guthrie, Sayre, Pa.; *First Vice-President*, Dr. J. K. Stockwell, Oswego, N. Y.; *Second Vice-President*, Dr. Edgar Vanderveer, Albany, N. Y.; *Treasurer*, Dr. J. M. Hamilton, Rutland, Vt.; *Recording Secretary*, Dr. Horace H. Le Seur, Batavia, N. Y.; *Corresponding Secretary*, Dr. George Chaffee, Binghamton, N. Y. Fifty surgeons were elected to active membership in the Association.

THE TENTH DISTRICT MEDICAL SOCIETY OF NORTH CAROLINA, at its annual meeting held at Murphy, Oct. 5, 1921, elected the following officers for the ensuing year: *President*, Dr. Guy Kirby, Marion; *Vice-Presidents*, Dr. W. B. Adams, Murphy; Dr. J. R. McCracken, Waynesville; Dr. Dan Bryson, Bryson City; Dr. A. F. Toole, Asheville; Dr. W. R. Kirk, Hendersonville; *Secretary-Treasurer*, Dr. W. H. Hunnicutt, Asheville.

THE MILWAUKEE (WIS.) PHYSICIANS' ASSOCIATION, at its annual meeting held Oct. 11, 1921, elected the following officers for the ensuing year: *President*, Dr. Hugo P. Siekert; *Vice-President*, Dr. P. G. Hankwitz; *Secretary*, Dr. Elmer Gramling; *Trustee*, Dr. B. P. Churchill.

THE STEUBEN COUNTY (N. Y.) MEDICAL SOCIETY, at its semi-annual meeting held in Bath, Oct. 11, 1921, elected the following officers for the ensuing

year: *President*, Dr. R. J. Maichle, Cohocton; *Vice-President*, Dr. Zeno S. Selleck, Bath; *Secretary-Treasurer*, L. R. Pierce, Avoca.

THE GEORGIA STATE BOARD OF MEDICAL EXAMINERS, at its fall meeting held in Atlanta, Oct. 13, 1921, eleited the following officers: *President*, Dr. J. W. Palmer, Ailey; *First Vice-President*, Dr. A. F. White, Flovilla; *Second Vice-President*, Dr. O. B. Walker, Bowman; *Secretary-Treasurer*, Dr. C. T. Nolan, Marietta.

THE MEDICAL SOCIETY OF THE STATE OF VIRGINIA, at its annual meeting held in Richmond, Oct. 20-22, 1921, elected the following officers for the ensuing year: *President*, Dr. E. C. S. Taliaferro, Norfolk; *Vice-Presidents*, Dr. John Staige Davis, University of Virginia; Dr. C. P. Jones, Newport News; Dr. I. B. DeShazo, Ridgeway; *Secretary-Treasurer*, G. H. Winfrey, Richmond.

Obituary Notes. — Dr. WILLIAM J. BRADY of Brooklyn, N. Y., a graduate of New York University Medical College in 1892, died after a prolonged illness, on Oct. 19, at the age of 56 years.

Dr. ROBERT THOMAS IRVINE of Ossining, N. Y., physician to Sing Sing prison from 1891 to 1908, and since April last connected with the War Risk Insurance Board, died suddenly of heart disease in Washington, D. C., on Nov. 1, at the age of 63 years. He was graduated from McGill University Faculty of Medicine in 1885.

Dr. ALFRED J. SCOTT of Los Angeles, Cal., a member of the State Board of Medical Examiners, died suddenly in Sacramento on Oct. 16, at the age of sixty-three years. He was a graduate of the University of Michigan Medical School, Ann Arbor, in 1882.

Dr. ISAAC B. WILSON of La Pine, Ore., a graduate of the College of Physicians and Surgeons, San Francisco, in 1910, and a lieutenant in the Medical Corps of the United States Army during the war, died on Oct. 11, at the age of thirty-eight years.

Dr. VICTOR P. CHAAPEL, a graduate of the College of Physicians and Surgeons, Baltimore, in 1892, died at his home in Williamsport, Pa., on Oct. 16, at the age of fifty-six years. He was a member of the American Medical Association and of the Medical Society of the State of Pennsylvania.

Dr. JOHN HIETT of Ione, Wash., died after a lingering illness in Spokane, Wash., on Oct. 11, at the age of forty-nine years. He was graduated from the Marion Sims College of Medicine and Surgery, St. Louis, in 1892.

Dr. THOMAS C. THORNTON of Lewisburg, Pa., a graduate of the University of Vermont College of Medicine in 1862, and an army surgeon during the Civil War, died suddenly on Oct. 21, at the age of eighty-two years.

Dr. CHARLES J. BOSWELL, a graduate of Marion Sims Medical College, St. Louis, in 1895, died at his home in Mounds, Ill., on Oct. 23, at the age of forty-five years. He was health officer of Mounds for a number of years and mayor of that city for a term of two years.

Dr. H. C. SHUTTEE of West Plains, Mo., a former president of the Missouri Medical Association, died of cancer of the throat in Chicago on Oct. 19, at the age of sixty-three years. He was graduated from the Missouri Medical College in 1881, a member of the State Board of Pensions, and division surgeon for the St. Louis and San Francisco Railway Company.

Dr. JAMES G. STERRS of Atlanta, Ga., a graduate of the Leonard Medical College, Raleigh, N. C., in 1906, died following a stroke of apoplexy on Oct. 12, at the age of forty years.

Dr. EMANUEL R. HERSHEY of Lancaster, Pa., died on Oct. 23 at the age of seventy-four years. He was graduated from Jefferson Medical College in the class of 1880. He was engaged in practice for many years at Paradise, and he served for several years as postmaster at Florin.

Dr. LOOMIS LEGRAND DANFORTH died at his home in New York City on November 8, after a long illness. He was born in Monticello, N. Y., in 1849, and was graduated from the College of Physicians and Surgeons of Columbia University, in 1874. After graduation he connected himself with the Homeopathic school of practice, and in 1886 was appointed to the chair of obstetrics in the New York Homeopathic Medical College. At the time of his death he was emeritus professor of obstetrics in that institution and was chief of the lying-in department of the Flower Hospital. He was a member of the New York Academy of Pathological Science and of the New York County Homeopathic Society.

Dr. HENRY CLAY CHISOLM of Hungtingdon, Pa., died at Niagara Falls, on Oct. 25, at the age of sixty-two years. He was graduated from Hahnemann Hospital and Medical College of Pennsylvania in 1888. He served as a member of the Pennsylvania House of Representaives from 1897 to 1900.

Dr. ROBERT WALTER of Walter's Park, Pa., died in Reading, on Oct. 26, at the age of eighty years. He was graduated from Hahnemann Hospital and Medical College of Pennsylvania in 1888.

Dr. J. ANSON SMITH, Superintendent of the Camden County Hospital for the Insane, died at Blackwood, N. J., on Oct. 27, as a result of an operation for appendicitis, at the age of fifty years. He was graduated from Jefferson Medical College in 1897. He was a member of the Camden County Medical Society, the New Jersey State Medical Society, a Fellow of the American Medical Association, and a member of the American Medico-Psychological Association.

Dr. WILLIAM MARSHALL ALRICH died of heart disease in Philadelphia on Oct. 27 at the age of fifty-eight years. He was graduated from the medical department of the University of Pennsylvania in 1889.

Dr. WILLIAM J. FIELDS of Manasquan, N. J., a graduate of the College of Physicians and Surgeons, New York, 1880, died suddenly on Nov. 3, at the age of sixty-five years.

Dr. GEORGE WAKEMAN OSBORN of Bridgeport, Conn., died of bronchial pneumonia on Oct. 25, at the age of sixty-one years. He was graduated from the College of Physicians and Surgeons, New York, in 1887. He served as city physician, surgeon to the Emergency Hospital, member of the Board of Health, surgeon of the fire department and of the department of children of St. Vincent's Hospital. He was a member of the American Medical Association and the Medical Society of the State of Connecticut.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, October 21, 1921.

Dismissal of a Married Medical Woman.—By an overwhelming majority the St. Pancras Borough Council have decided to dispense with the services of Dr. Gladys Miall-Smith, the assistant medical officer for maternity, on the ground that she has married. It appears that the council's decision is mainly based on the theory that, because there is widespread unemployment, married women whose husbands are able to support them should not compete in the labor market. This argument is ancient and musty and in many respects an economic fallacy. The belief is that people with private means ought not to work because they "take the bread out of the mouths" of those who are compelled to work for a living. The fact does not seem to be realized that when people work they may add to the common store a great deal more than they take out of it. It is more than a coincidence that Dr. Miall-Smith's dismissal was chiefly brought about by the labor members of the St. Pancras Council, the labor councillor who spoke for his party saying that he had the support of the "unemployed and the ex-service men." As said before, the view that the less work each individual does the more work there will be to go round is not founded on sound principles, but is a mischievous doctrine which appears to have been adopted by the labor party in this country. It is instructive to note that five women councillors attended the meeting, but only two voted in favor of the woman doctor.

Sir Arthur Newsholme on the Results of Prohibition in America.—Sir Arthur Newsholme, late principal medical officer to the English Local Government Board, who has been in America for the past two years, gave a lecture at the Royal Society of Medicine a few days ago, in which he told the results of his study of the working of the new prohibition law. He said, in part, that there were about 153,000 medical practitioners in the United States and each had to take out a permit to prescribe alcohol. Four out of every five had not taken out permits, and in 24 of the 48 states not one practitioner had taken out a permit. As for the results of prohibition, there were evidences of increased prosperity and of the diversion of large sums of money to the purchase of better clothing, etc., which was due, partially, at any rate, to the saving on alcohol. Rescue work in large cities had been largely replaced by preventive work. Drunkenness and admissions to hospitals for acute alcoholism also showed remarkable declines. Whether prohibition would endure the test of enforcement in America remained to be seen, but his view was that prohibition would remain in operation as the law of the land.

The First International Congress of Military Medicine and Pharmacy.—The Congress of Military Medicine and Pharmacy, the first of its kind ever held, took place in Brussels in July last. Its objects are to safeguard the health of armies and improve the treatment of wounded in warfare. The British delegates were Colonel E. M. Pilcher, Major A. D. Stirling, Surgeon Rear Admiral G. T. Meagher; the delegate from the United States was Commander William Seaman Bainbridge of New York; delegates were also present from France, Italy, Japan, China, Brazil, Spain, Morocco, Switzerland, Sweden, Denmark, Holland, Norway, Mexico, Poland, Guatemala, the Argentine Republic, Chile, the International Red Cross Committee, and the League of Red Cross Societies. The Congress was a conspicuous success and several important resolutions were passed. Among the questions dealt with was that of gas warfare, and the treatment of gas poisoning cases. The conclusion was reached that these should be placed in the hands of experts on the subject. The matter of syphilis was discussed at length and certain preventive and remedial measures recommended. These comprised educative measures, and the encouragement of sport was also advocated, as a counter attraction; likewise those measures which insured organized inquiry into the source of infection in conjunction with the civil authorities, isolation of the infected men, and treatment by specialists. Curious to relate, however, no reference was made to prevention by means of immediate or early disinfection. Resolutions with regard to tuberculosis were adopted. Greater care was advocated in selecting men for the army; any who showed signs of tuberculosis should be rejected. Moreover, not only should every candidate be carefully examined during the recruit stage, but immediately after his incorporation into the army, while from the standpoint of prophylaxis, a temporary or definite period of isolation should be imposed in all cases in which tuberculous infection was present. The report of the proceedings of the Congress lays down clear and comprehensive instructions for controlling the health of an army, and for the guidance of the medical officers of the service. A permanent committee was nominated to arrange the business of the next congress. The chairman is Dr. Wibin, Belgium, and the other members are Drs. William Seaman Bainbridge, United States; Uzac, France; Van Baumberghen, Spain; Stirling, England; Caccia, Italy; Da Fonesca, Brazil, and Thomann, Switzerland.

Pyorrhea Alveolaris in Great Britain.—The condition of the teeth of the British people is notoriously bad and pyorrhea alveolaris is extremely prevalent. This matter was discussed editorially in the *Medical Press and Circular* of October 19. According to the view of the writer of the editorial the local conditions which predispose to pyorrhea are essentially dietetic in origin. This dietetic factor consists in the consumption of too soft farinaceous food, which not only tends to collect at the gum margin, where it forms a favorable nidus for the development of bacteria, but fails to afford that healthy exercise of the teeth which is needful for the health of the periodontal membrane. When the teeth are insufficiently exercised, the circulation in periodontal membrane and surrounding bone and mucous membrane is sluggish, the flow of cleansing saliva scanty, and the opportunity for bacterial invasion correspondingly great. Preventive treatment therefore consists in keeping the blood healthy

and in maintaining a healthy local condition of the alveoli and gums. This latter desideratum is best effected by means of a suitable dietary, one, namely, which necessitates adequate mastication. A book by D. A. Crow has recently been published by Baillière, Tindall, and Cox on this disease in which the prevalence of pyorrhea is dwelt upon especially, and the results of the disease are enumerated.

Presidential Address at the Annual General Meeting of the Medical Society of London.—The 149th session of the Medical Society of London opened on October 10 last, when the president for the year, Mr. James Berry, F. R. C. S., was inducted and gave the presidential address. Mr. Berry departed from the usual custom of devoting the address to a consideration of a medical or surgical subject, and did not discuss the operative treatment of exophthalmic goitre, of which he is a pioneer and a master, nor other surgical measures with which he is conversant, but spoke of the experiences undergone by the medical men, nurses, and lay workers who comprised the unit which went to Serbia in the early part of the war under the direction of Mr. and Mrs. Berry. The title of the address was "Some Medical Experiences in South Eastern Europe." Much of this matter was included in a book written by Mr. and Mrs. Berry and Mr. Blase, which was dealt with in an editorial article in the MEDICAL RECORD a year or more ago. However, the address was not restricted to medical experiences, but touched on various happenings. Mr. Berry described the adventures of the unit, if they may be so termed, in language serious and humorous as befitted the occasion, and carried his audience with him.

The Obstetrical and Gynecological Unit at the Royal Free Hospital, London.—This unit has been described and referred to more than once in these letters. The other day the writer enjoyed the privilege of being shown over this new department of the Royal Free Hospital, the hospital of the Medical School for Women, by its director and organizer, Dr. Louise McIlroy. This unit is situated in the new wing of this somewhat ancient building and is well equipped, and doubtless owing to excellent organization is running smoothly. Dr. McIlroy is intensely interested in research work and she and that part of her staff engaged in this direction are pursuing investigations into the toxemias of pregnancy as well as into other subjects of obstetrical and gynecological concern. Unfortunately, research work to be carried on as it should be is costly, and like all the London hospitals, the Royal Free is lamentably lacking in funds. It goes without saying that there is a wide scope for most valuable research in a unit such as this, and it appears a calamity that it should be hampered, almost starved, because the money necessary to do really good work is not forthcoming. Bricks cannot be made without straw.

Obituary.—Thomas R. Morse, F. R. C. S., died at Deal, Kent, on September 7, last. He entered Guy's in 1877 and had a distinguished career as a student. In 1884 he took the F. R. C. S., England, and shortly after settled in Norwich. He was surgeon to the Norwich Dispensary and assistant surgeon to the Jenny Lind Infirmary. He took a keen and active interest in all branches of surgery, but more especially in abdominal surgery, and as he was an exceptionally skillful operator, he soon rose to be one of the leading consulting surgeons of Norwich. He was president of the Norwich Medical and Chirurgical Society. Ten years ago in the course of his duties he contracted influenza after which myelitis set in, and for ten years he had been completely paralyzed in both legs. The latter part of his life was saddened by the loss of three sons in the war.

CONGRESS OF FRENCH SOCIETIES AT STRASBOURG.

(From Our Swiss Correspondent.)

STRASBOURG, FRANCE, October 5, 1921.

FOUR congresses have just been held in the city of Strasbourg, namely the French Congress of Medicine, the French Congress of Surgery, the French Congress of Urology and the French Congress of Orthopedic Surgery, in order to honor Alsace upon the occasion of its return to France. The ancient Faculty of Medicine of Strasbourg is once more united to the National University of France.

The inaugural addresses of the three first named Congresses were delivered by their respective presidents Boeckel of Strasbourg, Bard of Strasbourg, and Jeanbrau of Montpellier.

Prof. Boeckel, the great defender of the French school and its traditions in Alsace, was the hero of a very touching ceremony upon the occasion of the presentation of a gold medal offered by the members of the French Congress of Surgery, and the greatest enthusiasm was expressed by those who witnessed the heartfelt exchanges of sentiments. One can see and sense that the general feeling here is one of relief and contentment since the burden of the German yoke has been removed.

The subject for discussion before the Urological Congress was anesthetics in urological surgery, the reporters being Rathery and Chevassu of Paris, admirably well presented and thoroughly discussed, the consensus of opinion being in favor of ether, ethyl chloride, or spinal anesthesia. Chloroform was generally tabooed.

At the Surgical Congress the subject for general discussion was the surgical treatment of traumatic epilepsy, Billet and Lenormand, reporters. The prevailing opinion was that an operation will at least improve the patient's condition when it does not cure and no lesser men than Leriche of Lyons and de Martel of Paris maintained this view.

In medicine exploration of the circulatory apparatus by the graphic method was the order of the day and unquestionably great advance has been made in the past few years both in instrumentation and otherwise. Prof. Widal's address on anaphylaxis was a masterpiece both in clearness, precision, and completeness and should be read throughout the medical world with delight.

Space forbids all that could be said of the scientific and social aspects of this reunion but it can be said that in every way the success of the meetings was manifest.

STEPHEN SMITH. M. D. LL. D.

Biographical Note.

STEPHEN SMITH, M.D., LL.D.

TEACHER, AUTHOR, EDITOR, SURGEON, FOUNDER OF INSTITUTIONS, CREATOR OF SANITARY CODES AND LAWS FOR THE BETTERMENT OF THE SICK AND INSANE.

To few human beings in this age is it given to look back over a life that spans a century. To still fewer is it given to look down such a vista of years with eyes undimmed, mental faculties alert and unimpaired, and figure unbowed by the weight of years and the cares of life. But it is indeed a unique privilege to view in retrospect five score years of life so replete with unselfish service to one's fellow men as has fallen to the lot of Dr. Stephen Smith. So numerous have been these services that their mere recording is a tribute to his boundless energy and ceaseless activity.

Dr. Smith began the study of medicine in 1848 when he entered the Geneva Medical College, Geneva, New York, having become interested in the subject because of his delicate physique. Here he was in the class with Elizabeth Blackwell. In 1849-1850 he was a resident student in Charity Hospital, Buffalo, and studied under Professor Frank H. Hamilton. He entered the College of Physicians and Surgeons, New York, in 1850 and graduated in 1851. He then entered Bellevue Hospital as an interne, and in 1854 became visiting surgeon to Bellevue. In 1855 he was appointed physician to the typhus hospital on Blackwell's Island. In those days typhus fever and Asiatic cholera were by no means the rare diseases they are to-day in New York. Dr. Smith relates that while in Charity Hospital he learned the treatment of Asiatic cholera. The customary treatment of Asiatic cholera at that time was to deny water and to give calomel and opium, though thirst was excessive. A recalcitrant patient under Dr. Smith's care persisted in disregarding all admonitions and drank large quantities of water. He recovered while all the other victims of the disease died. This taught the lesson. While in Bellevue Hospital Dr. Smith came under the immediate instruction of Dr. Alonzo Clarke, Dr. James R. Wood, Dr. John T. Metcalfe, and Dr. William H. Van Buren. The internes at that time lived five in a small room, ate almshouse food, and were exposed to typhus fever, from which ten of the staff suffered and two died. It was well for the doctor and for the typhus fever patient that there was no prohibition amendment in force in those days. Dr. Alonzo Clarke taught that in the last stages of typhus fever alcohol acted like a specific. He allowed his typhus fever patients to drift along until they reached the last stages of the disease and then literally saturated them with alcohol, administering not a pint in ten days, but almost a pint in a night, and many of the patients treated in this way recovered.

While Dr. Smith was at Bellevue he introduced the opium treatment of peritonitis which changed the records from 75 per cent of deaths to almost 100 per cent of cures. As early as 1853 he recommended the out-door life for a case of tuberculosis, declaring that he had no faith in the cod-liver oil and whiskey treatment for tuberculosis. While connected with Bellevue Hospital, Dr. Smith adopted a system of class recitations and clinics which led to the development of Bellevue as a great teaching center, and this was the foundation of the clinical method of teaching in this country.

During the early period of his professional life he did editorial work on the *American Medical Times*, his special feature being leading editorials devoted to critical comments on events of a medico-public character. During the Civil War Dr. Smith was a member of the United States Sanitary Commission and made a report on the subject of amputation through the foot at the ankle joint. He was author of the "Handbook on Surgical Practice" used in the Civil War.

In 1864 New York was in a deplorable condition from the standpoint of sanitation. In those days the mayor appointed one or other of the alderman to act as health commissioner. He, in turn, appointed health inspectors or wardens, as they were called. These were generally political hangers-on of a low type. Dr. Smith asked one of these wardens, "What is hygiene?" "The vapor rising from standing water," was the reply. This was the situation Dr. Smith set about reforming. He was asked to make a sanitary survey of the city. He went about it by dividing the city into thirty-two districts, and appointed thirty-two recently graduated physicians as inspectors. Their reports were the best of the kind on record. With these reports as a basis he prepared the Metropolitan Health bill which embodied the best features of the English and French health laws. This bill was enacted into law in 1866. The code of sanitary laws rising from this is unsurpassed in efficiency and has made New York one of the healthiest cities in the world. It has formed the basis of municipal health departments throughout the country. Dr. Smith was made Health Commissioner in 1868, which office he held for seven years. In 1870 he called a conference of health officers of the principal cities to form an association for the advancement of public sanitation. So was formed the American Public Health Association, now celebrating its semicentennial. He became the first president of this organization. At this period he began agitation for a national public health service under the auspicies of the Federal Government, but popular States' rights doctrine delayed the organization until 1878, when Dr. Smith prepared the bill which created the National Board of Health. An epidemic of yellow fever throughout the South was a factor in arousing interest in the bill and aiding in its passage by Congress. This name was changed to the Marine Hospital Service in 1881.

Dr. Smith was the first to introduce the use of antiseptics into Bellevue Hospital. The other surgeons of that time would have nothing to do with them. Lord Lister (then plain Joseph Lister) visited Dr. Smith's wards and complimented him on the excellent conditions that prevailed under his methods. When president of the Department of Charities of New York City Dr. Smith drafted the bill for a Bureau of Tree Culture, as an accessory in the reduction of infant mortality. He also drafted a bill creating the Bureau of Vaccination.

In 1882, Dr. Smith was appointed State Commissioner in Lunacy of New York by Governor Alonzo B. Cornell. In his book, "Who Is Insane?" he says that at that time there were about 12,000 insane in the State Asylums, in County Asylums, in Poor Houses, and in private institutions. They were found in every condition hitherto known in the history of this unfortunate class, from that of pauper in the County Alms House, in filthy cells, shackled hand and foot, and fed like swine, to the kindly care, good food, and sanitary dormitories, with freedom from cruel forms of restraint, of those in the State Asylums. The most important reforms effected by Dr. Smith's service were the introduction of the training school for attendants, the creation of a State Lunacy Commission, and the removal of the insane from county to State care. Through the work of the Commission in Lunacy, State institutions for the insane have been changed from *custodial* "asylums" to *curative* State "hospitals." These three reforms have not only raised the standard of care and treatment of the insane in the State of New York to the highest grade yet attained, but they have been so widely copied that they are fast bringing the institutions for the insane in this country to first rank.

President Cleveland, in 1894, appointed Dr. Smith a delegate from the United States to the Ninth International Sanitary Conference held in Paris. Here he assisted in formulating a code of rules and regulations governing the sanitary conditions under which pilgrimages were made to Mecca. Before this, owing to the bad sanitary conditions, 62 per cent. of those who made the pilgrimage never returned to their homes. As a result of this conference a commission was appointed to remain permanently at Constantinople to supervise the enforcement of the rules. Dr. Smith served as president of the Department of Charities of New York City under Mayor Strong.

Dr. Smith's writings cover a wide range of subjects having to do for the most part with surgery, sanitation, and the care and treatment of the insane, but whatever the subject, the objective sought has always been the relief of human suffering and the betterment of human living conditions.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 27, 1921, clxxxv, 17.

1. Public Health. Benjamin Loring Young.
2. The Surgical Abdomen in Children; Its Diagnosis and Prognosis. Thomas H. Lanman.
3. Remarks upon Consciousness in the Epileptic Fit. L. Pierce Clark.
4. Premature Rupture of the Amniotic Membranes. Allen T. Moulton.
5. Some Aspects of Cancer of the Prostate. Arthur L. Chute.

2. Surgical Abdomen in Children.—Thomas H. Lanman presents a study of the figures of the last five years of the Surgical Service of the Children's Hospital, Boston, which bring out the fact that abdominal conditions requiring surgical intervention are much more common in children than is generally supposed. Among 4,748 admissions to the hospital in the period of five years there were 1,064 operations for hernia, 7 per cent. of which were for umbilical hernia, while the rest were for inguinal hernia of various types. Strangulation and incarceration of inguinal hernia is very rare in children. The age at the time of operation matters little, though it is the practice at the Children's Hospital to hold the hernia with a yarn truss at least until the baby is weaned or has been through its first summer. Hydrocele is treated by radical operation; in infancy uncomplicated hydrocele is likewise left unoperated until the child is weaned, or if it grows so fast as to cause pressure on the testes tapping may be resorted to as often as is necessary until the desired age is reached. Umbilical hernia, in the vast majority of cases, can be cured by strapping. There have been 362 cases in the out-patient clinic, and only 74, or 20 per cent., required operation. In malformations of the gastrointestinal tract, except for those cases which have merely an unbroken anal membrane that can be broken by finger or hemostat, or those in which the obstruction is so low that the normal gut may be brought down and sutured to the skin at the anus, the prognosis is very bad. Of twelve such cases in this series none have lived. Pyloric stenosis is not an uncommon condition; with its earlier recognition and the development of the Ramstedt operation the condition has lost much of its gravity of prognosis. In this series during the last year there were 22 operations for pyloric stenosis with no deaths. Intussusception is the commonest cause of acute obstruction in children. Of 92 cases of acute obstruction in this report, 70 were due to intussusception. The mortality of 72 cases in this series was 41 per cent. There were 223 cases of acute appendicitis. Frequently in young children the localization of pain and tenderness even if present is difficult to establish. In this type of onset vigorous catharsis is frequently given by parent or physician and this "home treatment" has played a large part in the high mortality of the disease. In this series, for all ages, without a general peritonitis the mortality was 9 per cent. General peritonitis occurs earlier and more frequently than in adults. The diagnosis of chronic appendicitis in children is almost always a matter of history. Acute peritonitis in children over two years of age is practically always due to appendicitis; in children under two years of age acute peritonitis is a grave condition and the mortality is exceedingly high. Of 35 cases of tuberculous peritonitis operated upon, 16 have died either while in the hospital or soon after discharge, a mortality of 45 per cent. From the surgical point of view the success that is often met with by a simple exploration is hard to explain but it certainly exists. Of such conditions as retroperitoneal abscess, ruptured mesentery, ruptured viscus and other traumas, mesenteric thrombosis, megacolon, subhepatic abscess, the various rare abdominal tumors, such as sarcoma of the ovary and kidney, and Gaucher's disease, there were in all 35 cases in this series with an operative mortality of 45 per cent. Deaths in abdominal conditions requiring surgical intervention, excluding hernia, are nearly 40 per cent. of the mortality of the Service. The greatest hope of reducing the mortality is in acute appendicitis and intussusception. The most important factor influencing the prognosis in these conditions is an early diagnosis and operation.

5. Some Aspects of Cancer of the Prostate.—Arthur L. Chute has found in going over his last 200 prostatectomies that in 35, or 17.5 per cent., the prostate was malignant. He deplores the present tendency among some genitourinary surgeons to regard operation as scarcely worth doing in malignancy of the prostate. He concludes that in all instances where a malignant prostate is producing obstruction to urination it should be removed unless the patient's general condition is such as to absolutely preclude this. In the cases in which patients complain of pain in the thighs or sacrum, the perineal removal of the growth will give temporary relief in a number of the cases. Operation in carcinoma of the prostate should be carried out by the perineal route and radium should be left in any bits of suspicious tissue that remain, or in the cavity from which the prostate tissue has been removed. The removal of these growths may be carried out with relatively little risk when done by the perineal route, and there is little probability of a permanent fistula.

Journal of the American Medical Association.

October 29, 1921, lxxvii, 18.

1. Cancer of the Tongue: A Preventable Disease. Joseph Colt Bloodgood.

2. The Surgery of the Trigeminal Tract. Charles H. Fraxier.
3. The Whitman Loop Operation for Equinovalgus. Samuel Kleinberg.
4. Tidal Irrigation of Wounds by Means of Liquid-Tight Closure, with Special Reference to the Treatment of Empyema of the Thorax. W. H. Taylor and N. B. Taylor.
5. The Lumbosacral Region. Archer O'Reilly.
6. Rôle of Diet in Etiology and Treatment of Migraine and Other Types of Headache. Thomas R. Brown.
7. Visceroptosis: Normal Incidence: A Preliminary Report. John Bryant.
8. Glandular Fever. P. F. Morse.
9. Observations on Gastric and Duodenal Motility in Duodenal Obstruction. Homer Wheelon.
10. Obstetric Deaths. Barton Cooke Hirst.
11. Interpretation of Digestive Symptomotology Relative to Change in Symptoms and Extrinsic Factors. Ernest H. Gaither.
12. Gastric Symptoms: An Analysis of One Thousand Cases. John M. Blackford.
13. The Classification of Cardiac Diagnosis. Paul Dudley White and Merrill M. Myers.
14. Diverticula. Diverticulitis and Periditerticulitis of the Small Intestine, Cecum, Colon, Sigmoid Flexure and Rectum. Samuel G. Gant.
15. Further Observations on Treatment of Scarlet Fever with Immune Human Serum. G. H. Weaver.

1. Cancer of the Tongue: A Preventable Disease.—Joseph Colt Bloodgood submits statistical evidence to prove that cancer of the tongue is largely a preventable disease. Delay in proper treatment after onset of the malignant lesion reduces the chances of a cure in operable cases from 62 to 12 per cent., and increases the chances of postoperative death from 5 to 30 per cent. During the period 1889 to 1921 educational propaganda has increased the number of operable cases from 53 to 80 per cent. and decreased the inoperable and hopeless cases from 47 to 20 per cent. Evidence shows that men who develop cancer of the tongue have had warning by definite local lesions. These precancerous lesions are leucoplakia, bad teeth, areas of irritation, ulcers, syphilitis gumma, warts, fibromas, and smoker's burns. There is also the warning of the definite cancer developing in the precancerous lesion, but this may be insidious. The uninformed person, with rare exceptions, will not seek advice until cancer is in its advanced stage, when he has only 12 per cent. chances of cure and 30 per cent. chances of postoperative death. From this study of 265 lesions of the tongue in men and 33 in women Bloodgood is convinced that the only hope of decreasing deaths from cancer depends on the educational propaganda among the public and the profession. The message to the public is short and simple; but the message to the medical and dental professions must be in great detail, because if people seek advice early, the profession must be prepared to recognize the early precancerous stage when diagnosis is difficult and proper treatment simple. The precancerous lesions mentioned are discussed somewhat in detail.

6. Rôle of Diet in Etiology and Treatment of Migraine and Other Types of Headache.—Thomas R. Brown believes that in certain cases of migraine and other forms of headache, whatever the primary cause, diet plays some part in producing the symptoms of which the patient complains, and that by modifying the diet cure may be obtained in a few cases, and a very considerable amelioration of symptoms in many cases. In his series of fifty or more cases carbohydrates seemed to have played the predominant rôle in the largest number of cases; animal-protein food in almost as many; special foods, notably sugar or eggs in a few cases, while in an occasional case the headache might be regarded as a definite expression of intestinal toxemia or bacteriemia or of an error in purin metabolism. That some disturbance in liver function plays a part in these headaches is suggested by the fact that there is in some cases a temporary enlargement of the liver during and after the acute symptoms. In many cases a very careful clinical analysis, supported by certain laboratory tests, offers a clue to the etiology. In cases in which it is absolutely impossible from the clinical evidence to incriminate any special food or foods, it is wise to place the patient first on a carbohydrate-free diet for a considerable period of time, and if this proves unsuccessful, then on animal-protein-free diet. In this group of migraine cases the treatment is peculiarly unsatisfactory, by many regarded as almost hopeless; this point of view is not justifiable. We should realize that in certain of these cases diet plays a rôle and that some are benefited by proper dietetic therapy.

8. Glandular Fever.—P. F. Morse observes that some diseases seem to be peculiar in their tendency to recur after apparent periods of quiescence. These periods may be so protracted that the medical profession forgets the existence of the disease, and on recurrence of the infection cases are reported as a new disease. We have had a recent example of this in epidemic encephalitis, and at the present time another is before us in a disease first described as a clinical entity by Pfeiffer in 1889, and given the name glandular fever. Until ten or twelve years ago it was fairly well known, but it seems lately to have become so infrequent as commonly to escape diagnosis. A widespread but mild recrudescence is taking place and the affection is again quite prevalent. This affection is supposed to have an incubation period of from five to ten days. The onset is sudden with sore throat and a feeling of stiffness in the neck, and often with upper abdominal pain or discomfort in the left hypochondrium. Nausea and vomiting are common at the outset. Within a week the temperature has usually returned to normal. Physical examination reveals swollen lymph nodes as the outstanding feature. Usually the cervical chain is most involved, but the supraclavicular and infraclavicular, axillary and inguinal nodes are almost always palpable. The spleen is enlarged and tender in about 60 per cent. of the cases. The blood count is most characteristic, a rise to 17,000 to 20,000 being the rule. This increase is due entirely to mononuclear cells. The average lymphocyte percentage runs from 75 to 85. The prognosis is good but convalescence is notably slow. The blood picture and physical examination serve to differentiate glandular fever from tuberculosis, mumps, and acute cervical adenitis. The blood smear is quite different from that of acute lymphatic leucemia. There is a lack of immature, atypical, and degenerating forms of leucocytes, and the presence of large numbers of bilobed or Riedel type of white cells.

12. Gastric Symptoms. An Analysis of One Thousand Cases.—John M. Blackford concludes that in this 1000 cases 14 per cent. actually had organic gastric disease. The roentgenologic examination determined these cases accurately, and with a very small percentage of error. Its negative value is therefore very high. Thirty-four per cent. showed abdominal extragastric disease giving reflex stomach disturbance. Inflammations of the gallbladder apparently caused more stomach disturbance than any other organic abdominal lesion. Eighteen per cent. presented themselves for diagnosis of stomach trouble which, investigation showed, was due to demonstrable systemic disease. Twenty-five per cent. presented no objective pathological condition. Their complaints were considered secondary to habits of living, type of individual, or to chronic debility. One-third of all the cases in which operation was previously performed fell into the functional group. Six per cent. of all cases remained undiagnosed. Thirteen per cent. or more of patients complaining of chronic stomach trouble had lost the appendix before coming to the clinic. Ten per cent. of all women in this series had had previous pelvic operations, one-half done on frankly neurasthenic individuals.

15. Further Observations on Treatment of Scarlet Fever with Immune Human Serum.—G. H. Weaver states that before Jan. 1, 1921, he had used convalescent serum in 54 cases of scarlet fever, including 19 previously reported. All the cases were severe, representing the most severe toxic cases among about 1,200 patients. Thirty-eight were of the toxic type. The serum was usually injected instramuscularly in amounts from 60 to 90 c.c. Occasionally it was injected intravenously, but with no apparent advantage. A second dose after twenty-four hours was given in some cases in which the first dose was not followed by satisfactory improvement. To one familiar with the usual course of scarlet fever, the almost constant fall in temperature, and the rapid improvement in the general condition of the patient immediately after the serum is given is most surprising. Early administration is insisted upon by all who have had experience with the serum treatment of scarlet fever. The procedure is practical wherever scarlet fever is prevalent. The blood apparently loses a good part of its therapeutic value on keeping.

The Lancet.

October 8, 1921, ccl, 5119.

1. The Muroy Lecture on Respiratory Efficiency in Relation to Health and Disease. Martin Flack.
2. Hunterian Lecture on Mucocele and Pyocele of the Nasal Accessory Sinuses. Walter G. Howarth.
3. Nutrition in Vienna. II. Madge R. Gribbon, D. Noel Paton, Margaret Ferguson, and Annabel M. T. Tully.
4. Prognosis in Patients Presenting Rapid Action of the Heart. John Hay.
5. Vitamine A Content of Oils Prepared from Livers of the Cod, Coal-fish, and Haddock. S. S. Zilva and J. C. Drummond.
6. Notes on the Teaching of Pathology in America. A. E. Boycott.
7. Medical Missions in China. Harold Balma.

2. **Mucocele and Pyocele of the Nasal Accessory Sinuses.**—Walter G. Howarth has observed fourteen cases of this condition, all connected with the frontal sinus and the anterior part of the ethmoid labyrinth; other recorded cases seem to indicate that this may be regarded as the commonest situation. For the production of the condition partial or complete blocking of the natural ostium must occur. This may be caused by an inflammatory condition or by traumatism. But it may be wondered why everyone who gets a nasal catarrh or sustains a severe black eye does not develop a mucocele. In the writer's opinion the condition depends largely on the ethmoid, only arising when the ethmoid is of a definite anatomical configuration, that is when some of the anterior cells come much further forward than usual and are found in front of the fronto-nasal duct, even in front of the lacrymal bone, and bulge into the floor of the frontal sinus. When this condition is present and the fronto-nasal duct much narrowed by it, it would take but a small amount of plastic inflammation to block it, while a blow near the inner canthus would readily crush this cell into the fronto-nasal duct or obliterate its own ostium. One of the chief characteristics of the condition is the entire absence of symptoms until the external swelling appears. The condition may be confused with cystic dilatation of the lachrymal sac or with tumor of the frontal sinus and orbit, especially osteomata. Treatment consists in exploration of the swelling through an external incision, and the establishment of free intranasal drainage.

3. **Nutrition in Vienna. II.**—Madge R. Gribbon and D. Noel Paton, assisted by Margaret Ferguson and Annabel M. T. Tully, present this investigation, which deals with the condition of the middle classes in Vienna and the rural classes in the neighborhood of that city. Their general conclusion is that a state of undernutrition affecting the growth of these children has existed in Vienna and the adjoining country. No evidence is afforded that this has been associated with any marked increase in the incidence of rickets. The conclusions of previous investigators that rickets tends to affect the later members of large families is borne out by these observations. Life and a certain amount of activity have been sustained on a gross energy intake of a little over 2,000 calories per man per day, which must be explained in the light of Benedict's finding that undernutrition markedly decreases the basal metabolism.

5. **Vitamine a Content of Oils Prepared from Livers of the Cod, Coal-fish, and Haddock.**—S. S. Zilva and J. C. Drummond have utilized in these experiments oils prepared from the unmixed livers of the respective fishes caught this season off the Finmarken coast. The pure cod oil was found just as potent as the liver oils hitherto tested out quantitatively, a daily dose of 2 mg. being required to induce the resumption of growth in rats. Coal-fish oil was even a little more active; slightly less than 2 mg. was found to be the minimum daily dose. Haddock oil, although not so active as the cod and coal-fish oils, showed also a high potency, the minimum daily dose in this case being 10-15 mg. A lower potency than this has been observed by the authors in a well-known brand of medicinal cod liver oil. The oils investigated originated from fishes belonging to the genus Gadus, and the writers are now undertaking various analyses to determine whether the oils of certain other more or less nearly related genera will also be found to exhibit this exceptionally high fat soluble vitamine A potency.

British Medical Journal.

October 8, 1921, No. 3171.

1. Some Common, but Often Unrecognized, Obstetrical Difficulties. W. Blair Bell.
2. Experimental Rickets in Rats. V. Korenchevsky.
3. The Site of Operation for Empyema. Duncan C. L. Fitzwilliams.
4. Intravenous Injection of Antimony Tartrate in Japanese Bilharzia. J. B. Christopherson.

1. **Some Common, but Often Unrecognized, Obstetrical Difficulties.**—W. Blair Bell states that while it is impossible to look upon uncomplicated occipito-posterior presentations as abnormal, the frequency with which they escape detection, and in consequence are wrongly treated, makes it worth while discussing this group of cases. This presentation, if left alone, almost invariably rotates into the occipito-anterior position. The frequency of the occipito-posterior position as a primary presentation has been much underestimated. It is important that the practitioner should recognize this presentation and prepare the patient and her friends for a somewhat longer labor than usual. If there is no doubt that the position is persistent occipito-posterior, manual rotation of the head with manual rotation of the child's body from above, must be practised and forceps applied to the head. The danger of putting forceps on the high unrotated head is so well known as to need no comment. Protracted gestation is not infrequent and the same patients show a tendency to repeat the performance. At the end of ten complete calendar months from the date of the last menstrual period no doubt need exist as to what is happening, provided always the patient has menstruated with perfect regularity except when pregnant. The treatment consists in induction of labor. This is best carried out by the *intramuscular* injection of infundibulum every night and morning for three days, at the end of which time, if parturition have not supervened, a few bougies should, with most scrupulous aseptic precautions, be inserted between the uterine wall and the membranes. Labor almost invariably follows these procedures. The slightly generally contracted pelvis and the simple funnel-shaped pelvis very often escape detection. The non-rachitic flat pelvis is far more common than is generally believed. In this type of pelvis the conjugate diameter may be, and usually is, the only measurement that gives the indication of the deviation from the normal. In this type of pelvis the external conjugate is generally below 19 cm. There is another feature which often conveys an indication of the conjugate contraction, namely, an accessory promontory below the true sacral promontory. The generally contracted pelvis is quite frequently encountered apart from rickets, and is likely to be overlooked in otherwise well-developed females unless the practitioner makes a routine practice of measuring the pelvis of his pregnant patients. The funnel-shaped pelvis is another type sometimes overlooked. In its typical form it affects only the outlet; the measurements of the superior strait are normal, but the transverse diameter between the tubera ischii may measure 8 cm. In dealing with these types of contracted pelves it must never be forgotten that the course of labor and appropriate treatment will be influenced by the size of the fetal head. In the typical funnel-shaped pelvis, while cesarean section is indicated, if the lesion be recognized before parturition, if it be discovered during labor pubiotomy should be performed. Uncomplicated uterine inertia is due to a variety of factors. One of these is insufficiency of pressor substances in the blood. Proper ante-parturitional investigation should be made and if these substances are deficient two ounces of calcium lactate should be given every night for about two weeks before parturition is due. While all these facts are commonplace knowledge, they should occupy a prominent place in the mind of the practitioner.

2. **Experimental Rickets in Rats.**—V. Korenchevsky states that these investigations were started in November, 1920, before the works of the American authors were published. He presents a preliminary report of experiments carried out on rats born at the Lister Institute from stocks that had been all the time under observation. The results obtained agree in a general way with those of Melanby, McCollum, Simmonds, Parsons, Shipley, and Park. It was found that confine-

ment in small cages does not evoke rickets in rats. The introduction of live cultures of *B. perfringens*, *B. sporogenes*, and *B. bifermentans* with the food, and of *B. sporogenes* and *B. bifermentans* subcutaneously, produces no visible effect on the development of rickets in rats. The deficiency of the diet in calcium alone can produce changes in the skeleton of rats which present some resemblances with rickets, especially when the young rats have originated from a mother kept on the same diet during lactation. Usually deficiency of food in vitamine A produces in rats impoverishment of the bones in calcium, enrichment in water, and osteoporesis with deficient osteogenesis, and in some cases a picture resembling slight rickets. Changes in the skeleton more similar to rickets and in some cases typical of rickets, were observed in young rats on a diet deficient in vitamine A, provided their parents had been fed on such a diet, during conception, pregnancy, and lactation. Vitamine A has a relation to the metabolism of cal ium in the organism and particularly in the bones, and therefore to the development of rickets. The changes typical of rickets occur most readily and most frequently in rats kept on a diet deficient in both vitamine A and calcium. It was found that castration performed before the commencement of feeding had no marked effect on the chemical and histological changes in the skeleton of rats fed on a normal diet, on diets deficient in calcium or vitamine A, or deficient in both.

Annals of Surgery.

September, 1921, lxxiv, 3.

1. The Making of a Surgeon. John B. Roberts.
2. Carcinoma of Thoracic Esophagus Extrapleural Resection and Plastic. Howard Lilienthal.
3. Certain Problems Concerning Fractures of Bones. Charles L. Scudder.
4. The Values of the Various Methods of Bone Graftings Judged by 1,390 Reported Cases. Clarence A. McWilliams.
5. Old Os Calcis Fractures. Fred A. Cotton.
6. Influence of Physical Therapy in Reducing Disability Time in Fractures of the Long Bones. Jonathan M. Wainwright.
7. Operation for the Cure of Aneurysm. Archibald MacLaren.
8. Ligation (Partial Occlusion) of the Abdominal Aorta for Aneurysm. George Tully Vaughan.
9. A Note on the Treatment of Secondary Hemorrhage from the Branches of the Common Carotid Artery. Vilray P. Blair.
10. The Causation and Avoidance of Cerebral Disturbances in Ligation of the Common Carotid Artery. Leonard Freeman.
11. Surgical Aspects of Tumor of the Brain. Miles F. Porter.
12. A Surgical Approach to the Sphenopalatine Ganglion. Charles H. Frazier.
13. Atrophy and Inactivity of Parotid Gland. Frank LeMoyne Hupp.
14. An Analysis of 102 Tumors of the Breast. Randolph Winslow.
15. Diaphragmatic Hernia: The Thoracic Approach. Philemon B. Truesdale.
16. Pernicious Anemia with Special Reference to the Spleen and Large Intestine. William J. Mayo.
17. Some Secondary Complications of Posterior Gastroenterostomy. Edgar A. Vander Veer.
18. Typical Fibromyoma of the Abdominal Wall Following Hysterectomy. George Emerson Brewer.
19. Socalled Congenital Dislocation of the Shoulder Posterior Subluxation. Alfred S. Taylor.
20. Standardized Results of Wound Healing. Charles L. Gibson.
21. The Surgical Removal of Pancreatic Stones. Walter Ellis Sistrunk.

2. Carcinoma of the Thoracic Esophagus Extrapleural Resection and Plastic.—Dr. Howard Lilienthal states that this operation was devised to minimize the danger of septic mediastinitis. It was recognized that before opening the esophagus the mediastinum must be sealed off by a healing process which should have advanced to the stage of granulation. The patient was a man 35 years of age, with a partially obstructing squamous cell carcinoma below the arch of the aorta. At the first step the operator lifted a skin flap about 3 inches in width and 10 inches in length which was outlined by an incision beginning at the 8th interspace close to the spine, passing obliquely forward parallel to the ribs, thence downward and then backward to a point about 3 inches below the place of beginning. This flap was used in fashioning the new esophagus to take the place of the resected part. A 6-inch subperiosteal resection of the ninth rib was then made and the pleura stripped forward away from the posterior mediastinal region. The eighth, seventh, and sixth ribs were cut through near their spinal attachments after peeling the pleura away, and then the tenth rib also was divided. The pleura could now be pushed forward, exposing the organs within the mediastinum through a wound large enough to permit the surgeon to work with both hands in its depths. With a stomach tube in the esophagus this structure was easily identified and stripped from the pleura and aorta. The fibers of the plexus gulae of the right vagus were divided. The fusiform swelling which marked the tumor within the gullet was about an inch and a half below the arch of the aorta. The skin flap was placed in the wound so that it partially encircled the mobilized esophagus, with the cutaneous surface toward the viscus. This first step of the operation was concluded by packing the wound with gauze. The patient could swallow fluids. Two weeks later, without anesthesia of any kind, the wound was spread apart and the tumor bearing section of the esophagus was resected. Nourishment was now given through a stomach tube passed into the lower esophageal opening, and later through an Einhorn tube passed from mouth to stomach through the gap left by the resection. The pedicle of the skin flap was cut across in another week. There was later contraction of the cicatricial tissue of the mucocutaneous margins, making it necessary to divide the strictures by stellate incisions and thereafter bougies were passed frequently. The final step was to close the posterior esophageal opening by suture and to make a plastic operation to cover the defect in the patient's back with skin by the use of sliding flaps. A few days after this final procedure liquids could be swallowed without leakage and soon all wounds were healed and any soft food could be taken normally. A number of drawings were made at the operation and are reproduced in the article. There are also roentgenograms and a photograph. Other cases in which this exposure was made are reported, but all proved inoperable. The conclusions are as follows: (1) That transpleural resection of the esophagus has a forbidding mortality. (2) That fatal infection follows the primary opening of the esophagus within the mediastinum. (3) That it is feasible to make an extrapleural exposure of the posterior mediastinum large enough to permit the operator to see clearly and to work safely with both hands. (4) That resection of the esophagus in the posterior mediastinum can be done by dividing the operation into two stages. At the first the esophagus is freed from its attachments and the mediastinum is sealed. At the second, 10 to 14 days later, the resection is performed. (5) This procedure deserves a fair trial by thoracic surgeons.

8. Ligation (Partial Occlusion) of the Abdominal Aorta for Aneurysm.—George Tully Vaughan reports a recent case and gives a résumé of previous cases. He ligated the abdominal aorta according to Halsted's principle of incomplete occlusion, using a piece of tape instead of the metal bands. The tape was carried around the vessel about 2 inches above its bifurcation and just below the origin of the inferior mesenteric artery. Two turns of one end of the tape made a surgeon's friction knot, which was drawn tighter and tighter until pulsation was no longer perceptible in the iliacs and barely so in the aorta above the ligature. The patient was kept in bed most of the time for two months, and potassium iodide administered. Five months after the operation he returned to his occupation as bricklayer. He is still alive and working, one year and four months after the operation.

21. The Surgical Removal of Pancreatic Stones.—Walter Ellis Sistrunk, in reviewing the histories of the patients operated upon for pancreatic calculi in the Mayo Clinic, finds that during eleven years this operation was performed four times. It is customary in this clinic to routinely examine the pancreas in all patients operated upon for upper abdominal disease. The fact that so few pancreatic calculi have been found during this time shows that they are extremely rare, or very difficult to recognize at operation. It is probable that such stones are often overlooked during the course of abdominal exploration, as they have been found at autopsy a number of times. Operations for the removal of pancreatic stones present difficulties only when the stones are impacted in the ducts near the ampulla, and can usually be performed safely.

Book Reviews.

DISEASES OF CHILDREN, Designed for the Use of Students and Practitioners of Medicine. By HERMAN B. SHEFFIELD, M.D., Formerly Instructor in Diseases of Children, New York Postgraduate Medical School and Hospital, and Medical Director, Beth David Hospital, Consulting Physician to the Jewish Home for Convalescents and the East Side Clinic for Children. With 238 Illustrations, Mostly Original, and Nine Colored Plates. Price, $9.00. St. Louis: C. V. Mosby Company, 1921.

Dr. SHEFFIELD has given us in this volume of nearly 800 pages a work that will surely gain recognition on its merits as among the most practical treatises on the diseases of infancy and childhood. It embraces the entire subject, beginning with chapters on the methods of prevention and control of disease, the various diagnostic tests, and the examination of the sick child. A special chapter is devoted to the mental diseases of childhood—the insanities as well as idiocy and mental deficiency. In the preface the author ventures the opinion that some cases of dislocation of the hip in infants are not congenital, but are acquired as the result of sepsis. We have not been able to find any discussion of this in the body of the work, but it would be interesting to learn the grounds upon which Dr. Sheffield bases this theory.

The illustrations are for the most part original and are well chosen; they are beautifully printed, but the comfort of the reader has been more or less sacrificed to them, for the entire book is printed on heavy calendered paper, adding to the weight and causing distress to the eyes by the reflection. In spite of this drawback, the book can be recommended to practitioners, especially the younger ones, whose work includes the care of children, for they will find between its covers much valuable advice.

GRAPHIC METHODS IN HEART DISEASE. By JOHN HAY, M.D., F.R.C.P., Honorary Physician, Liverpool Royal Infirmary; Honorary Consulting Physician, Ministry of Pensions; Late Consulting Physician in Diseases of the Heart (Western Command). With an Introduc by Sir JAMES MACKENZIE, M.D., F.R.C.P. New York: Oxford University Press, American Branch, 1921.

THIS is a book which, despite its rather technical sounding title, is one that the general practitioner will find exceedingly useful; for even if he does not make graphic records himself of his cardiac patients, he should be in a position to interpret those made for him or those illustrating articles in journals and special treatises. But especially will it be found of service as a guide to the student who seeks to acquire a knowledge of this comparatively new science—one of exceeding interest and full of promise for the future of cardiac diagnosis and therapeutics.

SQUINT: ITS CAUSES, PATHOLOGY, AND TREATMENT. By CLAUD WORTH, F.R.C.S., Consulting Surgeon to the Royal London Ophthalmic Hospital (Moorfields), Consulting Ophthalmic Surgeon to the Queen Mary's Hospital for the East End. Fifth Edition. Price $3.50. Philadelphia: P. Blakiston's Son & Co., 1921.

THE author of this book has been for years among the most prominent investigators on the subject of strabismus, and the fifth edition of his deservedly popular book on the subject will be welcomed. It is written in a clear, lucid style, and embodies the results of clinical experience extending over a period of years. In common with the more progressive ophthalmologists of the time he advocates the treatment of squint from earliest infancy, and to judge by the clinical histories he obtained good results when persistently following his line of treatment. It has been the unfortunate experience of every eye man to come across many strabismus cases whose complete or partial amblyopia was undoubtedly due to neglect of early treatment, whether by occlusion, atropinization of the sound eye, or training of the fusion sense, and one cannot but agree with the dictum of the author as expressed in the preface that of the cases of squint in which efficient treatment is carried out from the first appearance of the deviation, only a small proportion will ever need operation. While of undoubted value as a guide to the specialist, this book will be found useful to the general practitioner, who is often the first to see the squint and on whose early recognition of the trouble may depend the entire future of the child.

SLEEP WALKING AND MOON WALKING. A Medico-Literary Study. By Dr. J. SADGER, Vienna. Translated by LOUISE BRINK. Nervous and Mental Disease Monograph Series No. 31. New York and Washington: Nervous and Mental Disease Publishing Company, 1920.

FOR eons human nature has struggled along, trying to understand and to comply witih the laws of life, but ofttimes doing it in ignorance of the meaning and outcome of the struggle. Now comes along psychoanalysis, and according to recent conceptions, we are in the dawn of a new type of understanding—thrilling, gripping understanding, but not exactly pleasing.

As a ray of light bringing the dawn of psychoanalysis this monograph serves its ends, but it most assuredly is a strong yellow ray, almost a lurid ray at times. Frankness, generosity of view, and almost sanity save the writer in his handling of this subject. While it is beautifully written, showing a simplicity and a grasp that are a delight to the reader, at times these powers are all that seem to hold the subject matter from carrying out the discussed intentions—sleep walking and moon walking. One cannot figure whether the writer is right or wrong. One can only figure that, if we *must* believe the writer and other wanderers like him, human nature has certainly carried over a lot of unnecessary junk, degradedness, and childish motives in order to square this life and the great unconscious, socalled.

THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION. By CHARLES P. B. CLUBBE, L.R.C.P., M.R.C.S. Consulting Surgeon to the Royal Prince Alfred Hospital; Consulting Surgeon to the Coast Hospital, Sydney; Hon. Surgeon to the Royal Alexandra Hospital for Children; Late Lecturer in Clinical Surgery, University of Sydney, New South Wales. Second Edition. New York: Oxford University Press, American Branch, 1921.

THIS edition has been completely revised and is based upon the experience gained in treating 270 cases of intussusception. The author gives a concise but sufficiently detailed description of the anatomy, pathology, etiology, varieties, symptoms, diagnosis, and treatment of the condition, and a short chapter on the after-treatment. There are also two appendices; one giving a list of cases that have recovered after resection of bowel; the other a description of some cases that have recovered after irrigation, some in which there were recurrences, two of retrograde intussusception, and a number of unusual cases of various kinds.

Clubbe emphasizes one point very frequently (and it is one that cannot be emphasized too strongly); namely, that the treatment for intussusception is *laparotomy*, and that directly an intussusception has been diagnosed arrangements should be made without any delay for opening the abdomen. Irrigation he considers of value in certain circumstances and to a very limited degree—his views must be read *in toto* to be fully understood and appreciated—but he makes it perfectly clear that operation, the earlier the better, is indicated in all but a very small percentage of cases.

The book was designed to help the young practitioner and the young surgeon and should be a great help to them; but it also contains much of great interest and value to older practitioners and surgeons as well.

UEBER DISPOSITION. Ein Versuch die Pathogenese der Kontagiösen und der Infektions-Krankheiten sowie das Problem ihres Gehäuften Auftretens auf naturwissenschaftlicher Grundlage zu erklären. Von Dr. FELIX U. SZONTAGH. Berlin: S. Karger, 1918.

THIS volume comprises 347 pages, divided into 14 chapters on the following subjects: Necessity of predisposition to epidemics for their existence, volatile contagion, scarlet fever, genetic and œkological factors, law of specificity, variability of disease exciters, constitutive principles, preparation for disease, predisposition and immunity, phenomena of intoxications, the cancer problem, the milieu theory.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held March 15, 1921.

DR. SAMUEL BRADBURY IN THE CHAIR.

Duodenal Dilatation.—Dr. HAROLD BARCLAY presented this paper, in which he divided duodenal dilatation into two groups, acute and chronic. The acute dilatation, he said, was well known under the name of "acute dilatation of the stomach, following abdominal operations. The chronic dilatations of the duodenum were reclassified under two subdivisions, (1) those due to organic stenosis, (*a*) in the duodenal wall such as ulcer, or (*b*) about the duodenum, as adhesions, tumors, etc.; (2) mechanical occlusion of the duodenum, produced by traction of the root of the mesentery or constriction of congenital bands and adhesions. The writer referred to various synonyms for this condition existing in the literature and defined chronic duodenal obstruction as intermittent, incomplete constriction of the duodenum from pressure of the superior mesenteric artery and mesentery against the body of the vertebra or by bands or adhesions. After discussing various theories advanced to explain the condition, Dr. Barclay showed lantern slides illustrating the normal duodenum which was like the capital letter C and two other forms, the V and the U-shaped, each of which had pathological possibilities. Some of the causes of chronic dilatation of the duodenum in their order of frequency were: (1) ptosis of the transverse colon, particularly of the hepatic flexure, with or without gastric ptosis; (2) a small intestine which was provided with only a short mesentery; (3) a jejunum which dropped perpendicularly instead of having the normal sweep into the left inguinal fossa; (4) old duodenal ulcer which had become attached to the gallbladder or liver, producing a sharp kink; (5) two types of bands in the upper abdomen, one embryological and the other acquired. The embryonic bands were remnants of the gastrohepatic omentum which passed from the pylorus to the liver or gallbladder, and compressed the first portion of the duodenum. Acquired or developmental bands might pass from the transverse colon to the pylorus, liver, or gallbladder, constricting the duodenum between the band in front and the non-yielding vertebra behind. When prolapse of the stomach occurred to such an extent as to angulate the first portion of the duodenum, attacks of temporary obstruction might occur. The symptoms were like bilious attacks only there was more pain, paroxysmal in character, due to the intermittent obstruction. The intermittency in obstruction was produced by the changing position of the prolapsed stomach. The question of duodenal dilatation had remained more or less obscure and aroused but little general interest until within the past several years. There had been a number of reported operations, the majority with seemingly good results. There were many clinicians and surgeons who denied its existence, or if it did exist failed to see in it more than a phase of the generally accepted picture of visceroptosis. From his own experience in the study of 29 cases it appeared that different states of duodenal pathology were anything but rare, and would account for many cases heretofore regarded as simple gastric atony or neurosis. It had seemed in reviewing the evidence for and against that partial duodenal obstruction was a real clinical entity, and one that might account for the symptoms in those cases in which explorations had been undertaken for a possible ulcer, or a pathological gallbladder or appendix, and nothing abnormal found. Dr. Barclay said that from the standpoint of surgical control his experience with these cases had been limited; in two cases, however, it had been strikingly satisfactory. One of these was a young man, 25 years of age, who for five years had had hunger pains becoming progressively worse. The *x*-ray showed a prolapsed, fish-hook stomach with an eight hour 50 per cent. retention. Exploratory laparotomy failed to reveal anything. His symptoms returned within less than two weeks after he left the hospital. After losing sight of the patient for two years he returned and stated that his case had been diagnosed on the Pacific coast as duodenal obstruction and a duodenojejunostomy done with complete relief. The second case was that of a girl suffering with epigastric distress and nocturnal convulsions increasing in severity and frequency. In her case, also, the *x*-ray showed a prolapsed stomach of the fish-hook type. Duodenojejunostomy had restored this child to apparently normal health. In discussing the symptomatology the writer said it was well to remember that in many the condition was congenital. In the young adult who had not been subjected to prolonged illness or undue nervous strain, in fact any condition that caused loss of weight and overfatigue the stomach musculature amply compensated, and they were free from symptoms. As time went on as the result of pregnancy, sickness, or mental anxiety the neuromuscular tone was reduced, there was loss of weight and relaxation of the recti, with consequent sagging of the abdominal viscera. Under these conditions the first signs of a failing gastric compensation took place, and the stomach began to fail in its motor function. With this failure symptoms began. Perhaps the earliest symptom of chronic duodenal dilatation was the distress beginning in the epigastric region or more properly a little toward the right. At first this occurred three or four hours after meals, was moderately relieved by food, and began again as the stomach emptied. The onset was very similar to the symptoms usually described as gastric ulcer. As time went on the distress became more continuous, later there was belching of gas, constipation, the heart became irritable and rapid, and this irritability could not be explained by any cardiac disturbance or exophthalmic goiter. The picture was one of marked autointoxication and the general manner of the patient strongly suggested this condition. The patients might show evidence of neurasthenia, complain of headaches, and the urine might be scanty and of high specific gravity; it did not always show much indican. The anuria, subnormal temperature, etc., suggested that the secretion from the duodenum stimulated the vagus and lowered the vasomotor tone. The diagnosis of these conditions rested almost entirely with the radiologist, though there were certain conditions which the clinician might elicit. Many of these patients referred their pain to the right iliac fossa, complained of a feeling of fullness and discomfort. At times one might elicit a very definite tenderness either over the gallbladder region or again over McBurney's point, or both. In contracting their abdominal muscles and taking a deep breath, or by raising the stomach with the hand a kink seemed to be freed with a consequent gush of gas and temporary relief. A distended ptosed cecum may likewise be of some significance. Hays deep percussion test over the right rectus muscle in the area bounded by the liver to the right, by the normal transverse colon line below and the pylorus to the left, was said to give a tympanic percussion note when duodenal dilatation existed. Examination of the stomach contents furnished no definite data. Examinatin of the stools in certain cases showed definite carbohydrate indigestion, as evidenced by fermentation and an excess of free starch. The ultimate diagnosis must rest with the *x*-ray. The reason why the condition had not been recognized earlier was because *x*-ray plates had been relied upon. To make the diagnosis the upright patient should be fluoroscoped after the ingestion of the bismuth, the stomach pushed up by the right hand and the duodenum then became very evident. The medical treatment was discussed under the headings of postural training, the supporting belt, diet, and duodenal lavage.

X-Ray Diagnosis of Duodenal Dilatation.—Dr. HARRY M. IMBODEN made this contribution, which consisted of a lantern slide demonstration. He stated that his interest in this subject was aroused by seeing a relatively large number of asthenic stomachs in cases in which the symptoms were not accounted for by the ordinary manifestations of ptosis. A certain number of these patients showed retention in the duodenum. The condition and *x*-ray findings were described by Jordan eight years ago and while their knowledge of the subject had grown considerably during that time the interest of physicians and surgeons had not been centered upon

this subject. Ulcer and carcinoma were the only diseases in which they were primarily interested and he had found this true practically throughout the country. The clinical manifestations of duodenal dilatation could not be definitely relied upon; the *x*-ray findings, on the contrary, were very definite and conclusive. These were: (1) Reverse peristalsis, which was a symptom of obstruction in any part of the canal except the cecum and ascending colon. (2) Writhing and twisting. This seemed to be a supreme effort on the part of the duodenum to empty itself. The barium meal passed backward, sometimes to the pylorus and sometimes through the pylorus into the stomach. This might be repeated time and time again and finally the barium might be forced into the jejunum. Once one had seen this phenomenon he would never forget it. (3) Puddling. This was simply an accumulation of the contents in the lowest part of the duodenum and showed that the duodenum was unable to empty itself. (4) Dilatation. This was seen in advanced cases and a lengthening as well as an increase of the diameter of the gut was shown. (5) Tenderness over the angle of Treitz. This must be elicited with the patient in the standing position to be of value. Under the screen one lifted the stomach and followed it up with the finger to the angle and if it was tender you would find it out promptly without questioning the patient. The findings in less chronic cases were of course less pronounced than those delineated. It had been said that dilated duodenum was present only in ptotic patients; that was not correct because within the past two months he had found it in two typically sthenic patients. The diagnosis could not usually be made from the *x*-ray plates no matter how many were made but only from the screen examination. The only operation indicated was duodenojejunostomy.

Dr. JOHN L. KANTOR said that in listening to this presentation one question that had occurred to him was whether this condition could be regarded as a clinical entity of importance, and whether it occurred frequently. Neither of the speakers had mentioned approximately how often such a condition was to be met with. One who had not the advantage of all methods was not in a position to say whether or not this was a clinical entity and whether or not it was of clinical significance. Again we might say that all these cases might be divided into two groups, those due to organic lesions and those due to socalled functional conditions. It would be well if we could differentiate these so that we could tell whether we were dealing with a real pathological lesion or with a condition that might be due to constitutional causes. There was no question that when adhesions were present, or tuberculous nodes, or a cicatricial lesion that retention was to be expected. He did not see how the presentation was complete without a demonstration showing where the primary delay was. In some of the slides it seemed that the primary obstruction was in the jejunum and ileum, lower down in the intestinal tract. Then there had been no reports of postmortem examination. If one went back in the literature it would be found that Jordan first described the condition in 1912, but if he remembered correctly his claims were not universally accepted. He was not clear whether Dr. Barclay was describing a condition that was as rare, for example, as gastromesenteric ileus, or whether he implied that we had been overlooking a common condition. If one could see hundreds of cases without meeting a case of dilatation of the duodenum he thought it was against its being very common. Again when the duodenum was enlarged one should look for intestinal obstruction. Any stasis that went with atony here or elsewhere was quite capable of producing dilatation of the duodenum and the symptoms described, as was the stasis associated with migraine, mental symptoms, and insanity.

Dr. GEDDE A. FRIEDMAN stated that about eleven years ago he had observed two cases of acute paresis of the stomach and duodenum: in one case the condition followed an operation for appendicitis and a secondary operation proved the diagnosis; in the other case the acute paresis of both viscera was found at autopsy. A complete report of these two cases and of a third case was clinically observed, was made in the *Archiv f. Verdauungs Krankheiten*. In this paper he discussed at length on the causes of acute gastric and duodenal paresis, which as was well known, were various. Acute dilatation of the stomach and duodenum were described after indigestion, or after prolonged anesthesia, and infectious diseases. If one looked over the literature he found cases spoken of as chronic indigestion in which the duodenum was only dilated in the first portion. By *x*-ray examination the cap of the duodenum in such cases would have shown an ectatic condition, while other parts of this viscus would not be dilated. In the German and the French literature paralytic duodenums have been described as of central origin and in the article referred to he had gone into this theory. Referring to Dr. Barclay's paper, it was correct to think that some of the causes which were responsible for acute dilatation of the stomach and duodenum were also responsible for chronic dilatation, save for cases in which the dilatation was due to obstruction from adhesions. Dr. Friedman said he had the slides from a patient who developed this condition three months after a prolonged operation for gallstones, ulcer, etc. A gastroenterostomy was done and the appendix removed; the operation being difficult and lasting two hours, and about three months later the patient came back with symptoms of indigestion. The first and second portions of the duodenum were markedly dilated. This condition of chronic dilatation of the duodenum was probably what Dr. Kantor was referring to when he asked if it was considered rare or whether it was frequently overlooked. As to whether the operation was of great benefit Dr. Friedman said he knew from the literature about gastroenterostomy in acute dilatation and that it was absolutely of no avail. There were cases not due to mechanical conditions, in which there were no mesenteric adhesions only acute dilatation from a possible central cause; therefore he did not believe these cases would yield such excellent results from surgery.

Dr. MAX EINHORN said he was very much gratified to hear the readers of the papers discuss this subject in such a thorough manner. He had been present when Dr. Bloodgood read the paper mentioned by Dr. Barclay and had seen a few cases of duodenal dilatation himself. The diagnosis was rarely made clinically, though he had seen cases with symptoms of obstruction and paroxysmal vomiting at times. The thing he found most often in the fasting stomach in duodenal dilatation was bile mixed with gastric juice and some remnants of food. If the examination of the stomach and duodenal contents was to be of any diagnostic value it must be made on the fasting stomach. The last patient in whom he had made this diagnosis was one seen two years ago. In this case the *x*-ray examination did not show any distention because the pylorus was not obstructed, but he found remnants of food with bile from the duodenum in the stomach, though not much; that pointed to obstruction of the duodenum and not to obstruction of the pylorus. Many of these patients were of the visceroptotic type. Sometimes dilatation of the duodenum gave clinical symptoms but those were the cases of real obstruction in which surgery was indicated. In some of the cases of visceroptosis there was a six or eight hour retention; if the stomach emptied in a proper manner they could be cured by proper diet. Some cases of duodenal dilatation no doubt did require surgery if they did not get along with medical treatment.

Dr. DAVID BOVAIRD said it was one of the delights of medicine that one was always meeting with something new. Of this particular subject, duodenal dilatation, he knew nothing until his return from the late unpleasantness; since that time it had been brought to his attention and he had become very much interested in studying patients in whom this new knowledge might be applied. He had had three patients whom he had been following for some months and who were finally brought to operation. In one instance the condition was one of obstruction in the second portion of the duodenum; in the two others the obstruction was at the angle of Treitz. All had been observed for months and carefully studied repeatedly. In none was he able to make a satisfactory diagnosis until the *x*-ray was employed and until a screen examination was made. Under the screen one saw very readily the condition that had been described tonight, but until one had seen it under

the screen it would be more or less obscure, once seen under the screen, the reality of the clinical condition was assured. Two of the patients were completely relieved and the third partially. In all three the most striking clinical symptom was vomiting. In one instance the vomiting covered a period of three years. In a second there were recurrent attacks of vomiting; this symptom was by no means constant but might occur periodically. One of the patients was a young farmer who, in the interval between attacks, was perfectly well, but during an attack lasting about three weeks, he was so prostrated that he could not work. Since the operation he had been constantly at work. Another patient was a farmer's wife, 30 years of age, who complained of indefinite gastric distress without pain which she relieved by emptying her stomach. She had ptosis and kinking of the duodenum at the angle of Treitz. Diet and abdominal support were tried without relief. Since operation she had been perfectly well. The third patient had had chronic vomiting for three years, absolutely without pain. Operation had relieved him, but he was by no means cured. The difficulty in this instance was that probably the vomiting was established as a habit. In addition to these patients who were operated upon he had had a number of patients who were not subjected to operation. Some of these patients were relieved by the treatment used for ptosis. Dr. Bovaird said he thought they were fortunate in having this subject presented by an internist, and the point made perfectly clear that these cases were by no means all surgical, though the severer types were relieved only by surgery. In the terms used to designate the condition the least valuable had been chosen; it was really an obstruction rather than a dilatation. Chronic dilatation would be relatively unimportant if there were no obstruction; it was the obstruction that had to be relieved.

Dr. EDWARD L. KELLOGG stated that there was a duty to be performed in reminding the profession of the existence of this pathological entity for it appeared to be little understood. The papers read were timely and instructive. A review of the literature was interesting. The first mention found in the literature was a case report of chronic duodenal obstruction in 1752 by Frederic Boerner, a German, who wrote in Latin a flowery dissertation describing the symptoms and autopsy findings. He mentioned the marked dilation of the stomach and stated that a stricture was found in the duodenum so tight as to preclude the passage of "the most dilute fluid." The next mention of chronic obstruction appeared 137 years later in Glenard's report, but there were earlier descriptions of congenital obstruction and Rokitansky in 1849 referred to the mechanism of acute obstruction. Robinson in 1900 discussed the subject exhaustively after fifteen years of study. His report was the most complete and comprehensive treatise of the subject up to that time and referred to thirty odd cases of chronic obstruction. Codman, Conner, Bloodgood and Laffer had presented excellent studies of the condition. It might simulate appendicitis, duodenal ulcer or gallbladder disease but frequently the diagnosis could be made from the history and physical examination. Dr. Kellogg stated that in his experience the *x*-ray examination failed to reveal the condition in many cases. Dr. Imboden's paper made this feature of the diagnosis much clearer and he had no doubt that with the improved technic the diagnosis would now be made in the majority of cases. It was probable failure was sometime due to the fact that peristalsis had been stimulated by a preliminary cathartic or that the cause was not continuously operating. Bloodgood has described a group in which a dilated and movable cecum with prolapse of small intestine caused obstruction by the mesenteric drag upon the duodenum. The obstruction might exist only when the cecum was weighted down by its contents. Medical treatment was usually successful, but if it failed surgery was indicated. We must differentiate between obstruction in the first, second and third portions of the duodenum. Harris had made a special study of the first group. These cases might be cured by gastropexy (the Beyea operation) or by dividing adhesions and readjusting the duodenum (duodenojejunostomy was not indicated). In obstruction of the second portion, possibly caused by adhesions extending from the gallbladder, duodeno-duodenostomy had been occasionally performed or cholecystectomy. When the obstruction was below the ampulla of Vater or at the termination of the third portion of the duodenum, duodeno-jejunostomy was apt to be the operation of choice. The literature contained reports of this procedure in fifty-eight cases with no mortality. In Dr. Kellogg's series of forty-one cases the majority were markedly benefited. In only one case was there a complete failure. Some patients would obtain more relief if treated by resection of the cecum and ascending colon as advocated by Bloodgood. This method was applicable particularly when constipation was a prominent symptom, as it cured the constipation and at the same time relieved the drag on the duodenum.

Dr. SEYMOUR BASCH stated that it was important to bring out the point that we had here two conditions, a medical one and a more or less surgical one. Dr. Imboden had described the picture which had been described by Jordan in which there was a real organic obstruction. There was another type in which we did not get the classical symptoms of obstruction but rather manifestations of atony. If one made the mistake of urging operation in the atonic type one is apt to meet with disaster. Dilatation meant not necessarily obstruction, but might mean poor peristalsis and poor secretions. One should be sure that he was dealing with a real mechanical obstruction before advocating surgery. Dr. Basch emphasized the value of the *x*-ray in bringing out conditions, diverticuli, adhesions, etc., in the lower duodenum as well as in the upper portion. The whole subject of duodenal dilatation and diverticuli would have been lost had the *x*-ray not brought it to our attention.

Dr. L. T. LEWALD stated that he had seen and followed up four cases of duodenal dilatation. One was a congenital stricture between the second and third portions of the duodenum in a child. That case was operated upon by Dr. Downes, who performed a gastroenterostomy. Dr. LeWald had been present at the operation and had seen the stricture, though its exact type could not be determined, that was, whether it was an anatomical defect or an outside band. The gastroenterostomy was not efficient and a second operation had to be performed to excise the pylorus. Dr. Downes had stated that a duodeno-jejunostomy would have been preferable. In the second case there was a group of tuberculous lymph nodes obstructing the second and third portions of the duodenum. This group of glands could not be removed, but a duodeno-jejunostomy was performed with a cure. The third case was one of duodenal ulcer with adhesions. Dr. LeWald said he had examined this patient before operation and his attention was drawn to the duodenal dilatation. The ulcer was in the first portion of the duodenum and the obstruction was due to dense bands extending to the gallbladder region. The ulcer was excised and a gastrojejunostomy done. The fourth case was associated with ptosis and was operated upon successfully by duodeno-jejunostomy. He thought the cases associated with ptosis were the ones in which it was most difficult to determine whether or not medical treatment was sufficient. In this fourth case there was a water-trap stomach and a dilated duodenum associated with gastroptosis and angulation at the duodenojejunal junction. This type of case was observed in a series of cases of "Water-trap Stomach" published in 1913 by Dr. LeWald.

Dr. BARCLAY, in closing the discussion, stated that the subject was a new one and they were scarcely as yet in a position to make any definite statements as to the frequency of duodenal dilatation. He thought a large number of these cases should be treated along the general lines applied to the treatment of ptosis. If the condition was as common as he had been led to believe, the cases that required surgery were comparatively rare. He thought we should be ultraconservative before rushing blindfold into surgery.

Dr. IMBODEN, in closing the discussion, said that so far as the frequency of duodenal dilatation was concerned, the marked cases, with retention of six or eight hours were definitely less than those of gastric and duodenal ulcer. Speaking of the medical treatment, they had many cases treated medically but these he could not show because they had to be examined by the

fluoroscope in order to demonstrate the condition. The less marked cases were perhaps as frequent as ulcer but he was not sure. So far as autopsies were concerned, none of the patients had died. These cases were frequently missed unless they were studied carefully under the screen. It required time and patience to make the diagnosis and, as Dr. Kellogg had said, symptoms were not always present.

Experiences with the Lyon Test (Magnesium Sulphate Lavage of Duodenum) for Determination of Gallbladder Disease.— Dr. BURRILL B. CROHN, Dr. JOSEPH REISS, and Dr. MORRIS T. RADIN presented this communication, which was read by Dr. Crohn. They stated that the fruition of this test and its therapeutic application depended upon the successful demonstration of all the following premises: (1) Demonstration of the presence of a functioning sphincter at the mouth of the common bile duct. (2) Demonstrations that rhythm and contractions of the gallbladder walls and simultaneous relaxation of the sphincter action at the papilla were both controlled by contrary acting systems of innervation. (3) Evidence to show that magnesium salts caused relaxation of the smooth muscle of this sphincter when applied to the duodenal mucosa and thus reflexly caused contractions and emptying of the gallbladder. (4) That the fluid obtained was really gallbladder fluid and that changes in color, consistency and amount indicated disease. (5) That cytological, chemical and bacteriological examination of this fluid was both possible and feasible and led to dependable conclusions regarding gallbladder pathology. The steps in the theorem of Lyons were as follows: The magnesium sulphate solution, introduced through the duodenal tube in the fasting state, relaxed the sphincter at the mouth of the common bile duct. A flow of bile, common duct bile, or "A" bile, as Lyon called it, followed. Immediately thereafter the gallbladder contracted as a result of the application of the law of contrary innervation and the gallbladder, or "B" bile, appeared in the duodenum and was aspirated or syphoned off. There followed now in order "C" bile or bile from the hepatic ducts, and finally "D" or pure liver bile. Upon the collection of these fluids and their examination Lyon based his conclusions regarding the character of these specimens, their normality or abnormality, and upon the amount and character of the "B" bile were based his assumptions regarding the size and status of the gallbladder. Similarly he deduced the facts from observations upon the "C" and "D" bile regarding the presence of cholangitis or of intrahepatic suppuration. In discussing the first premises, the writers reviewed the work of Oddi and Henerickson, and described experiments of their own on dogs, by which they were able to demonstrate a definite sphincteric action at the mouth of the common bile duct, though not actually a certain anatomical sphincter. As regarded the second premises, physiologists were not in accord. Experiments which they had carried out with the assistance of Dr. Auster in the Laboratory of Physiology at Cornell Medical School in which the gallbladder bile was stained blue to identify it showed that cholegogues and solutions of salines and peptones had a tendency to encourage the flow of liver bile but they found no agent applied to the duodenum that caused the expulsion of the gallbladder contents. Strong faradic stimulation of the peripheral end of the right vagus caused general abdominal contractions of intestines, diaphragm, stomach, etc., and with these the expulsion of gallbladder bile, though no evidence of actual muscular contractions of the gallbladder were seen. They were led to believe from their observations that the gallbladder was a rather inactive organ which took little part in the physiological production, storage or expulsion of bile. Similarly the sphincter, while capable of contractility and closure under mechanical and faradic stimulation, acted very little normally as a sphincter. The flow of bile was continuous, not interrupted or rhythmic, and no functional use of the sphincteric muscle was observed. In investigating the third proposition, the writers discussed the work of Meltzer on the action of magnesium salts, and state that in these experiments on dogs in which the gallbladder contents were stained blue to identify them, they applied to the mucosa of fasting dogs' duodenum a concentrated solution of magnesium sulphate. In the fasting state practically no bile of any kind passed out of the papilla; the gallbladder was moderately full. No amount of magnesium sulphate caused any expulsion of the gallbladder contents. This experiment was repeated on eight dogs with the same negative results. In discussing the fourth premises, the writers stated that they had carried out magnesium sulphate lavage of the duodenum in seventy cases, the test being repeated a second and a third time in a few of the cases. These were all cases of gallbladder or bile duct disease or related conditions. Twenty of these cases were followed to the operating table and furnished criteria for an honest judgment. The technique of Lyon was simplified and adapted to hospital use. After the magnesium sulphate lavage the flow of bile was truly more profuse and abundant, usually a darker shade, varying from dark yellow or orange to a dark brown or deep greenish brown. After twenty to forty minutes the shades of bile again became lighter and within three-quarters to one hour returned to their original hue. This change took place in 65 per cent. of the cases and was accompanied by a pathological condition in 62 per cent. of these cases. In the remainder of the cases, sixty-eight in all, a definite change to darker and cloudier bile occurred, after the lavage with magnesium sulphate, yet no pathological condition was found at operation. On the other hand, seven cases were encountered in which no color change followed the lavage; of these five cases had definite pathological changes associated. Of these five cases without changes in the bile, three had at operation apparently stones in the cystic duct; in the other four cases in which no change of color scale occurred, no cause was found at operation. The writers then discussed the origin of the "B" bile and stated that even conceding the point that the "B" bile was usually gallbladder content, occasionally abnormal common duct bile could produce the same change. The proof that the "B" bile was really gallbladder bile would lie in the similarity of color, consistency and microscopic findings between this secondary bile and the contents of the gallbladder as found at the operating table. For this purpose they had asked the operating surgeon to aspirate the gallbladder immediately upon exposing it and to allow them to examine it. The bile aspirated at operation was nearly always darker, a deep dark brown shade, and more mucoid in consistency than the "B" bile of the duodenum. Microscopically no similarity could be demonstrated in the sediments of the two compared fluids. Often on the basis of finding detritus and numerous pus cells in the duodenal sediment of the secondary bile a chronic cholecystitis would be predicted, and often correctly, but upon sedimenting the fluid removed at operation by aspiration the same pus cells and characteristic sediment could not be found in the "B" bile specimen. This should not be a surprising statement for old chronic cholecystitis, with or without stones and with adhesions, was usually, at the operating table, a sterile process, at least so far as finding frank pus or viable bacteria within the gallbladder lumen. Then why expect to find them in the "B" bile even if this "B" bile was gallbladder fluid? If frank suppuration or an acute inflammation was present in this organ the first result was a swelling and occlusion of the cystic duct and then again one would be unable to find the evidence of gallbladder pathology in the duodenum. As to the significance of cholesterin crystals in the duodenal specimens, they had found numerous such crystals where no stones existed. In the sediment of the material separated from the gallbladder cholesterin crystals were not uncommonly present, apparently indicating supersaturated bile or bile stasis. In fact cholesterin crystals were often precipitated out of normal specimens of bile when the specimens were allowed to stand in the icebox. In regard to the question as to whether other salts than magnesium could produce the play of colors seen upon saline lavage, in a few instances sodium sulphate was tried with results similar to those obtained with magnesium sulphate. Einhorn had experimented with sodium sulphate, sodium phosphate, normal saline solution, etc., and attained results similar to those achieved with magnesium sulphate. The flow of bile that followed the magnesium sulphate irritation was apparently a saline action and not necessarily a specific quality of the magnesium ion.

While the writers had not been able to utilize the diagnostic test of Lyon for the identification of cases of gallbladder disease, they thought that the subject was entitled to much consideration and that every honest attempt to aid in its solution deserved their most painstaking attention.

Dr. ANTHONY BASSLER said he thought Dr. Crohn's paper represented excellent work and was worthy of much compliment. Starting out in a rather enthusiastic attitude he had used this method for a year and a half had found it rather disappointing in both a diagnostic and therapeutic way. Early in the course of his observations he had figured optimistically on the diagnostic possibilities of the A, B, C and D bile method. However, he found in a considerable number of people who had definitely, both clinically and by the *x*-ray and in each instance at operation, pathology in the gallbladder, yet there were no findings in either B or C bile definite enough to warrant the use of the method in any definite diagnostic way comparable for instance to the *x*-ray in the diagnosis of moderate states of duodenal obstruction. He found in several instances of people who had been operated upon for conditions other than disease of the gallbladder and in whom what looked like pathological B and C bile specimens had been obtained, that at operation there was no pathology demonstrable in the gallbladder or ducts. It is true that often he obtained findings in a case in which distinct pathology existed and then he would feel that the method was worthwhile, but in the next case the same findings would be obtained without any disease in the gallbladder or ducts—thus it was hard to draw definite conclusions as to the clinical value of the method. In people who had been cholecystectomized he had found this pathological B bile just as described and which was supposed to be from the gallbladder. Eight times the method was used just prior to laparotomy and then at operation in every instance the gallbladder contained considerable amounts of bile showing the method does not strip the gallbladder. Therapeutically there seemed to be some types of people having distress who were benefited by this mthod if it were persisted in long enough. They, as a class, do not seem to be cases of pathology of the gallbladder or ducts; they were represented in the cases that Dr. Barclay classed as bilious, or as migraine and various things more constitutional than local. Dr. Bassler said he had been especially interested in following four cases of infection of the liver in which there was distinct bacteriology and pus coming down all the time, probably from the hepatic cells. One of these cases was especially interesting since operation was recently performed and puncture proved the infection of the liver. It seemed to him that Dr. Lyon was a little overenthusiastic though there was something in it, but we had to do a great deal of work yet to find what that something was.

Dr. EDWARD A. ARONSON said that in order to criticise Dr. Lyon's test it must be performed as he performed it. Dr. Lyon paid attention to the bacteriology while Dr. Crohn paid no attention to it. Dr. Bassler had spoken of obtaining dark bile in cases which had been cholecystectomized, the speaker's experience had been quite the opposite. He had had six cholecystectomized cases and in none of them had the so-called "B" bile been obtained. A great deal of attention must be paid to the interpretation of results. Dr. Lyon insisted that the cytological examination be made immediately upon the withdrawal of the bile because changes took place rapidly. Then a great deal depended upon how one obtained drainage. It must not be fractional, but must be continuous. However, he would say that the more he saw of the work the more was he in a crystal maze. He was not convinced whether the bile came from the gallbladder or the liver or the liver ducts.

Dr. EINHORN said the question was simply whether Dr. Lyon's explanation that the dark bile came from the gallbladder was correct or not. He had tried experiments to see whether he was right or not, because it was a matter of great importance. A few years ago we did not think we could go so deeply into the diagnosis as to say whether the bile came from the gallbladder, the common duct or the liver. If one made the test as Dr. Lyon did, allowing the bile to flow out into a bottle and watching for the color change, and as soon as there was a change taking a new bottle, it would be observed that the change occurred very gradually. First the bile was golden, then it was a little darker for about ten minutes, then dark brown, and then it began to fade. He thought one could not take Dr. Lyon's explanation as correct, for if the change in the color of the bile was due to the opening of the gallbladder as a result of the magnesium sulphate the bile would suddenly get dark brown, but this was not the case; there were perhaps eight or nine different shades. How was it to be explained? The magnesium sulphate stimulated the liver and not only the magnesium, but the sodium sulphate did the same. Sodium did not open the sphincter, according to Meltzer. That showed that the explanation of Lyon was not correct and that point he wished to bring out. He also wished to say that if one gave the patient magnesium sulphate and then allowed the bile to run for fifty minutes and it became yellow and the gallbladder had been emptied, if you then gave magnesium again there would be a repetition of yellow, then dark brown and then yellow again. If the gallbladder had been emptied of its contents you could not repeat the procedure in ten minutes again. He had been watching the specific gravity, as magnesium sulphate increased the specific gravity; he found that the specific gravity was increased in the dark specimen after magnesium sulphate and not after peptone. Again, if giving 25 per cent. magnesium sulphate caused the gallbladder to open, a 10 per cent. solution, relaxing the gallbladder, should give the same reaction, but that was not the case, a milder solution giving a correspondingly weaker color reaction. All these things indicated that the emptying of the gallbladder was not involved in the reaction. The reaction was not as strong in people who had had their gallbladders out. Another point that was important was that in some cases in which there was no reaction at all that was due to faulty function of the liver and in cirrhosis there was hardly any reaction at all. This suggested that the test might be useful in estimating the function of the liver. It had been said that there was nothing in these examinations; he must say that he was not of that opinion. He rather thought the diagnostic value would increase the more we knew about it. If we did not get much out of the method at the present time, it was not the fault of the method, it was our fault. So far as he could see there was a great deal in it as regarded turbidity. Slight turbidity might not be of much significance, but if the bile looked like pea soup we could say that there was an abnormal condition of the gallbladder and usually there were stones. About the bacteriology of the bile, it was of great importance too how the examination was made. As for the cholesterin crystals, a few might be of no significance, but if there was a conglomeration of large crystals we could definitely say that we were dealing with a stone.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

LEHRBUCH DER UROLOGIE. By Prof. LEOPOLD CASPER. 608 pages with 225 illustrations and 2 colored plates. Price, 200 Marks. Published by Urban & Schwarzenberg, Berlin and Vienna.

EVOLUTION, GENETICS, AND EUGENICS. By HORATIO H. NEWMAN. 523 pages with illustrations. Price $3.75 net ($3.95 postpaid). Published by the University of Chicago Press, Chicago.

DISEASES OF CHILDREN. By Sir JAMES F. GOODHART. 942 pages with 60 illustrations. Price $10.00. Published by Paul B. Hoeber, New York.

DISEASES OF THE NERVOUS SYSTEM. By H. CAMPBELL THOMSON. 566 pages with 11 color and 12 black-and-white plates and 120 figures. Price $5.00. Published by Paul B. Hoeber, New York.

Medical History.

NEW BOOKS AND OLD.

XVIII. HENRY MORLEY'S BIOGRAPHY OF JEROME CARDAN.

By JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

IF you are not familiar with the medical writings of Henry Morley it is high time that you become acquainted. Perhaps it is best to start with "Anatomy in Long Clothes," which is his short but remarkable account of the life and works of Vesalius. Then you will be ready to take up the record of that most remarkable man, Jerome Cardan, often referred to by his name in Italian as Girolamo Cardano, or in the Latinized form, Hieronymus Cardanus. Cardan has been referred to as the wisest fool and the most foolish wise man. He was so certain that he would go down in the history of science and medicine that he left much material for the biographer. Morley's life is the result of a careful study of his works of which it is stated he published one hundred and thirty-one during his life and left behind in manuscript one hundred and eleven. Cardan was the most successful scientific author of his time and his books have perhaps been reprinted oftener than those of the other writers, but unfortunately the most popular were often those containing the greatest amount of foolishness. His collected works were issued in 1663 at Paris by Charles Spon and comprised ten folio volumes.

Cardan was born to sorrow in 1501. His mother was a young widow whom his father had neglected to marry. This question of his illegitimate birth was afterwards a source of a great deal of annoyance and stood much in the way of his advancement. The boy led a sickly life and evidently had a pitiful childhood. He had a passion for mathematics and for games of chance, and was particularly proficient in those played with dice. As to how much his career was influenced by his bodily infirmities is, of course, uncertain. On this point Morley says:

> The day may come when somebody shall teach us how to estimate the sum of human kindness that proceeds from good digestion and a pure state of the blood—the disputes and jealousies that owe their rise entirely to the livers of a number of the disputants—or how much fretfulness, how many outbursts of impatience, how much quick restlessness of action, is produced by the condition of the nervous matter. Such calculations, though we cannot make them in the gross, we make, or ought to make, instinctively when we become intimate with individuals. The physical life of a man cannot be dissociated fairly from his intellectual and moral life, when we attempt to judge him by the story of his actions. In the case of Jerome Cardan, it is more than commonly essential that we know a little of the body that he carried to his work, for its unsoundness influenced his conduct and caused many a wise man to shrug his shoulders, both among contemporaries and long afterwards, and even to this day, over the question, "Had he not madness in his composition?"

Morley has given a considerable account of all the various disturbances which Cardan took pains to include here and there in his writings. He was a neurotic individual, whose dreams and imaginings would make fine material for some ambitious follower of Freud.

When he was nineteen he left his father's house and set out for Pavia where he made rapid progress particularly in mathematics. Jerome chose medicine as his profession and later journeyed to Padua where he accepted the post of Rector of the Gymnasium. This was on his part a characteristic action and a thoroughly foolish one. The Rector was the chief magistrate of the university, holding court and deciding disputes among the students and professors and overseeing the teachers. The real work was done by a pro-rector, while the rector himself, who must needs be a wealthy man, was called on only to open his purse. For many years after the time of which I write, the rectorship was universally shunned as a dignity not worth the price. That this "clever, penniless, disreputable young scholar of twenty-four," as Morley calls him, should have taken the post is almost beyond belief. He apparently had none of the honors or privileges that went with the position nor is there any record that he assumed the state and the garments, and the ornaments that were deemed fitting for so honorable an officer. He seems, however, to have spent a year during which he evidently gave the dinners which were expected of him and those were doubtless paid for by his hard-working mother who lived in Milan. Of course it is possible that his skill in gambling may have enabled him to pay for some of his entertainments.

As to his doctorat Morley gives the following account of his receiving his degree:

> He was rejected twice; but when he made his third effort, the adverse voices were reduced to nine, and he was admitted Doctor of Medicine, and received with due solemnity the open and shut book, the barette, the ring, and the kiss. The open book signified things known to him that he was authorized to teach; the closed book signified the knowledge that it yet remained for him, and was his business, to acquire. The barette was of an ecclesiastical form, and signified that he was consecrated as a priest to science, and by its name (bi-rect), twice right, some thought it also signified that teachers ought to be correct in practice as in theory. By the ring he was espoused to his profession. The kiss was the symbol of the brotherhood to which he was admitted, and the peace and harmony that should prevail among all fellow-laborers in art or science. Then in the cathedral he was ushered by the bedel formally from a seat by his presenters to a seat by the prior, further symbolizing that, as a man of learning, he was qualified to sit among the princes of the earth. So Jerome was made a doctor in the famous University of Padua. He was then twenty-five years old.

He started to practice in the small town of Sacco, some ten miles from Padua. Here he lived some seven years, fearing to return to Milan on account of the war, plague, pestilence, and famine which scourged that city. Morley gives the following account of him at this time:

> "The appearance of Cardan in his manhood well accorded with the temper of his mind. He had thin arms and unequal hands, the left hand being elegantly formed with shapely nails, the right hand clumsy and ill-shapen. His forehead was broad, and there was little hair upon his temples; in later and graver years he wore a skull cap on a shaven head. His beard was yellow and forked. His gait was clumsy, for he paid little or no heed in walking to the way that lay before him, and his pace and bearing varied with his thoughts. It was now fast, now slow, now upright, now with bowed head, as variable as the gestures of a child. In his speech he was too copious and too deficient in amenity. He was very fond of fishing. He had a taste for cats and dogs and little birds, so that he even names them with history, music, and other things that

adorn this transitory scene, placing them in his list between liberty and temperance on the one side, and on the other side the consolation of death, and the equal ebb of time over the happy and the wretched. Among his follies he numbers an inability to part with living things that have been established once under his roof. 'I retain,' he says, 'domestics that are not only useless to me, but that I am told also are a scandal to my house; I keep even animals which I have once accepted, goats, lambs, hares, rabbits, storks, so that they pollute me the whole house.'"

In 1531 he was married to the daughter of a neighbor. This event was preceded by a dream in which he saw a lovely maiden dressed in white. He dreamed that he was walking in a paradise of indescribable beauty and as he passed he saw a gateway open and standing there a girl dressed in white. He went to her, put his arms about her neck and kissed her. Then came the gardener who shut the gate, so Jerome hung on the damsel's neck outside the locked door of his paradise. Shortly after the house of his neighbor took fire. Thus he met the owner, a captain, and the captain's daughter, whom he saw at the window dressed in white, the image of her of whom he had recently dreamed. According to all accounts the gate of paradise continued to be locked against this unlucky couple and after many years of hard labor and privation, his wife died, just before Jerome's fame led to opulence. Shortly after his marriage in 1532, he removed to Milan and from there they went to a small town named Gallarate, because at Milan the college physicians would have nothing to do with him, giving as a reason his illegitimate birth. At Gallarate there was little medical work, and a period that bordered upon destitution began. Not only did Cardan have to struggle with the physical discomforts, but he was tormented by morbid fancies, believing that every sensation was a secret omen. In 1534 his condition had become such that he returned with his wife and child to Milan and applied for shelter at what corresponded to the workhouse, an establishment maintained for the sick and needy, and a home of strangers. Through the good offices of Fillippo Archinto, he obtained an office that carried with it a small fee, that of lecturer on geometry, arithmetic, and astronomy. In spite of the fact that he was forbidden to practise by the College of Physicians, Cardan did so whenever patients came to him.

The next five years were spent in more or less misery. Jerome, suffering with bodily infirmities, harassed by his enemies and ground down by poverty, solaced himself as best he could with music, dice, and incessant writing. This was also a period of study of the philosophers, poets, and mathematicians. His love of dice he excuses by saying, "Philosophers may play, but wise men are as kings enjoying higher pleasures." His studies in mathematics, for which he was noted, interfered somewhat with his practice as a physician, as Morley says:

> A physician even in our own day cannot acquire reputation in any branch of literature or science that does not bear directly upon tongues and pulses, without forfeiting a portion of the practice that he might have gained with ease if he had been a duller man, or if he had but hidden some part of his light under a bushel.

Up until he was thirty-five Cardan had never had anything of his printed, but his friend, Ottaviano Scoto, having become the master of a printing house through the death of his father, Cardan's hopes were at last fulfilled and the manuscript which he had written some time before about the "Bad Method of Practice among Physicians" was printed at Venice in 1536 with the title, "*De Malo Medendi Usu.*" In the dedication of this he comments on the life of a physician as follows:

> The things which give most authority to a physician in these times, are habits, attendants, carriages, character of clothes, cunning, suppleness, a sort of artificial, nambypamby way; nothing seems to depend on learning or experience. It would be well if this criticism had quite ceased to be applicable. It did not lose its force for at least two hundreds and fifty years, and is in our own day only beginning to grow obsolete.

Morley says that this is a clever book denouncing seventy-two errors in practice, one of which we can recommend to the prohibitionists. This was the error of the total denial of wine to the sick. "He taught that to do nothing with physic was much better than to do too much." The same statement afterwards was used by Locke who said, "It is better to do nothing than to do amiss."

Cardan attained great prominence as a mathematician and he was very proud of his skill in algebra. Space prevents going into the almost needless disputes he had with other mathematicians. They were jealous of him and he suspicious of them. About this time, through the kindly offices of several friends, he was at last enrolled among the members of the College of Physicians of Milan. As Morley says, he had at last attained the long-sought paradise of print and there followed rapidly various works printed in the various printing centers. His books must have sold well for they were in large demand by the various publishers.

Garrison says that his best book is "De Subtilitate Rerum," which contains among many other things a device for teaching the blind to read and write not very different from that devised by Braille. He also considered teaching the deaf by signs.

The next few years were spent in study, in writing, and in gaming. He was improvident, spent much of his time in bad company, and sank again into great poverty, having neglected legitimate sources of income. In 1544 he removed to Pavia where he was given a salary of two hundred and forty gold crowns for lecturing on mathematics. Morley gives at considerable length the account of his mathematical quarrels and says of his book, "*Ars Magna,*" the Great Art—Algebra, that it is, "A volume so especially important and begotten in so quaint a way that whether I wished this narrative to be read chiefly for information or amusement, it would equally be fit that it should therein be put prominently forward." In commenting on the connection between algebra and physics, he also says:

> A more striking illustration of the intimate connexion that existed formerly between these sciences, is to be found in that part of Don Quixote which relates how the bachelor Samson Carrasco, being thrown from his horse by the knight, and having his ribs broken, sent—it is said quite naturally—for an algebrist to heal his bruises. Keeping in mind this old association of ideas, we find that there was nothing exceptional in the position of Cardan as teacher of mathematics and practitioner in physic, nothing odd in his combination of the callings of an almanac maker, an algebrist, and a physician.

In 1543 two tracts were published by Joannes Petreius at Nuremberg. They were on astronomy and astrology and contained various horoscopes chiefly of noted persons. Cardan started a life of Galen, but apparently never finished it, and he also wrote a treatise on Example in Love. He believed in writing for the fire as well as for the press, believing that by so doing he purged his mind of much foolishness. In this present day it is a great pity that many authors do not patronize the fire more. His printed works were carefully written and revised and often rewritten, for he said, "They who write without digestion are like men who eat crude things: for a slight and temporary satisfaction they inflict upon themselves a grave and lasting harm."

Along with the others of his time he went in for what Morley calls the attractive and delusive pseudo-sciences on ghosts, dreams, portents, palmistry, signs in the heavens, and wonders upon earth. We probably know more about Cardan than almost any other writer of his time, for he left the most intimate accounts of his likes and dislikes and what he did and how he lived, so that it is easy to reconstruct his days with comparative accuracy. He had two flattering offers both of which he refused. One was to go to Rome to become physician to the Pope, the other to become physician to Christian III, King of Denmark. Now followed a period of successes, both as a medical teacher and as a practitioner, and in 1547 his professorship was increased to four hundred gold crowns. As his children were growing up he wrote a work of precepts for them.

Cardan made a remarkable journey to Scotland to examine and prescribe for the Archbishop Hamilton. He journeyed to Paris where he met with a warm reception and from there he journeyed with Cassanate, Hamilton's physician, to Scotland. While in Paris he dined with Jean Fernel and Jacques de la Boë. The latter, a professor of anatomy in Paris, Jerome describes as a merry little old man of seventy, quite bald, quite little and full of jokes, a somewhat different picture than is usually drawn of this testy old anatomist. Cardan's study, analysis, and therapy in the case of the Archbishop is quite curious and makes interesting reading, but I shall have to pass this over as taking us too far afield.

While in Edinburgh some thirty-five days the Scottish noblemen flocked to him for advice and paid him liberally for it. He was asked to stop in Paris on his return where there were a remarkable number of people who wished to consult him, one Prince offering a thousand gold crowns, but conditions in France made travelling so precarious that he determined to travel home through the low countries rather than take the risk. Hamilton paid him eighteen hundred gold crowns, of which fourteen hundred went to Cardan himself and the rest to his attendants, and he was also presented with a gold chain and other gifts. While in London he visited the King, Edward VI, who was in poor health, and he calculated the horoscope giving him a long life, but the King died soon after. As a matter of fact Cardan did not wish to give any opinion at all. He felt the danger of predicting the King's death, for he knew the fate of others who had attempted it with other monarchs before him. Cardan was offered a post of physician with the King of France, and Charles V, who was at that time besieging Metz, also was desirous of securing his services. Both of these offers were declined. Cardan went home by the way of Brussels, Louvain, Basle, and into Italy through Berne and Zurich.

His son, Giambatista, now caused him great trouble. He married a girl of bad reputation and subsequently poisoned her, for which he was arrested, tried, condemned to death, and executed. Cardan pleaded for his son before the Senate, made every possible attempt to have the death sentence changed into exile, but without avail. This was a heavy blow. He had spent his money very freely to aid his son; the calamity destroyed his local reputation, and he was made thoroughly wretched.

In 1562 Jerome resigned his professorship and went to Milan. He subsequently removed to Bologna where he began a professorship which he held for the next eight years. He was never very enthusiastic about the practice of medicine, but regarded it much in the light of the Frenchman who said that it was "La plus noble des professions et le plus triste des metiers," which Cabot has paraphrased to, "The study of medicine is heaven, and practice of it hell." Cardan says, "If I had money to earn, I could earn it as a doctor, and in no other way. But that calling of all others (except the glory that attends it) is completely servile, full of toil, and (to confess the truth) unworthy of a high-spirited man, so that I do not at all marvel that the art used to be peculiar to slaves."

In 1570, when nearly seventy years of age, Cardan was arrested and thrown into prison. Just why is not clear, but apparently he was accused of some impiety, but he was well treated and released some eleven days later. He was then in prison in his own house for eighty-six days and forbidden to publish any more books. Acting on the advice of his friends he resigned his chair and left in 1571 for Rome where the Pope had provided him with a pension. During the last few years of his life he was busily engaged revising his works and during this period he burned no less than one hundred and seventy, but left behind him one hundred and thirty-one works printed and one hundred and eleven in manuscript, of which Morley says, "Not twenty have seen the light." His advice to friends was, "publish no crude books, they disarm you and pass over to the enemy." He died at Rome on September 20, 1576, at the age of seventy-five years. A famous scholar and physician, his life is full of interest and contains many useful lessons.

Epidemic Hiccough.—In a recently published thesis of Strasbourg, Kritter dissociates this condition from banal hiccough. It is seen only in seasonal influenza, when it is motivated by a special gastropathy characterized by dilatation and reflex irritation of the terminals of the phrenics. The author separates it entirely from hiccough of encephalitis lethargica, which is due to disturbance of central innervation.—*Le Progrès Médical.*

Bronchial Biliary Fistula.—This excessively rare condition is described by Oliani. The patient, a woman of forty-eight years, expectorated from 300 to 500 c.c. of bile daily. She was so weak that she maintained at all times the horizontal decubitus. There were practised on her several acts of surgical intervention, and the last was successful—the closure of a communication between the common duct and a large bronchiectasic cavity.—*La Riforma Medica.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 21. Whole No. 2663. NEW YORK, NOVEMBER 19, 1921. $5.00 Per Annum. Single Copies, 25c.

Original Articles.

A PNEUMONIA STUDY.

BY CARTER S. COLE, M.D.

NEW YORK.

I. PITCH AND TIMBRE.

THE flood of physical examinations for the army, and the great number of those who were taken ill after entering the army, would seem to justify a review of some of the facts relating to the diagnosis in certain lung conditions; moreover, the place occupied by the *x*-ray to-day compels something more than guesswork or supposition on the part of the examining physician. And yet we believe that nature has endowed man with organs that make it possible for him to check even this instrument of precision devised by man. That all men are not capable of making accurate findings we know full well; but have the physicians recognized the limitations that nature has herself placed upon them? A man who cannot tell the difference in quality between the note of a trombone and xlyophone, a flute and a fiddle, or any two instruments that give a different timbre in tone, or who cannot recognize the difference in pitch of a quarter or half tone, cannot be expected to become an expert in physical diagnosis; indeed, it would be just as reasonable to expect a man who is color-blind to be a great painter, or one who is tone-deaf to be a great musician.

During this recent epidemic of pneumonia in the camps, the fact was demonstrated again and again that the ear can detect a patch of infection quite as early as the *x*-ray—indeed, sometimes before there was enough organization to give the shadow, and it can be accepted as a maxim that any infiltration in the lung that will cast a shadow will give quite as certainly a change in sound—making the detection possible by physical examination. Once in a great while we have a patient who can produce no voice, either on account of paralysis of the cords or because of unconsciousness, in whom we are unable to make a diagnosis of pneumonia until it has reached a much later stage of development—a stage in which breathing, râles, and percussion must be our dependence; on the other hand, in the very early stage of pneumonia, none of these is of any special value, whereas the spoken and whispered voice, on account of the change in pitch and timbre, gives us absolute knowledge of even a small area of invasion. In fact, it is our fixed belief that if we could see every case of lobar pneumonia at the very outset, we would find the seat of infection to be a very small area, and quite as definitely determinable as when we find later a large part of the lobe involved; and the evidence to the ear in lobar pneumonia is a voice, metallic (wire string) and high-pitched, quite different from the pitch and timbre in the surrounding area. In bronchopneumonia we find we can just as certainly locate the area of invasion, although the quality of sound is more like that of a gut string and the pitch is not so high. When, however, the patches of infection run together, producing the interstitial form in one or more lobes, the pitch and timbre are practically the same as in lobar pneumonia. These facts obtain for the whisper, as well as for the voice, except that in lobar pneumonia at the very outset the whisper is very distinct, exaggerated, seems hurried, and has a tongue to its sound.

The phases of the later stages, when even a stone-deaf person, one who makes no pretention at a physical examination, can make a diagnosis, we will not touch upon; there are, however, some facts about fluid conditions upon which we may speak. First of all, if the fluid is limited by a pleural adhesion and compresses the lung and, still more distinctly, if it lies over a consolidated area, the voice is carried with as much or, at times, even more intensity than over a simple consolidated area, and it is well to get that "muffled sound" idea as a universal proposition out of our minds.

It is true that thickened pleura and free fluid both change the quality of the spoken voice, rendering it more dull—but this is not so when the lung beneath is compressed or consolidated. Whoever has tried the experiment of listening to the knocking of two stones together under the water, at a distance, will appreciate how the water can conduct sound. There is one condition in which the tactile sense is of great value, viz., when there is fluid, percussion gives a doughy feeling, besides the flatness characteristic of both fluid and consolidation. There is on percussion very little perceptible change in the quality of the sound or in the pitch between fluid and consolidation.

To complete this note, then, let us remember:

1. That the pitch and timbre of the spoken voice and whisper will always be changed in infiltration and consolidation.

2. That the diagnosis of pneumonia can be easily made by the voice and whisper just as early as it can be made by an *x*-ray plate.

3. That the metallic timbre of the voice of consolidation can carry through fluid with even an increased intensity.

4. That in the early recognition of pneumonic

infection, before there is an appreciable change in the respiratory or percussion sound, the voice and whisper will give us definite information as to the site or sites of invasion by reason of the marked change in pitch and timbre.

5. That lung tissue compressed by a new growth gives a change well marked in pitch and timbre of both voice and whisper.

II. BELLSCOPE PNEUMONIA.

If an apology be needed for the imposition of a new term in the nomenclature of such an old and familiar disease it will be found in the fact that in its definition—the space covered by the bell of the stethoscope—it emphasizes a clinical fact of paramount importance, the recognition of which means more to the physician and patient than anything connected with specific forms of treatment. Let me ask what is the general idea about a pneumonic infection? Is it wrong to say that the profession as a whole do not make a diagnosis of pneumonia—especially lobar—until a large part of the lobe is involved and the various râles, tubular breathing, flatness, and what not are present; whereas, the absolute facts are that the case has already, at that time, been a pneumonia, perhaps for several days; the patient has not been kept at absolute rest, and naturally a considerable area is involved. On the other hand, even a slight chill, or a small elevation of temperature that is persistent, without any symptoms suggestive of a lung involvement, would justify a careful auscultation of every inch of lung surface and this would frequently be rewarded by finding the spot of initial infection, from which we can make as absolute a diagnosis as if the whole lobe were invaded; and this obtains whether or not a cough, or râles, or bloody sputum, or tubular breathing are present or absent.

The variety of pneumonia is determined by the character and pitch of the voice and whisper and by whether there is a single spot in an individual lobe, or several spots in one or more lobes. At a later stage in interstitial bronchopneumonia, these several spots may coalesce, making the physical signs of the two varieties almost identical; but the history, the conditions in other lobes, the sputum, the temperature curve, the *x*-ray, etc., etc., will assist in making the differentiation; and, yet, even on autopsy, macroscopic examination is, at times, insufficient to enable us to say that a particular area is an interstitial and not a lobar pneumonia. Moreover, we must recall the fact that we may have either or both kinds of pneumonia in the same or in different lobes, as postmortem examinations constantly demonstrate. We have seen lobar, lobular, and interstitial bronchopneumonia at the same time in a patient; it is rare to see bronchopneumonia and lobar pneumonia in the same lobe at the same time, and not at all uncommon to find bronchopneumonia and interstitial bronchopneumonia under such conditions; on the other hand, we frequently have a lobar pneumonia in one lobe and a bronchopneumonia in other lobes, or interstitial bronchopneumonia in another lobe. The natural distribution is not an admixture of types: but we must be prepared for such an event.

It is unnecessary to rehearse the ordinary and well-known symptoms of pneumonia—a chill, single and severe, headache intense, pain, often far removed from the focus of infection and in no way associated with respiration, or when so associated, frequently on the opposite side to the one involved, râles and bloody sputum, both or either absent in the very early stages—in fact the sputum is sometimes never present, temperature, the one fairly constant and persistent factor, which when otherwise unexplained demands a careful search for a pneumonic infection, despite the absence of any other suggestive symptom. It is not, we repeat, necessary to restate these, because we would be looking for a pneumonia under such conditions; it is when we have only a severe chill, followed by sustained temperature, without any apparent indication of lung involvement, when gastric disturbances or suggestions of an appendicitis—and appendiceal infection may be the source from which a pneumonic infection obtained—are apt to direct our attention away from the lung condition, that the obligation for a meticulous search of every inch of lung surface is imperative. This is critically necessary in appendicitis, actual or apparent, as it is almost equivalent to signing the patient's death warrant to operate under an anesthetic for appendicitis when a pneumonia is already in progress.

The voice and whisper make it perfectly feasible to find the spot or spots and without the corroborative findings of râles, tubular breathing, sputum, or even subjective symptoms, except, perhaps, increased frequency in respiration, to make an absolute and unequivocal diagnosis of pneumonia. Naturally, at this early stage, the area is too small to get any information from percussion, although it is not long before we may find a difference in the resonance of our percussion note over the area involved, especially if the infection extends with fair rapidity: later, we may get absolute flatness, especially when a considerable portion or the whole lobe is invaded and consolidated.

We will amplify the character of the voice of which we are speaking: in lobar pneumonia, it is high pitched, very metallic, like the twang of a wire string, exaggerated, and easily differentiated from the immediate neighborhood not similarly affected; it is a single spot in a single lobe—thus differing from the condition in bronchopneumonia: the whisper is hurried, increased, very clear, and absolutely different from the whisper over healthy lung structure. We must not lose sight of the fact that we may have a lobar pneumonia in one or more lobes—but we only have this one spot which we have described in each lobe invaded.

Let us see the conditions in bronchopneumonia: the voice is higher pitched than in the neighboring areas, but it has a gut-string quality, it is not so intense and is consequently not carried to the ear with such apparent haste: the same is true of the whisper—not so hurried, not so intense, not so prolonged.

Under any conditions, the *x*-ray is our most valuable corroborative aid and should go hand and hand with our physical examinations from

the very outset. The trained ear and that instrument of precision work much better together and run a close race in the early diagnosis of pneumonia.

In regard to differential diagnosis: In bronchopneumonia the antecedent bronchitis, the sputum, the usual physical findings, etc., make a mistake unlikely; but this is far from true in the insidious, rapidly fatal cases so frequent as a sequela of influenza in the late epidemic; but, even in these, the areas of invasion were easily demonstrable by the voice method of examination before there were any special indications of respiratory involvement, and long before there was an embarrassment in respiration; and, yet, we know that most of the deaths were due in this epidemic, not to the bacillus of influenza, but to secondary infections causing a rapidly obliterative pneumonic exudate: however, the early recognition of this condition made it possible to materially diminish the death rate.

There is another fairly frequent condition in which the high pitched, gut-string quality of voice obtains, viz., unresolved pneumonia; but the history, the absence of fever, the character of the cough, if there be any at all, and the whole clinical picture, make the diagnosis simple.

Let us then restate these salient features of our theme:

1. Pneumonia begins in a limited area or in limited areas, according to the variety, in one or more lobes, probably present with the initial chill.

2. These places can be detected when they are no larger than the bell of an ordinary stethoscope, by the simple method of voice and whisper; percussion at this very early stage is of no value practically.

3. The pitch and timbre of the voice signs are our guides in differentiation, to which we may add that in lobar pneumonia, we have practically never found more than one area in an individual lobe.

4. Both kinds of pneumonia may occur in the same or in different lobes at the same time; but a single spot in an individual lobe absolutely means a lobar pneumonia.

5. The diagnosis by voice and whisper is comparatively easy and within the reach of everybody; but it is also very illuminating, if not obligatory, where possible, to have frequent corroborative *x*-ray examinations.

6. This absolute diagnosis may be made when the area involved may be covered by the bell of an ordinary stethoscope, often before we have sputum, râles or even a cough, and this is the reason we have coined the term—"Bellscope" Pneumonia.

II. TYPES AND TREATMENT.

Types.—1. Lobar.

2. Bronchopneumonia: (a) Lobular. (b) Interstitial—including the rapid exudative type seen in the late influenza epidemic. (c) Ether pneumonia —almost immediate resolution.

Etiological factors: (a) Pneumococci—four groups recognized and isolated, of which group I is supposed to be materially influenced by serum. (b) Streptococci—of which there are many unclassified varieties. (c) Staphylococci. (d) Bacilli—influenza, Friedlaender, etc. (e) Combinations of one or more of the above.

It must also be remembered that in the same or in different lobes we may find each kind of pneumonia, although the usual thing is to find only lobar in the lobe in which lobar occurs.

Treatment.—Lobar: Absolute quiet and rest from the moment the diagnosis is made. Abundant air and water. Stimulation directed to the actual need of the heart—usually tincture of digitalis (digipuratum if available in the severe cases), alternating with strychnine (the dosage of each to be suited to the actual condition of the heart and to be varied as the conditions demand). Hot sponge (alcohol) baths to control temperature and facilitate elimination by the skin of toxic products. Liquid nutrition until after the crisis and even later in unresolved cases. In pleural invasion, fixation of the chest wall by zinc oxide plaster. Iodide of potassium (gr. 5 to 10 by mouth every six hours). If possible avoid puncture (diagnostic) or aspiration during the stage of acute consolidation. Free catharsis at the outset and bowels to be kept open. For cough, ammonium chloride (gr. 5 to 10) every 3 to 6 hours, in individual cases adding heroin or codeine if absolutely necessary, but never morphine in the stage of active consolidation. For sedatives, the bromides freely. For hypnotics, veronal, trional, etc. In unresolved cases iodide of potash as above.

Bronchopneumonias: Our best results were obtained by the routine treatment of ammonium chloride, gr. 5 every 3 hours, iodide potassium, gr. 5 every 6 hours; in all cases free catharsis: in the influenzal cases, the throat and nares were frequently sprayed in the early part of the illness with some hot antiseptic solution; hot sponge baths were used night and morning and more frequently if the temperature demanded it: stimulation as in lobar pneumonia, when necessary; sedatives—codeine and heroin—if absolutely necessary: veronal in occasional cases, when necessary. We may add that two women, pregnant six months, one of whom was unconscious for four days, recovered, without miscarriage, and have since given birth to fine boys.

III. OBSERVATIONS ON POST-INFLUENZAL PNEUMONIA.

After the seizure due to influenza infection, in which one or another symptom may be emphasized, even when the bronchial irritation seems to be comparatively negligible, we are apt to notice that the temperature which has almost or completely returned to normal, begins to make a slight rise, which is apt to continue with an accretion daily until 102° F. or a higher point is reached and maintained. At this time, there is apt to be some coughing, and there may be some bloody sputum—we have seen in some cases practically pure blood—and yet the patient has absolutely no respiratory distress, his rate of respiration being maybe as low as 18; he may complain of no pain anywhere in his chest. A careful stethoscopic examination—aside from voice—may give no indication of any pulmonary involvement, but

the spoken voice will, without fail, indicate the areas in which we have an exudate, even before it is sufficiently dense or organized to give a shadow on the *x*-ray plate; and we know that we have a veritable pneumonia, which in many instances, has progressed rapidly to a point where oxidation has been seriously impaired, the lungs, as it were, flooded, and a fatal result made unavoidable. Just why one case will follow this course, while another never reaches a dangerous point, we have been unable to determine; but we feel quite sure that if we recognize and treat these conditions at the very outset as pneumonias, we seem to be able to limit the process in many instances. We may safely say that the influenza bacillus is seldom, by itself, the cause of a fatal pneumonia; and that the pneumococcus, streptococcus, and other organisms, individually, or in combination, have very often supplanted the influenza bacillus—or, if you choose, followed his path of preparation, and induced the later condition that has proved so fatal.

The character of the pathological lesions, on autopsy, also emphasizes these facts, as it is not unusual to see bronchopneumonia, interstitial pneumonia, and lobar pneumonia, all present in different lobes; in fact, the first two named are very frequently associated. In another paper we have emphasized the fact that the physical findings in life, in later stages of interstitial bronchopneumonia are indistinguishable from those of ordinary lobar pneumonia; it is in the early stages when we have a gut-string note from the spoken voice, areas in the same lobes that have not coalesced, or, perhaps, better, before the spaces in which we can hear normal voice in a lobe have been occupied by the lobular and interstitial invasions causing the obliteration of the breathing space over a considerable part of the lobe, that we are able to determine definitely the character of the pneumonia. It may be worth while to add that the signs of an extensive bronchitis, so generally characteristic in ordinary bronchopneumonia, are usually absent in these pneumonias following influenza. In the stage of convalescence it is not at all unusual to find a considerable pulmonary edema over the invaded pneumonic area; and this frequently makes the determination of fluid by physical examination much more difficult, more especially where there is only a thin layer. Fortunately the presence of a thin layer of fluid is not of grave import, unless it be streptococcic; and even then it does not seem to be fraught with the same danger that the condition exhibited when the cases had suffered, as they did in the pneumonia scourge of the army camps in the winter of 1917-18; in fact, many of them, after diagnostic puncture, got well without being operated on for empyema. It may also be worth while to emphasize the fact that the voice from a consolidated lobe travels through fluid, especially a thin layer, with increased, rather than diminished volume. The boggy flatness on percussion is the best physical evidence of fluid; and the *x*-ray is absolutely dependable for confirmation and for picking up interlobar or other pockets that are apt to escape detection even by a most careful physical examination. Going back then to the very outset of the pneumonia in these influenza cases, when the spoken voice and the *x*-ray shadow are our only—but entirely sufficient—means of making the diagnosis, what means have we of limiting the exudative process? If we eliminate the cases of blood-stream infection, which all observers agree are comparatively rare in these influenza cases, we can positively state that iodide of potassium has been our sheet-anchor. In all cases with any bronchial irritation we have given ammonium chloride (5 gr.) every three hours; and in addition, in the cases with exudate, from the very outset, we have given 5 grains of iodide of potassium (in saturated solution) every six hours, increasing the dose in extensive invasions 1 grain at a time until 10 grains were reached. So the medication was, in the pneumonia cases, ammonium chloride 5 grains (occasionally a 10-grain dose in severe cases) every three hours; iodide of potassium 5 grains—increased gradually to 10—every six hours. Severe coughing can be lessened by the addition, when necessary, of heroin, gr. 1/12, restlessness by bromides, codeine, and anything but morphine, unless morphine is absolutely unavoidable, as it seems to be in some of the fatal and hopeless cases. The temperature seldom remains high for a long time and hot sponge baths take care of it. The bowels should be kept well open and high saline irrigations are often of value.

The cases in which gastric irritation was a factor were only occasional. The use of mixed vaccines intravenously was started after the first week or so of the epidemic, and the terminal results have yet to be given by the men who employed them; at least, there seemed to be a striking diminution in the mortality after their use had been introduced; although, the same fact was observed in cases in which no vaccines were given; in fact, the virulence of the disease was, apparently, considerably abated after the first two weeks.

The use of cardiac stimulants was often unnecessary; indeed, a characteristic feature of many of the cases was the slow and sufficient heart action. In the severe cases, digitalis alternating with strychnine in doses of 15 minims and 1/60 grain respectively—every six hours, was usually sufficient: occasionally, a double quantity of each was employed for a short while.

The low leucocyte count was very common, and when it did not rise with an increase in the pneumonic exudate, the outlook was grave.

With a high leucocyte count the prospects are better, even with considerable lung involvement. The prognosis in a given case may not be easy to determine from physical signs; but an extensive infiltration, even when there may be comparatively little discomfort or disturbance of the respiration—we have seen three lobes invaded with a respiration of 26, a temperature of 101° F., and a pulse of 88—a condition which is beautifully delineated on the *x*-ray plate, does not hold out much promise of recovery, more especially because the involvement of an additional new area, though limited, will determine quickly a fatal ending; and the pulse, temperature and respiration will make their upward leap almost instantly.

In the blood-stream infections the vaccines and serums hold out some hope of influencing the result, although the pericardium, peritoneum, and kidneys are apt to be rapidly invaded by infection and the outlook is far from promising.

Having registered our objection to morphine, it may be well to add our reasons: in most cases, disturbed conditions of stomach and intestines immediately supervene, vomiting being the usual thing, and diminished peristalsis—in some cases a definite intestinal paresis—are natural, we had almost said, necessary sequelæ of its use. The same stasis obtains in the lungs themselves, encouraging certainly in this variety of pneumonia an increased "flooding" of the interstices at points already involved; and, we may add, that the mortality, in cases that we have seen that were given morphine, was maximum. Of course, it may be said by those in favor of morphine that we employed it only in the hopeless cases—which is nearly the fact; but we have seen a number of cases that were not, apparently, necessarily fatal, in which the use of morphine was followed by a fatal result.

Our observation of the so-called "cat" method of digitalization in quite a number of these influenza pneumonia cases—indeed, for a time it was "routine" as soon as the diagnosis was established—has not encouraged us to employ it in any of our own cases: we emphasize "observation," because, on theoretical grounds we have been unable to see a single reason to use it in pneumonia, while we can see many reasons why it is absolutely unjustifiable; and we believe that it will be only a short while before its most earnest advocates must abandon its employment in such cases as we are now considering, and most likely in any case of pneumonia. This does not mean that we do not use digitalis when it is indicated and in sufficient doses in any case of pneumonia. Because a healthy cat can tolerate doses of one-half of 0.14 per cent. of its body weight in c.c. as a starter, followed by half this quantity in six hours, and half the last quantity as a regular dose every six hours until digitalization is accomplished, we have been unable to see why it is desirable, or even permissible to do this in a human being sick with pneumonia. We are prepared to believe that there are cases in which rapid digitalization may be a desideratum and that this may be the one best way to accomplish such a result rapidly; but we do not consider cases in which we have a rapid exudative process in the lungs to be in such a category. We would not say that in one series of twenty-five cases with fourteen deaths the "routine" digitalization was responsible; but it would be interesting to know what would have happened if it had not been employed. Whether the tachycardias that were not at all uncommon in the digitalized that did recover were related to the medication, we are not prepared to say: at least they seemed much more frequent than in cases in which only normal methods of cardiac stimulation were followed.

Finally, it is well to emphasize another point of difference in the management of this type of bronchopneumonia and the uncomplicated lobars or even the ordinary bronchopneumonias. In the lobars, no one therapeutic agent is of more value than air—indeed the open-air treatment was almost universal in the army camps, save for a few cases for some special reason unsuited to such care; in ordinary bronchopneumonias we use fresh warm air rather than open air; but in the influenza cases pure, warm indoor air seems to be almost a necessity.

We may add that during the invasion of influenza and throughout the pneumonic infection, the throat and whole upper air passages were sprayed frequently, with the idea of lessening the amount of reinfection from this source.

IV. REVIEW OF ONE HUNDRED AND EIGHTY-ONE CASES.

This particular series of cases came under the special care of the writer during February, March, and the first half of April, 1918, during which time hemolytic streptococcus was the prevailing factor in the fatalities and the complications that characterized all the pneumonias in nearly all the army camps and cantonments in this country. Had the "military necessity" for an autopsy in every fatal case obtained, we would not only be able to give more interesting details, but we might have gotten some invaluable facts to guide us in the management of a similar condition in the future. However, we had a fair number of autopsies; and from these we could definitely conclude that the cases that were diagnosed early seldom died from their pneumonia alone. Among the possibilities of the future are vaccines to lessen the fatal complications resulting from the Streptococcus hemolyticus and its equally unwelcome playmates, staphylococci, influenza bacilli, etc.

It is not necessary to state that this series was in no way selected but included all the cases—the obviously fatal or actually moribund on admission, as well as those that were diagnosed in the bellscope stage, i.e. when the consolidation involved an area that could be completely covered by the bell of the stethoscope (see Section II of this article); and, in these cases, recovery was the rule, in spite of an occasional complicating suppurative pleuritis—regardless of type and streptococcic affiliations.

In the interstitial form of bronchopneumonia, in which the areas have run into each other—as they do in the advanced stages—the history must be our guide in differentiation from other forms of lobular as well as from lobar pneumonia.

The mortality is, without doubt, materially related to the amount of lung tissue involved, and our ability to control this, at least in a measure, by making an early diagnosis, when a very small area is involved, must be an important factor in reducing our death rate, no matter what line of treatment we employ.

In this series, serum was used in but two cases, both Type I, and both complicated by Streptococcus hemolyticus. One was infected in both lower lobes, and in all the cases, of whatever type, the mortality was high under these conditions; the other was discovered in the bellscope stage, the infection being at the lower outer edge of the left lower lobe. Both gave high temperature reactions after each intravenous injection, and in

the milder case there was an apparent rapid extension of the area involved after the first dose of serum, but no special change thereafter. The former patient died, the latter recovered. However, it is not our intention to go into any discussion of specific forms of treatment, but to record the methods used, which may be characterized, perhaps, as the use of horse sense instead of horse serum.

For those who went through the epidemics of pneumonia later in this same year, it is unnecessary to speak of the differences in the kind of lung involvement, the rarity of empyema, the unusual occurrence of lobar pneumonia, the much less common complication by hemolytic streptococcus in these epidemic cases.

We have already stated that the mortality in cases of two-lobe involvement was high, and it is unnecessary to state that it was still higher in the three and four-lobe cases. One of the last-named made a good recovery, but was only normal a few days when he contracted measles, which was followed by bronchopneumonia, double empyema, and death.

In the early detection of fluids, especially empyema, the value of frequent white blood examinations both during the height of the invasion and during convalescence, the careful observation of the temperature curve, and frequent *x*-ray and physical examinations cannot be overestimated. When we are prepared to go ahead with the surgical care of the patient, we may use, under the strictest asepsis, the exploratory needle, but the indiscriminate use of the needle for diagnosis is unnecessary and undesirable. The exploratory puncture of the lung itself could only be justified under most exceptional conditions and for some most imperative reasons; as a routine measure for type determination, it comes near being a criminal procedure, in our opinion.

A discussion of the management of the fluid cases must be left for another occasion; but, from both a medical and a surgical standpoint, it is one of the most vital subjects, and it is a long way from solution. Just at this time, there is a fair unanimity of opinion in the belief that open operations on cases while they have an acute consolidation do not promote the longevity of the patient.

In regard to treatment, we may say, without hesitation, that the cases discovered in the very early stages required little or no treatment, no matter what type they chanced to be, except absolute rest in bed, proper care of the bowels, abundant fresh air (but not open air for the negroes), liquid nutrition and stimulation adjusted to the demands of the individual case by the condition of the heart. The originator of the serum urges its early use, pushed to the limit by one who has familiarized himself with its correct employment, otherwise a great injustice will be committed in estimating its efficiency, but he only advises its employment in Type I cases and condemns its indiscriminate use.

The plan we followed was an effort to assist and imitate nature in her care of such cases and was characterized by the systematization, simplicity, and possibility of application under almost any and all conditions. During the acute febrile stage of the lobar pneumonias, except in the negroes, the cases were kept in the open air, unless they complained of the cold, when they were returned to the ward. We did not find that the bronchopneumonias did well in the open air. In the lobars, the patient was kept as nearly at absolute rest as possible, not being allowed to turn over in bed without assistance or to sit up until the crisis had passed and resolution was well under way. The bronchopneumonias were allowed more latitude in moving around the bed, or being moved ,if they were very weak. Water was forced upon all of them frequently, if they did not ask for it.

Delayed resolution was treated by iodide of potassium in 5-grain doses three times a day, the amount increased a grain each day, if there was no trouble from it, until 10 grains were given; and it was always administered in a half tumbler of water.

All patients got their morning and night tepid sponge bath; and for temperature above 104° F. a hot sponge every four hours; over 105° F. the same every three hours.

Stimulation was based on the quality and rapidity of the pulse, the general principle being that no stimulation was required when the pulse was of fair quality and under 100. Above this point we began with strychnine, 1/60 grain, and tincture of digitalis, 15 minims, alternating every eight hours; calling this eight-hour stimulation. If the pulse got above 110 we would shorten this interval to six hours, keeping the same dosage. Above 120 we kept the same interval but doubled the dosage, that is, used digitalis 30 m. alternating with strychnine 1/30 grain. Above 130 pulse rate the dosage remained the same, but the interval was shortened to three or even, in desperate cases, to two hours; and in such cases we would introduce a new stimulant such as adrenalin, camphor, caffeine, whiskey, etc. We used digipuratum, when available, for digitalis, in cases in which the pulse rate had risen above 120. The increase in restlessness and delirium made whiskey undesirable, if it could be avoided, although in a very few cases it seemed to be of benefit.

The bowels were always at the outset cleaned out by a full dose of castor oil; after this enemata and salines were used when necessary.

In the wildly delirious, a strait-jacket was a valuable adjunct to bromides and baths. Ordinarily, sodium bromide, 30 grain doses, was efficient.

Stimulation was withdrawn as soon as it could be—as indicated by the pulse rate, following the reverse order, often jumping over one or two steps, the guiding thought being not to give what was not needed.

Writing, reading, conversation (prolonged) were all interdicted during the early stages and until the crisis had been safely passed. Morphine was strictly forbidden in acute stages, except under most unusual circumstances—in spite of which two of the fatal cases were given morphine, contrary to orders. For pain, strapping, hot-water bags, flaxseed poultices were usually sufficient. After the acute stages, morphine was used, when necessary, but was seldom necessary.

In bronchopneumonia of the ordinary type, the infusion of wild cherry with chloride of ammonium (½ ounce to 8 ounces, tablespoonful dose every three to six hours)—with heroin grain 1/12 added in obstinate cough—gave complete satisfaction.

The incidence of empyema and the mortality in these cases deserve separate mention, because of the thirty-nine deaths, fifteen were directly due to this cause, most of the patients having recovered from their pneumonias for quite a while. This would leave us only twenty-four deaths from pneumonia, including eight cases moribund on admission, two cases of diphtheria, and one case of acute cardiac dilatation complicating the pneumonic infection; in fact, only thirteen deaths in the series were due to the pneumonia. Both cases of diphtheria also had a severe nephritis.

A mortality of 15 in 87 cases of empyema is most distressing; but of this number the following facts may be noted:

Not-Typed	*Typed*
1. Diphtheria, abscess lung.	1. Hemolytic streptococcus.
2. Hemorrhage into pleural cavity.	2. Staphylococcus; two lobes.
3. Moribund on admission.	3. Hemolytic streptococcus, two lobes.
4. Had a pneumonia of three lobes and a necrotic area in one of these.	4. Hemolytic streptococcus, four lobes.
5. Have not heard cause; a simple circumscribed case.	5. Hemolytic streptococcus.
	6. Nonhemolytic streptococcus.
	7. Hemolytic streptococcus, type III, two lobes.
	8. Hemolytic streptococcus, type IV, two lobes.
	9. Interstitial bronchopneumonia following measles.
	10. Streptococcic septicemia, type I.

It is not possible to expect a brilliant outcome in these cases under any method of treatment.

Lobar Distribution of Cases

One lobe	115
Two lobes	44
Three lobes	5
Four lobes	2
Bronchopneumonia	15
Total	181
Right lower, middle and upper	12
Right middle and upper	4
Right middle and lower	4
Right upper and lower	9
Right upper	7
Right lower	49
Total	75
Left upper and lower	8
Left upper	9
Left lower	49
Total	65
Right and left lower	14
Right and left upper	3
Total	17
Right upper and left lower	2
Right lower and left upper	2
Both uppers and both lowers	2
Right upper and lower; left lower	1
Right upper and middle; left lower	1
Right upper and left upper and lower	1
Total	9
Bronchopneumonia and interstitial	1
Interstitial bronchopneumonia	2
Bronchopneumonia	12
Total	15

Types

	Type I	Type II	Type III	Type IV
	10	7	6	9
	7	3	3	12*
	2		2	
Total	19	10	13	21

Total 63

*With hemolytic streptococcus; with nonhemolytic streptococcus; with streptococcus and staphylococcus.

Hemolytic streptococcus	29
Nonhemolytic streptococcus	14
Staphylococcus and streptococcus	1
Pneumococcus and streptococcus	1
Pneumococcus not I, II, or III	1
Pneumococcus precipitated in I and II	1
Staphylococcus	1
Interstitial bronchopneumonia	4
Bronchopneumonia	4
Moribund and not determined	6
Total	66
Cases not typed	7
I, II, III, and IV	6
Miscellaneous types	8
Total	87

Analysis of Fatal Cases

Not Typed: Total	7
Died	12

Of these, only two died of their pneumonia alone and both were two lobe cases. The remaining cases were:

Scarlet fever	1
Acute heart failure	1
Peritonitis	1
Moribund on admission	2
Empyema	5
Total	10
Typed: Total	128
Died	27

Of these, only nine died of their pneumonia and one of these, by his deliberate disregard of orders—repeatedly sitting up—was practically a suicide. The remaining cases were:

Diphtheria and nephritis	1
Moribund or hopeless on admission	5
Acute cardiac dilatation	1
Empyema; Nonhemolytic streptococcus	1
Empyema; Hemolytic streptococcus	9
Total	18

Of this total of eighteen, eight were straight hemolytic streptococcus infections and it is not unlikely that systemic infection was the rule in all.

	Type I	Type II	Type III	Type IV
	1	2	0	1*
	2	1	2	4‡
			1	
Total	3	3	3	5

Total 14

*Straight.
‡With hemolytic streptococcus, diphtheria and nephritis.

The bacteriology of the remaining thirteen cases was as follows:

Not I, II, or III:	
With staphylococcus gram positive, bile insoluble	1
Diplococcus gram positive, bile insoluble	1
Nonhemolytic streptococcus	1
Hemolytic streptococcus	1
Interstitial broncopneumonia; hemolytic streptococcus following measles	1
Probably hemolytic streptococcus; admitted dying	2
Hemolytic streptococcus	5
Total	13
	Total 13
	27

Grand total of deaths from all causes 39, in which hemolytic streptococci were definitely demonstrated in all but four of the typed cases and were probably present in as large a proportion of the 12 deaths not bacteriologically studied. We would welcome, therefore, any vaccine or other method that may be found to control this kind of infection. Even in these cases, their frequent recovery when discovered and treated in the bell-scope stage, made this necessity stand out as the one of transcendent importance in all varieties of

pneumonia—the earliest possible recognition of its existence; the great probability that it is already present when the chill occurs, and the possibility of making the diagnosis both by physical examination and by *x*-ray, make it obligatory not to overlook its existence in this stage.

573 Seventh Avenue.

LEUCOPENIC LEUCEMIA.*

By NATHAN E. BRILL, M.D.,

NEW YORK.

THERE are many aspects of the subject presented in Dr. Rosenthal's paper that could be discussed, but I feel that the allotted time will permit me to direct attention only to one of the most important phases of the subject, therefore I shall have to be content to restrict myself to a clarification of the confusion which I find generally in the minds of medical men concerning leucemia, partly due to the multiplicity of terms used by most authors who have written on this subject. I think this clarification will ensue if you follow the history of the evolutional development of the literature of the disease.

No doubt you will remember that the first description of the disease came from a Scotch clinician, Hughes Bennett, who, in 1845, recorded the case of a patient in whom he found an enlargement of the spleen and of the liver, and whose blood on examination showed what he called a "suppuration of the blood." One month later Virchow gave an account under the title of "white blood" of a similar condition in a patient in whom he likewise noted enlargement of the spleen, epistaxis, and unusual increase of the white blood cells in the blood. It was at autopsy in both these patients that the important changes in the organs were found. Subsequently Bennett called the condition leucocythemia, and Virchow gave it the name of leucemia, the latter name now being generally used.

Not very long after his first case Virchow reported another case with a similar condition of increase in the white cells of the blood which, however, was associated with an enlargement of almost all of the lymphatic glands and very little increase in the size of the spleen. In still later papers he distinguished between the form associated with splenic enlargement, in which organ he believed the excess of lymphocytes was formed—splenic anemia—and the form attended by enlarged lymphatic glands in which bodies he thought the increase of the white cells occurred—lymphatic leucemia—and he called attention to the smaller size of the leucocytes in the latter form as compared with their size in the former.

You will also remember that the man who first called attention to the presence of nucleated red cells in normal bone marrow, Neumann, found the marrow often profoundly changed in cases of leucemia, and he attributed to changes in the bone marrow the resulting disease. His communication, in 1870, gave rise to considerable discussion among medical men, and it became finally agreed that there was also a spleno-medullary form of leucemia. The acceptation of this last form did not add to the clarity concerning leucemia but, on the contrary, created confusion, because it soon became known from experience that enlarged lymphatic glands occurred in cases associated also with enlargement of the spleen, changes in the bone marrow, and increase in the number of white cells in the blood, hence another, the mixed form of leucemia, had to be added. During these years, then, leucemia was supposed to be a disease characterized by white blood, associated with anemia, by large spleen in some cases, in others by large lymphatic glands, and in still others by both enlarged spleen and enlarged lymphatic glands.

It was Ehrlich's epoch-making researches in the chemical reaction of acid and non-acid dyes on the white blood cells which finally culminated in the discovery by him of entirely distinctive differences in the white cells of the blood, enabling him to establish the normal presence of cells peculiarly belonging to myeloid tissue—chiefly the polymorphonuclears and granular myelocytes—and those arising in lymphoid tissue, the lymphocytes. He created, therefore, on a histological basis, two types of leucemia, namely, myelogenous (myeloid is a better name) and lymphatic (lymphoid is possibly preferable) leucemias. Since Ehrlich's time very little has been added to our knowledge of the histology and pathology of the blood cells, the chief gain in our knowledge being in clinical variations of leucemia depending on the types of each group of cells, and a wider recognition under the microscope of the embryonic or premature forms of these two cell groups. Clinically it soon became established that in certain infections such as pneumonia there was a large increase in the blood of polynuclear cells, which, however, did not constitute a leucemic state, and that in other somatic conditions there could be a relative and absolute increase in the lymphocytes of the blood without it being significant of lymphoid leucemia.

In teaching my classes I am accustomed to tell them that to gain an adequate conception of leucemia one has to conceive of a general distribution throughout the body of two distinctive systems of cellular tissues, namely, the myeloid and lymphoid systems of cells. The former is commonly found in all the hemopoietic organs, namely, bone marrow, spleen, liver, less frequently in the kidney, lymph nodes, periosteum, lungs, and skin; the latter is less commonly distributed in the lymph nodes of the body, less extensively in the lymphoid tissues of the spleen and bone marrow, and still less extensively in the lungs, kidneys, the other viscera, the periosteum, and the skin. Under certain influences the nature of which is unknown a hyperplasia of these tissues can occur, giving rise to increase in the size of the organs affected and causing cells to invade the blood stream, commonly in large numbers. Thus, if myeloid hyperplasia results we are dealing chiefly with enlargement of the spleen, liver, and myeloid changes in the bone marrow with myeloid elements in the blood, usually in large numbers, hence a myeloid leucemia. These myeloid infiltrations or hyperplasias less commonly involve the kidneys and other viscera, and even less the skin, showing in the last varying sized infiltrations—the myeloid dermatosis. When they occur in the periosteum and subperiosteal tissues they

*Presented as part of the discussion on leucopenic leucemia at a meeting of the Section on Medicine of the N. Y. Acad. of Medicine, May 17, 1921. (See page 914.)

produce myeloid collections of cells giving the appearance of bony growths to which the name of chloroma has been given. Some authors believe that chloroma is a distinct special disease, but in the writer's opinion chloroma is nothing but a special localization of a leucemic process in the periosteum of bones, particularly the flat bones, which can be formed of myeloid cells on the one hand, hence a myelogenous chloroma, or, on the other hand, from a lymphoid hyperplasia constituting a lymphoid chloroma. In other words, chloroma is an uncommon clinical variety of either myeloid or lymphoid leucemia. Sometimes, though not always, these chloromatous so-called tumors are green in color, hence the name chloroma, due to the presence of a peculiar chromogenic compound whose nature is unknown. All chloromatous tumors, however, are not green in color.

Similarly, under other unknown conditions an analogaus change may occur in the lymphoid tissues, creating a hyperplasia of the lymphoid elements of the body with a large increase in their numbers in the circulating blood. This would commonly be associated with enlargement of the lymph nodes of the body, with but relatively little enlargement of the spleen and with lymphoid changes in the bone marrow—lymphoid leucemia. In a few instances the skin may be the seat of lymphoid infiltrations—lymphoid leucemic dermatoses—as may also the periosteum, as mentioned, giving rise to lymphoid leucemic chloroma, and there may be collections of lymphoid infiltrations in the lungs or in the other viscera.

These unknown causative conditions of hyperplasia usually produce changes in the normal histological blood picture on account of their influences on the hemopoietic tissues, particularly the bone marrow, giving rise to a high degree of anemia which may even be associated with hemorrhages in the skin and from the mucosa, due perhaps to the disease process affecting the blood platelet formation.

It may be accepted as a general rule that whenever any pathological agent affects the bone marrow, it may affect therein more than one group of cellular activities, so that when the bone marrow is much involved in leucemia the noxious agent may induce hyperplasia in erythroblastic tissue as well as in the myeloid, with the result that there may be an invasion of the blood by premature red blood cells, normoblasts and megaloblasts, together with changes in the blood, particularly the presence of embryonic red blood cells. It was this condition of marked anemia, with high color index and embryonic red cells, occasionally found in the very severe form of myeloid leucemia, that induced von Leube to classify this condition as a distinct disease, which he called leucemia. This term ought to be cast aside, because it does not describe a particular entity, but only a phase in the course and progress chiefly of myeloid leucemia.

The speaker has for years insisted on the analogy which antithetically exists between pernicious hemolytic anemia and the leucemias. Just as the unknown etiological agent in the latter may cause the irritative process in the myeloid (or lymphoid) tissues of the bone-marrow to overrun into the erythroblastic tissue and produce hyperplasia in the latter, so may the toxic agent in pernicious anemia affect not only the erythroblastic elements in the bone marrow but the leucoblastic (white cell producing) tissue as well; hence one not uncommonly sees in advanced and in fulminating cases of pernicious anemia premature myeloid cells in the blood such as myelogones, myeloblasts and myelocytes, together with the characteristic changes in the red blood cells.

Take it also as a general rule that the more acute and fulminating the leucemic process is the more likely is the blood to contain the premature embryonic types of the myeloid or lymphoid cells. Hence in acute myeloid leucemia, the myelogones, the myeloblasts and the myelocytes may be the dominating cells in the blood, and in the acute lymphoid leucemia the lymphoblasts and small lymphocytes may be the significant blood factors.

Just as in the course of a pernicious anemia the bone marrow may become exhausted and be unable to restore the needed red blood cells, in other words, becomes aplastic, so in the course of the leucemias an analogous condition may obtain and the white blood cells become markedly diminished even to the extent of being reduced from 100,000 per cubic millimeter to 15,000 and less, resembling normal figures. This reduction may be also the result of treatment or of a remission in the course of the leucemia, which not uncommonly occurs to delude the physician to believe that the disease may disappear.

These remissions, as you know, not infrequently occur in the course of a pernicious anemia, strengthening the conception of analogy. During a remission of this kind in leucemia it may be difficult to make a diagnosis, because the somatic symptoms likewise improve, the spleen diminishes in size, the lymph nodes become markedly diminished in size, and the anemia may disappear as may the hemorrhagic spots in the skin. A careful examination of the blood, however, usually shows abnormal white cells, particularly characterized by qualitative changes, either a few premature cells or an inversion in the proportion of the myeloid cells on the one hand and of the lymphoid derived white blood cells on the other. In these remissions the number of white blood cells may become even lower than normal and may show a definite leucopenia, the number being 3,500 white blood cells to the cubic millimeter or less. We prefer, however, to restrict the term leucopenic leucemia (also known in the literature as aleucemic leucemia, because the small number of white blood cells in the blood contradicts the conception of an increase of white blood cells which was once thought to be an essential for the conception of leucemia, hence the term, aleucemia) to those cases of the acute leucemias, either myeloid or lymphoid, which begin with all the signs usually indicative of an acute infectious disease, such as chill, high fever, rapid loss of strength and weight, hemorrhages from the mucous surfaces and also into the skin, rapid infiltrations of leucemic hyperplasia, particularly in the tonsils where they may produce a speedy necrosis.

When the tonsils are so involved they almost invariably become the seat of secondary invasion by the Vincent's spirillum which may readily

be distinguished by smears taken from the tonsils. The most of these acute cases affecting the tonsils are accompanied by a very nasty, foul-smelling stomatitis, and are wrongfully diagnosed by practitioners as diphtheria or Vincent's angina. A microscopical examination of the blood usually reveals the secret that the necrotic mouth and pharyngeal condition are due to an acute leucemia. Be on your guard, therefore, in such cases to examine the blood carefully for premature myeloid or lymphoid cells.

These acute cases go on rapidly to the production of an intense anemia with many skin hemorrhages. They may begin, and frequently do, with none of the somatic signs such as enlarged spleen or enlarged lymph nodes, but the blood reveals the condition not in an increase of the number of white cells as much as in the presence of premature embryonic forms such as Dr. Rosenthal described with such clearness as myelogones and myeloblasts in the acute myeloid leucemia and as lymphoblasts in the acute lymphoid form of the disease. These are the cases which may show in the first days a marked diminution below the normal number of white blood cells in the blood and to which the name of leucopenic leucemia (acute aleucemic leucemia) ought to be reserved.

The leucopenia gives away after a short time to a more or less rapid increase in the number of white blood cells to even 150,000 or more per cubic millimeter before death, or the acute stage may, more rarely, turn into a subacute or still more commonly into the chronic form of the disease. It was once thought that most of the acute forms of leucemia belonged to the lymphoid variety. It is only in the past few years that better tinctorial reagents and the discovery by Schultz of an oxidase reaction (the indol synthesis) in certain cells that what were once considered to be lymphoid cells have shown them really to belong to the myeloid group; hence acute myeloid leucemia is now regarded as very much more common, while the acute lymphoid leucemia is rare.

Under treatment by *x*-ray and by radium the chronic leucemias may improve both as to the objective signs of the disease and as to the diminution of the number of white blood cells. In fact, a leocopenic condition may result. This does not indicate any more than the occasional spontaneous remissions as, in my experience, all the leucemias are fatal.

From what has been said, then, it may be seen that from the original conception of pus blood being the sign of leucemia, the involvement of the hemopoietic organs particularly became the significant factor in the conception of the disease; that there are two types of cells distributed in part throughout the body which become involved in the hyperplasia of leucemia, causing the more or less extensive infiltration of the various organs and tissues with myeloid and lymphoid cells respectively; that in this process the red-blood-cell producing tissues may be stimulated to activity causing the picture of so-called leucanemia, which term ought to be discarded; that the disease leucemia may exist in an acute or chronic state, and that it is almost invariably fatal.

48 West Seventy-sixth Street.

THE FUNCTIONAL AND DEVELOPMENTAL RELATIONS OF THE NERVOUS MECHANISM.

By Donald A. Laird,

Iowa City,

Instructor University of Iowa; recently Research Assistant, Iowa Child Welfare Research Station; formerly Examiner, Psychiatric Unit, Great Lakes Naval Station.

One who is classified among the so-called human beings of the vertebrate phylum and has his own inner ruminations as well as the behavior of his fellowmen to observe cannot but be forcibly impressed by the importance of the neural mechanism in the economy of daily life. When one gives the matter only casual attention he is quite likely to be led to assume that the neural aspects of the organism are prepotent above all others. Superficially such a deduction is inevitable in consideration of the rôle of consciousness in determining largely the overt behavior of the organism. And consciousness is more or less tacitly assumed by all concerned to be an immediate correlate of the nervous mechanism.

Clinical evidence, also, would lead one to an emphasis of the neural characters in the animal organism. The numerous recent clinical studies in vegetative neurology especially furnish a weighty line of evidence tending to force the balance still higher in the favor of the neural organization. Certain it is that as vertebrate development has taken place the nervous system now occupies an intimate and fundamental relationship to the organism as a whole.

There is a very grave likelihood, however, that the part taken by the nervous system in the economy of vertebrate animals, and *pari passu* in the developmental origin of animals, will be much overrated. Through stereotyped thinking it is very easy to give the nervous system a priority of development which finer and more pertinent facts do not warrant. The man-in-the-street and the cloistered, introspective psychologist and philosopher deal with certain facts and assume certain attitudes which enhance the functions assumed by the neural organization, especially as it bears upon conscious states and volitions.

Then there is the theological thinker—and we are all more or less theological—who somewhat unconsciously identifies mind and spirit and arrives at a valuation of the character of the neural constituents of the animal that shamefully ignore or berate the other aspects of the organism. Muscles and glands are considered the animal parts of the body. The nervous system is looked upon as contributing the traits that are essentially human and in the likeness of the Creator.

This attitude toward the fundamental relationships of the nervous system is not limited to those who make a rather subjective approach to the question of the place occupied by the nervous system in the animal economy. Practitioners of medicine and even students of neurology are dealing with certain objective facts which in themselves would reinforce the point of view which is being indicated. Unless these objective facts are viewed in their proper perspective they will only reinforce the sub-

jective convictions regarding the omnipresence and omnipotence of the nervous system.

The fact that it is only through musculature that the nervous system becomes functional and is of any use to the organism is quite likely to be overlooked or passed over with an "of course." The give and take between the muscular, glandular and neural mechanisms is very probably ignored most shamefully.

Admittedly the overt functions and even to a considerable extent the vegetative functions of the higher vertebrates are largely attuned through the neural mechanism. This prominence of the nervous system in the life and behavior of the vertebrate organism encourages a point of view respecting its primitive development and origin which is not only unwarranted but against the current of fact.

Superficially it is quite the logical thing to look upon the nervous system as being of great evolutionary age in comparison to other bodily tissues and a sine qua non without which animal life is impossible. This has been the attitude of the leading scientists at times. For example, Linnæus, the great Swedish scientist of the eighteenth century, distinguished plants from animals solely by the fact that the latter were sentient. We now know

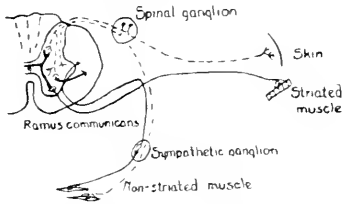


FIG. 1.—The complete neuromuscular mechanism as found in a higher vertebrate. The receptor division is indicated by the broken lines, the effector by the solid lines and includes the striated and non-striated musculature. The associational or intermediary division is within the spinal cord and is represented by the heavy lines.

that many organisms truly classified as animals are non-sentient, but the differentiation of so profound a thinker as Linnæus is significant in this connection when what might be termed the common-sense point of view is being indicated.

What is superficially most prominent in the higher organisms, however, is seldom of fundamental significance for the total range of animal life. Such is the case with the nervous system. In this paper a review will be attempted of the data from animal biology and behavior as they bear upon the developmental origin of the fundamental nervous structures. No attempt will be made to introduce new observations. The point of view to be presented is distinctly an American achievement, having been originated and masterfully championed by Professor G. H. Parker of Harvard University. It is the only satisfactory account of the developmental relations of the nervous system, unifying the diverse threads of evidence in a manner unattained by any other statement of this genesis.

The point of departure taken by this account is functional rather than solely morphological. Like the account itself this functional, physiological attitude is the result of the work of American investigators.

Three functional aspects are to be differentiated in the fully developed nervous mechanism. First in order of excitation are the *receptors* which are highly specialized in the more advanced vertebrates. In the lower forms of animal life these receptors may be nothing more than a free nervous termination resembling the cut end of a thread and reacting uniformly to all types of stimulation. When present, either in generalized or specialized form these receptors or sensory structures function to convey nervous impulses to other parts of the body upon stimulation by light rays, pressure, chemicals, and other agents to which it is essential for the organism to adjust itself.

The next functional division to be distinguished is the *associational* or *intermediary* parts of the neural organization. These function to bring the various receptive structures into active relationship with the parts of the organism by which a response to the stimulation is effected. This brings us to the third functional sector of the nervous mechanism, the *effectors*. The effectors proper are the muscles and glands through which the spatial orientation of the organism is accomplished. It is by means of the afferent neurones that the other parts of the nervous system are brought into physiological relationship with the effector structures.

From functional considerations the nervous system is thus seen to comprise certain morphological structures that are not in the strict sense nervous elements. Hence it has been deemed advisable to designate this physiologically functional system the neuromuscular mechanism. The nervous system alone and isolated is of little biological value. It is only of value as it becomes functionally active when related to certain structures which are capable of modifying the relations of the animal to its environments. Moreover, function is quite as significant as structure in determining the course of primitive development of the organism.

This complete, three-phase, functional mechanism is found in its entirety only in animals of a rather complex organization. Among the less differentiated multicellular animals these functional aspects of the neuromuscular mechanism are found in varying degrees of relationship. Accordingly we will now turn our attention to those animals with representative degrees of functional development, studying them alike in morphology and behavior.

Irritability is a common property of all living organic matter, both plant and animal. This characteristic of living protoplasm has root in the unstable molecular structure of organic matter in the living cells. This property of irritability provides the basis for behavior. In its simplest forms behavior is an organized irritability occasioned immediately and directly under the influence of certain environmental forces. In its more complicated forms behavior is an indirect and less immediate and less constantly organized irritability. The simpler forms of behavior are spoken of as tropisms.

Tropic behavior is present in plants as well as simple unicellular animals. Certain of the plants turn their open flowers toward the source of light. Among the protozoa we find that the Euglenæ also invariably seek the light. The tropisms are directly adaptive in their service to the organism. Thus in the Euglenæ, as in all protozoans, certain negative

chemotropisms keep the organism away from noxious chemical influences, while other tropisms impell these microscopic animals into contact with food particles which are enveloped and digested.

These lowly protozoans are devoid of all nervous

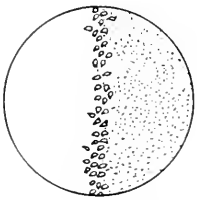


Fig. 2.—Demonstration of a light tropism in euglenæ. The left half of the experimental field is lighted, the right half shaded. The euglenæ seek the intermediate region. This behavior takes place in a single celled animal devoid of all nervous structures. (Adapted from Famintzin.)

structures in the morphological sense of the term, but still we find them living a rather rational existence, as it were. They are selective in their reactions or tropisms, being stimulated positively by certain environmental influences and negatively by others. Normal protozoans are not subject to the vicissitudes of appetite as is man, but uniformly reject or accept food particles. A rather monotonous existence these tiny single-celled animals live, but on the whole a very well regulated life.

Among the lowest multicellular animals we also find this machine-like behavior. Differentiation of function as well as structure is taking place in these primitive metazoans, but still among the lowest—as in the sponges—no nervous tissue has yet been discovered.

The chief activity of the sponges consists in causing a flow of water through the central cavity of the animal. This water enters through the numerous lateral pores found along the sides of the animal. It is these pores which give it the characteristic spongelike construction. Numerous flagellated cells, the choanocysts, located in these lateral

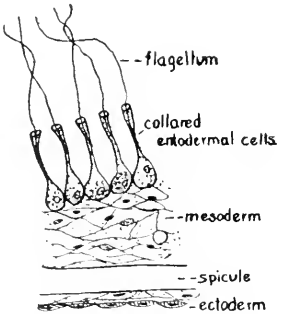


Fig. 3.—Section of a sponge showing flagella which line the canals. No trace of nervous tissue is to be found. (After Shull.)

pores and around the central cavity, produce a flow of water through the lateral pores, into the central cavity, and finally out at the apex through the mouth-like osculum. These flagellated cells lash their flagella continuously, keeping up a steady flow of water through the porous system of the organism.

Although the sponges are free from any nervous mechanism primitive muscular cells, the myocytes, have been differentiated. These specialized con-

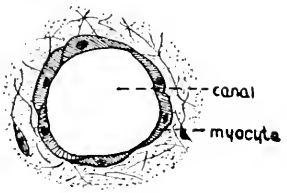


Fig. 4.—Section at right angles to axis of a canal in a sponge, taken near the aperture. Primitive muscle cells prominent. This is the first step in the development of the neuromuscular mechanism.

tractile structures are situated as ringlike structures around the pores and osculum of the sponge. Now if the inner surface of one of the lateral pores or the osculum is punctured by a needle these primitive muscle cells contract, closing the pores of the body wall with remarkable quickness for so sluggish an animal.

Thus we find in the sponge an extremely simple yet effective and somewhat specialized mechanism which is more reflex-like than tropic. And still this mechanism functions independently of all nervous structures. It is functionally complete in the myocyst. In the developmental relations of the neuromuscular system effectors in the form of contractile tissues are thus seen to precede the nervous structures. Moreover, in the more primitive condition the effectors are functionally complete in themselves.

As a rudimentary condition of the functional independence of musculature in man the only morphological structure yet demonstrated to have this status is the sphincter pupillæ of the eye. When all neural connections with this muscle are removed the muscle will still contract when stimulated even by a small amount of light. The heart of vertebrate embryos also begins active functioning before neural connections have been established with it by the rapid developing nervous system.

The first phase in the development of the primitive neuromuscular mechanism was the formation of musculature (effector) which was functionally sufficient in itself to meet the demands of the organism it served. Ascending the metazoa we find

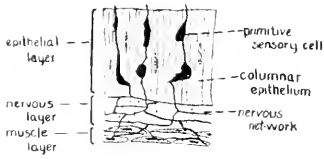


Fig. 5.—Diagram of the ectoderm of a sea-anemone showing a simple effector-receptor system with the nerve-net type of connection.

the cœlenterates more specialized in structure and function than the sponges. These animals, of which the sea anemone and jelly fish are typical, have distributed throughout the ectoderm specialized cells which function as sense cells or receptors. One

is therefore not at all astonished to find the sea anemone very responsive to external stimulation. Simple mechanical stimulation causes an immediate contraction of the entire organism.

While the neuromuscular organization of the sea anemone is primitive and rather diffuse and general, there is a specialization of sensory function present in the receptive nervous cells. The mouth and lips of the animal are responsive only to the contact of food particles and not to ordinary mechanical stimulation. The general epithelium, however, is sensitive to mechanical stimulation, but not to particles of food.

There is no evidence, either anatomical or behavioristic, of a central nervous organ in the cœlenterates. Anatomically the primitive nervous layer forms a continuous system in which the cellular processes are fused into a net-work. This nervous layer lies immediately against the layer of muscle fibers and probably stimulates the muscles directly and diffusely.

The behavior of the sea anemone is also such as to lead to the conclusion that its nervous organization is diffuse and unspecialized. For example, if bits of meat and blotting paper soaked in meat extracts are placed alternately on the tentacle of one of these cœlenterates these morsels will be carried to the mouth without hesitation and without discrimination. After several repetitions of this deception, however, the animal becomes aware, as it were, of the trick which is being played. After a dozen or more feedings on the meat and meat-soaked blotting paper, it will begin rejecting the camouflaged food morsels while meat is still greedily accepted by the tentacles and carried to the mouth.

Now after one group of tentacles has been educated, so to speak, to distinguish the real from the spurious food, the experiment can be performed with another group of tentacles which are unpractised in overcoming this deception. When this is done it is found that they unhesitatingly accept both the meat and the paper and convey them to the mouth of the animal. There is thus no generalizing of the experience as would be observed if the organism possessed even a primitive centralization of its nervous structures.

The first phase in the developmental relations of the neuro-muscular mechanism was found to be the formation of contractile effectors. As the animal scale is ascended more or less specialized receptive cells of primitive but true nervous tissue are found. In the lower cœlenterates, as the sea anemone, this receptor system is rather diffuse, although somewhat specialized. As an example of the higher cœlenterates we may consider the jelly fishes. In these very sensitive and specialized sense organs are to be distinguished. There is still no evidence from the microscopic anatomy or the behavior of these more specialized cœlenterates of a centralization of organs or the existence of intermediary or associative nervous structures.

The first morphological nervous tissue was chiefly sensory or receptive and in immediate contact with the effectors. Parallel if not identical structures of a diffuse nerve-net character are found in the intestinal walls of man. There minor plexuses from the sympathetic system and the nerve processes from these plexuses lie in immediate contact with the contractile layers of tissue which they stimulate. The movements of the intestinal walls in churning the food and in peristalsis are ordinarily thought to be under the control of the vagus and the splanchnic nerves. Experimentation has demonstrated, however, that when these nerves from the central nervous system are completely removed from all contact with the intestine its behavior remains characteristic and functionally sufficient. In man, therefore, we find that this primitive effector-receptor functional mechanism is present in certain portions of the sympathetic nervous structures and is functionally adequate in itself.

Above the cœlenterates the truly intermediary neurones make their appearance. Centralization of the nervous structure also begins to take place. The further development of the neuromuscular mechanism consists in the elaboration and organization of these intermediary structures. It is beyond the scope of the present paper to discuss the development of the structural organization.

To summarize: In considering the developmental relations of the nervous system a functional point of view is necessary. Functionally the unit is a neuromuscular mechanism rather than simply the nervous system.

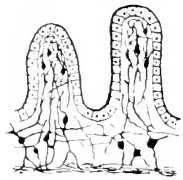


Fig. 6.—Villi of human small intestine with Meissner's plexus and the primitive type of nerve-net connections in the nerve supply which is derived from the cœliac division of the solar plexus.

Irritability is a property common to all protoplasm, as is also conductivity and contractility. Nerve cells have the properties of irritability and conductivity emphasized in their specialization. In muscle cells contractility is emphasized. Single-celled animals in which all the protoplasmic properties are unspecialized can react to and adapt themselves successfully to their environment without the aid of any nervous structures at all. The most primitive multicellular animals have no nervous structures, but some of the cells have the property of contractility developed in advance of the others and these contractile, primitive muscle cells are the first parts of the neuromuscular mechanism to develop. The next part of this functional system to develop is the rudimentary sense cells which are morphologically nervous in character as well as in function. Later the so-called motor neurones and the associational or intermediary neurones have developed. The developmental relations of these latest parts of the functional mechanism are not traced in the present paper, but they consist in a centralization of structure and organization of relationship of increasing complexity with increase in complexity of behavior and position in the animal scale.

Embryological development of the higher vertebrates and man repeats in a modified way the essential steps of this relationship. In the adult man

structures are also found which functionally demonstrate the stages in the developmental origin of the nervous system. These stages of development in the order of their occurrence are: effectors, receptors, intermediaries.

ANEURYSM OF THE VERTEBRAL ARTERIES.

By J. FLOYD MORROW, B.S.,

MORGANTOWN, W. VA.

ASSISTANT IN THE DEPARTMENT OF ANATOMY, WEST VIRGINIA UNIVERSITY MEDICAL SCHOOL.

ANEURYSM of the larger arteries of the brain according to Finely[1], is a rare condition, occurring nineteen times in 9000 autopsies collected from Gray's Hospital by Pitt, and seven times in 501 cases of aneurysm, according to Crisp's figures. They seldom attain a size larger than a walnut and frequently lead to fatal rupture when no larger than a pea. The middle cerebrals and the basilar are more often affected than the other vessels. The other cerebral arteries, the vertebrals and the communicating arteries occasionally suffer.

Aneurysms of the larger cerebral vessels, as stated by Stewart[2], are of an acquired spontaneous origin usually following a chronic arteritis together with an increase in the blood pressure. Inflammation with softening of the arterial wall from the lodgement of emboli in the cerebral vessels is a lesser evil in the production of aneurysmal dilatation. Chronic arteritis of syphilitic origin is said to be the main etiological factor. Alcoholism, excesses, and certain pathological conditions, producing in the last mentioned an increase in blood pressure, are contributory in a varying degree to the initiation of or to the acceleration of the process.

Aneurysms occurring within the cranium are usually of the fusiform type producing a dilatation and elongation of a section of an artery. The seriousness of such a tumor mass depends upon its location, size, rate of growth and secondary changes which it may undergo. When a vertebral artery is affected we can expect a great variety of disorders to follow. The most vital part of the nervous system, the medulla oblongata, is subjected to a severe pressure test. The organ may become distorted in both form and position. The pressure may extend to the pons and produce a large notch on its exposed surface.

With the advent of the tumor mass certain recognized degenerative changes are initiated within the medulla. Mayer[3] states that these changes manifest themselves in the form of a compression bulbar paralysis of a varying intensity. The development of the disease is generally a protracted one; and the bulbar symptom-complex does not as a rule come on suddenly, but step-like, or it may suddenly become acute. Seizures appear repeatedly during the malady, characterized by incoherent speech, deglutitory paralysis, dyspnea, acceleration of the pulse and cardiac arrhythmia, and occasionally a considerable rise in temperature. The bulbar symptoms gradually disappear, to come on again with a new attack. In the intervals also, phenomena remain which are due to an irritative or paralytic condition of one or several bulbar nerves, or to softening of the pons or medulla. Rhythmical twitchings of the facial muscles and of the velum palati have been observed, more frequently paralysis of the facial, trigeminal, vagus, accessory, cochlear, etc. The alternating character of these paralyses is very characteristic. The paralysis may be a simple or an atrophic one. A paralysis of the extremities in the form of a general paraplegia, hemiplegia alternans, or a paresis of the legs is almost always present to some extent.

Last November the body of a white man, aged about 50, was received by the Department of Anatomy of the West Virginia University Medical School. Unfortunately it was impossible to get any previous history of the case. The general physical appearance of the body was indicative of the man having died very suddenly from acute cardiac or respiratory disturbances while in apparently good health. There were no signs of emaciation of atrophy. In fact, the development of the musculature and body contour was considerably better than that of the average robust individual.

In removing the brain a large solid tumor mass was encountered in the region ventral to the medulla. Examination revealed a spontaneously cured fusiform aneurysm of the right vertebral artery. The aneurysmal dilatation began 1.5 c.m. from the bifurcation of the basilar artery and increased abruptly to its greatest diameter of 2.5 c.m. This extreme dilatation was continued for a distance of 3 c.m. downward and the artery again very abruptly assumed its normal diameter. Section of the aneurysm showed a channel of approximately normal size on the side proximal to the medulla, while the mass of the tumor was of a grayish lamellar and incompressible consistency resembling cartilage somewhat but not staining to show any cellular elements. The arterial wall covering the aneurysm was 2 mm. in thickness and very hard from the deposition of salts, except that portion immediately over the blood channel which appeared to be normal. The other vertebral artery was crowded laterally and showed a dilatation for about 2.5 c.m. of its course, with a diameter of nearly one centimeter at its greatest development. This artery was very sclerotic. The basilar artery was in a position considerably to the left of the midline and was very torturous. The circle of Willis had several small areas of sclerosis.

The medulla oblongata was pressed into an unrecognizable mass by the aneurysm. The pyramids, pyramidal decussation, olives, anterior fissure, lateral sulci, etc., were obliterated. The anterior surface of the medulla was concave with a depth of 0.4 c.m. and 1.7 c.m. transverse and vertical measurements respectively. The distance anteroposterior through the organ was less than half that of the normal, while transversely it was one-third wider than that of a normal medulla. The position with respect to the midline was fairly well maintained. At the deepest part of the concavity the medulla was pushed backward 2 c.m. so that it occupied a position between the cerebellar lobes. The pressure had been greatest on the right side and gave to the medulla the appearance of having tried to rotate out of its normal axis in a clock-wise direction. The deformity of the medulla shows that its substance was not only compressed but pushed out of its normal relationship of parts in a dorsal and in lateral directions. There was no gross evidence of any softening of the organ.

The pons was pressed slightly upward on the left side obliterating the inferior portion of the midline, and presented a notch 9 mm. wide, 12 mm. long, and 3 mm. deep. Other findings were a gorged right auricle and an embolus in the femoral artery just below Poupart's ligament.

A section of cervical cord stained by Marchi's method showed a great number of degenerated fibers scattered throughout the fiber tracts of the cord. The degenerated fibers were more abundant in the large sensory and motor tracts, the fasciculi gracilis and cuneautus, dorsal spinocerebellar and crossed pyramidal tracts showing the greatest degree of involvement.

Such an impairment of the cord suggests the liability to motor and sensory disturbances as was stated above. But in the case described we see a most remarkable disfigurement of the medulla without the atropic or simple paralysis which may follow a pressure upon the organ. The findings indicate that if there were manifestations of a compression bulbar paralysis they were of a mild transient type, and that death probably resulted from a sudden acute involvement of the respiratory and cardiac centers in the medulla.

The location of a vertebral aneurysm, situated as it is on the most vital center of the nervous mechanisms, offers a very interesting study. It is a well-recognized fact that the medulla will not withstand any sudden injury without serious or even fatal consequences. When we see a medulla reduced by a pressure to less than one-half of its normal diameter and a cord showing motor and sensory degeneration, the question of how much and how long can the medulla withstand this continuous increasing pressure naturally arises. Here, the rate of formation of the aneurysm is apparently the main factor. As the tumor mass encroaches upon the medulla, the latter attempts to functionally accommodate itself to a change of form and the attendant pressure.

In the case reported it is evident that such an attempt of accommodation was relatively successful. When the tumor mass has reached the size of a walnut together with the pronounced disfigurement of the medulla it is suggestive that a relatively long period of time was necessary for its development. The gravity of the situation it appears would be the inverse of the rate of formation, while the actual size of the tumor mass should be considered as secondary in importance; otherwise there could not have been produced such a deformity of the medulla. While the normal functioning of the medulla becomes impaired, it is only when a vital center or a fiber tract is suddenly blotted out can a fatal termination be expected. Here, the factor of a softening of the medulla is of first importance, while a fatal hemorrhage, which is rare in this location, is secondary in consideration. Even though a spontaneous cure of the aneurysm may be affected, as happened in the case described, the tumor mass will persist as a foreign body, and the degeneration of the medulla must continue.

The diagnosis of cerebral aneurysm Finley states is seldom, if ever, made with certainty. In Beadles 555 cases apoplexy was the first symptom in 46.3 per cent. of the cases. Here the aneurysms are chiefly of the miliary type and are confined to the smaller vessels of the brain. The characteristic murmur indicating an aneurysm of one of the larger arteries is seldom heard. Diagnosis based upon a murmur, according to Beadles, has been proven correct in only two instances by post-mortem findings.

It would seem therefore that the chief point upon which to base a diagnosis is a pressure manifested by the symptoms it produces. With an aneurysmal dilatation of either of the vertebral arteries the possibilities of hearing the characteristic murmur would be greater because of their more superficial position than when the other arteries of the brain are similarly affected. The disappearance of the murmur by pressure on the vertebrals where they pass through the foramina of the lateral processes of the sixth cervical vertebra would be of value in making the diagnosis. When the aneurysm has undergone a spontaneous cure even this means of a diagnosis must disappear. Unfortunately the seriousness of the condition may be recognized too late, after perhaps irreparable damage has been done, in which event any surgical interference would be of little or no value. Even with a grave prognosis the institution of proper medical treatment and certain hygienic measures may temporarily alleviate the patient's condition. Hence, the earlier the recognition of the presence of a vertebral aneurysm the greater will be the chances for a prolongation of the patient's life or perhaps even a cure.

Let it be suggested that the possibility of a cure of a vertebral aneurysm by ligation of the artery presents itself. The point of choice for its ligation is through the sub-occipital triangle of the neck. In 36 ligations of the vertebral artery there were three deaths (Jos. D. Bryant[5]).

Summary.—1. Aneurysmal dilatation of the vertebral arteries is a very rare condition.

2. The medulla oblongata and many of the cranial nerves are damaged by the aneurysm as is manifested by the resulting compression bulbar paralysis.

3. A correct diagnosis of vertebral aneurysm is difficult to make and it is likely to be made late in the progress of the disease.

4. The treatment before the aneurysm has undergone a spontaneous cure is surgical, and symptomatic in the later stages of bulbar paralysis.

5. The earlier the diagnosis of vertebral aneurysm is made, the more favorable will be the prognosis. In any event the prognosis must be considered grave.

REFERENCES.

1. Finley, F. G.: Reference Handbook of the Medical Sciences, Ed. 3, 1913, vol. i, p. 420-21.
2. Stewart, F. T.: Manual of Surgery, Ed. 4, 1915, p. 208.
3. Mayer, E. E.: Oppenheim's Diseases of the Nervous System, 2nd Am. Ed., 1904, p. 682-685.
4. DaCosta, J. C.: Modern Surgery, Ed. 8, 1919, p. 548.
5. Bryant, Alfred: [illegible]

PROPOSED LEGISLATION CONCERNING HEALTH CENTERS.*

By JOHN H. BARRY, M.D.,
NEW YORK.
ASSISTANT SANITARY SUPERINTENDENT, DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK.

My temerity is strained to the breaking point in accepting this invitation to discuss—if it means to debate—the illuminating views of our gifted Commissioner on this subject upon which he is so singularly well informed. I can only explain the honor of being chosen by the fact that our Borough of Queens has had more experience with the health

*Part of a discussion on an address of State Commissioner of Health, Hermann M. Biggs, at the Sea View Hospital, Staten Island, May 19, 1921.

center plan than any other part of Greater New York, based upon the argument which justifies it best — a large geographical area with relative sparsity of population.

As in all large new problems of its kind, the exact truth may lie in the mean between the extremes of unprogressive medicine on the one hand, and, on the other hand, the highly progressive standards of new medicine at which the present day is aiming. It is only too true that the day of the unprogressive, shiftless, careless practitioner who wilfully shuts his eyes upon new thought and modern ideas is passing or passed. And it is perhaps equally true that highly refined specialism and group medicine are prone to look with too harsh and severe disdain upon the clinical judgment, the relatively crude diagnostic skill, and the high-minded devotion to an almost sacred calling entirely bereft of commercialism (not at all so true of to-day) which have been responsible for very many substantial results and glorious triumphs in pre-laboratory and *x*-ray days.

We of Queens have been under a modified health district administration for five years. I say modified advisedly, for it was soon learned that the overhead costs of full-time health officers and clerical administration forces were unjustifiably heavy. Then, too, the complexity of service as represented by the *lay* pursuits of sanitary and food problems on the one hand and the *medical* service as expressed in infant and child welfare and communicable disease control on the other hand seemed to offer a more ready and efficient solution at the hands of men specially qualified by knowledge and experience, each in his own sphere, on these widely divergent functions.

The budgets, as I view them, in a State-wide health district plan to carry on all specialized forms of treatment and to make the service comprehend every possible requirement are appalling. Let me say to our Commissioner and to you my dear ladies and gentlemen, that one of the reactions which has come out of our experience from needful economy of city funds has been rather not so much "group medicine," but as we might call it, "group nursing," which has followed economic and, we think, reasonably efficient lines. We are working under an *amalgamated* and not a *special* system of nursing. We find that, in applying these workers, at least those who follow instructed lines, to all the functions in common of an intelligent nurse's life that we can give them more enthusiasm, interest, and variety in their work, that we can keep them intensely occupied and that, treating the *family* as the unit, we can avoid multiple overlapping and duplication. Fancy the loss of time and efficiency involved in sending one nurse to long distances on welfare and school follow-up work, while, in striking distance of said visit, another must be sent on the quarantine of an infectious case or the investigation of, and advice to a tuberculous patient.

We have pursued all the identities of *nursing* and, to a great extent, *medical* service enumerated in health center plans with forces made elastic and preferential (by amalgamated and group system) to the exigencies of seasonal, school-period, or epidemic needs.

There would seem to be three avenues of approach to the coordinated study of the needs, the rights and privileges, and the different viewpoints of all interested and concerned in any improved system of medicine: (1) The community. (2) The Medical profession at large. (3) Public health administrators and workers.

The Community.—Has the economic condition of very recent times been the most outstanding in its need of clinical, free, or charitable aid to the community at large? Have we not just passed through a period, despite some present clouds of unemployment, which lends itself least to the need of community helpfulness and charity to the masses? Has there ever been less dependence, less abject poverty, more affluence? Has there ever been higher wage, scarcer labor, or a higher appreciation put upon its value, while scientific or educational service stood still or even depreciated?

And if wage loss through numerous strikes and profligacy of expense or extravagance during prosperous times defeats the reasonable financial independence of the working masses today, shall it be called the community's moral fault or should it be its chief concern? Individualism, self-respect, and independence are not best fostered by proffers of gratuitous and charitable aid. Some there will be in all ages too ready to accept needless free help.

The Medical Profession.—The marvellously lessened output of recent graduates from our medical colleges must be read in the light of a profession discouraged and dismayed over the lack of recompense and reward attending its heroic and faithful service. A disheartened profession viewing its work ill-requited, giving its generous quota of war service unstintedly and with heroic sacrifice, men, alone of all professions who are expected to, and do defeat their own personal interests through high-minded devotion to the principles of preventive medicine, cannot well be asked to view with complaisance any plans which may circumscribe their narrowed and ever-narrowing field of just emolument and recompense for worthy, altruistic effort.

We have no quarrel with the specialist's fees—we feel that in so invaluable a service as the preservation of life and the conservation of health, that he should receive recompense commensurate with and proportionate to earnest endeavor in all the other learned professions. But we deplore the disparity and disproportion between his and the general practitioner's or family physician's recompense, the latter bearing all the burdens, sharing all the anxieties and worries of the family, forced to accept most of the blame and censure in unfortunate outcomes, and obscured by the specialist in the glories of fortunate and satisfactory results.

In harboring ill-will, however, against many health department functions and withholding much of its cooperation, we must feel that the medical profession has a distorted vision, for many undesirable burdens are lifted from their shoulders; much service which we render would not be sought from the private physician for pay, and many opportunities for emolument such as physical defect corrections are referred to them without their being embraced.

Public Health Administrators and Workers.—I hope it may not be too true, but I fear it is at least half so that we who have learned to live on public

salaries (modest though they be, yet assuring us a livelihood) are prone to absorb to ourselves in departmental channels some of the paying service justly belonging to the profession at large.

Much public health service, like public welfare work, directed along free and clinical lines, belongs only to the needy and the poor. We must not encroach unfairly upon the field of the private physician in his just relation with the patient able and willing to pay for service. If we err in this particular, we must react against it, because only in rendering him this exact justice can we hope to obtain that sincere and heartfelt cooperation upon which rest the security and effectiveness in such large measure of our public health service.

I have not made any very positive statements nor challenged many of the Commissioner's arguments. Perhaps many of them are unanswerable.

I would conclude with two queries.

1. Why recruit the country forces from State aid? Why not rather attempt to make private professional life again appealing and reasonably remunerative so that to the charms of country life might be added the security of reasonable reward.

2. Why impose upon the cities—already fortified and equipped by city appropriations and generous private endowments—a tax for country service in which they have no common interest save that of human sympathy? By all means if the country must be served on hospital laboratory and clinical lines to a proportionate degree with that of the cities, let the *counties* pay for the service and not the *State*.

374 Fulton Street,
Jamaica, Queens Borough.

GONORRHEAL INFECTION FROM A BATH TUB.

By J. Henry Dowd, M.D.,

Buffalo, N. Y.

Genitourinary Surgeon to the Sisters of Mercy, and Contagious Hospitals.

The following case report is worthy of record, even though the bath tub could not be produced, nor was it possible to find gonococci in the female.

H. S., being sent for treatment, was examined and found to have a profuse urethral discharge of two or three days' duration; the microscope showed the condition to be gonorrheal.

Close questioning brought the information that he had never had venereal disease, and had had no sexual relations in two years until ten days previous when he was married.

The condition being fully described to the young man, it was suggested he send his wife at once for examination. She gave the following information: In January, 1921, as a delegate, accompanied by another young woman, she visited a nearby city (previous to marriage her home was in the country), remaining a week. About five days or so after her arrival she noticed a quite large stain, yellowish in character, on her night robe, but no pain or inconvenience on walking. Communicating this to her friend, the latter also stated that she had found a similar stain; neither had ever noticed any discharge on their underclothing before; her friend complained of painful urination. Knowing nothing of venereal disease, and thinking the condition due to a weakness of some sort, no attention was paid to the condition, which gradually disappeared. The woman absolutely denied sexual intercourse, and there was no doubt of the truthfulness of her statements. But she did admit that on account of financial reasons they had chosen a cheap hotel, and had taken a bath in a tub used by all the guests on the floor they occupied; this was taken on the day they arrived. In the latter part of February she was taken suddenly ill with very severe pain in the chest and back (over the scapula). This was diagnosed as pleurisy, although she informed me she had no difficulty in breathing, nor was any fluid taken from the chest.

Examination showed no inflammatory action at the vulva; no pus could be expressed from the urethra. The speculum, which caused a great deal of pain on being passed, showed an inflamed cervix, eroded, and containing a plug of mucopus. Microscopical examination did not reveal gonococci (we all realize the difficulty in finding gonococci in women, even when we are positively certain infection is present), but there was an entire absence of Doederlein bacilli—as strong evidence that gonococci or some other infectious bacteria were present as though they are found.

The young woman informed me that during the month of March her friend was seriously ill with severe pain in the lower abdomen (pelvic region), and since then she has had more or less pain at the menstrual period, something that had never occurred previously. I am unable to state the diagnosis in this case, but it is very probable it was due to involvement of the pelvic contents: ovaries, tubes, etc., and of gonorrheal origin.

It is assuming a great deal to disagree in the diagnosis of a case that you do not see, but there is no doubt from the history of the condition this young woman suffered from gonorrheal thecitis and not from pleurisy.

Assuming that these young women used their own towel, what other mode of infection was possible, other than that some one, male or female, having gonorrhea had taken a bath previously and infectious material adhered to the tub, thus infecting these two young women, possibly others, I cannot say.

427 Franklin Street.

Scopolamine in Parkinsonism.—Paulian and Bagdasar, Rumanians, comprise under the latter term not only paralysis agitans *per se* but the almost identical syndrome which follows encephalitis. In the former condition, the use of henbane, hyoscyamine, and hyoscine is established, a fact which may not have been known to the authors, who cite several cases in which hydrobromate of scopolamine gave good results in the post-encephalitic syndrome.—*La Presse Médicale.*

The Pressure of the Biliary Secretion in Man.—Robitschek and Turoli have measured this pressure in several cases of biliary drainage following operations on the common duct. There is no mention of a manometer, but the bile was allowed to accumulate in a vertical tube. The pressure sent the bile column up to as high as 270 mm. in a tube 5.5 mm. wide. The opportunity for testing cholagogues was utilized and while physostigmine was positive and pilocarpine was much more so, papaverine was decidedly negative and lowered the pressure. The latter is not due solely to vis a tergo or secretory pressure, for the muscular coats of the ducts and even the intraabdominal pressure are factors.—*La Presse Médicale.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Susbcribers.

New York, November 19, 1921.

SOME PROBLEMS OF COMPARATIVE PSYCHIATRY.

SOME thirty years ago a series of anthropological studies were begun on the insane of New York State, at the State Pathological Institute, before its early decease, and several thousand cases were studied. Unfortunately, when the institute succumbed to politics these records were scattered, never, perhaps, to become available for scientific purposes. So far as we know, there has been no similar attempt since that time on anything like the same scale and yet it is doubtless true that psychiatry would benefit immensely by such comparative studies, inaugurated as these were in a spirit of scientific zeal, and carried on by many earnest and qualified workers.

A few scattered and not altogether profitless investigations in comparative psychiatry have been made from time to time. By means of them we have learned, for example, that insanity was rare among the aboriginal Australians and has been frequent since the coming of the white settler; that paresis is extremely rare among the Chinese in the interior, but common along the coast, while syphilis is frequent in both places; that both syphilis and paresis are common in Japan, a maritime nation; that the native Africans do not exhibit true manic-depressive psychoses or paranoias to any extent; that the American Indian is free from paresis and paranoia; that there are psychoses in other countries unknown in America, such as a hashish psychosis in India, one associated with leprosy in Asia, and "running amok" in Malaysia; that the Hebrew race shows a small percentage of alcohol and drug psychoses and a large percentage of precox and imbecilities; that the native Irish show a high percentage of insanity and the Irish in America a high percentage of alcoholic psychoses. We know these things in a general way as the result of what few studies have been made already, but there is room for much more work.

We might investigate, for example, the statement often made that the immigrant is a menace, with its apparent support in figures tending to show that the incoming aliens during a certain period showed a higher incidence of insanity than the native population during the same period. This is, however, misleading when we consider that this alien group is made up very largely of young adult males, in other words, of the class which ordinarily furnishes the greatest part of admissions to asylums, while it is contrasted in such pessimistic reports with a group containing a large admixture of children. Why is insanity more frequent in rural districts in spite of the greater stress of urban life? What is the incidence of insanity in those whose parents were born in a foreign country? Of those whose grandparents were so born? Of those who have three generations of American ancestors? Or four, or five? Is there a difference in the liability to insanity of those who live in the mountains and those who live in the lowlands? Is insanity more frequent in the mulatto than in the negro? And so on.

The difficulties, of course, are many. Those best qualified for such statistical studies, that is, psychiatrists, are usually in institutions where they are overburdened with work. It is not possible to pay for work of this kind: the only reward is the ultimate good attained, and this is long in realization. A man who is already weighted down with routine duties does not readily take to long, arduous statistical studies where he is only a cog in the machine; he is attracted to research work, if at all, by some local problem which he can complete in a reasonable time and publish under his own name.

It may be some day, however, that a Federal board will be created, or a private endowment furnished, by means of which a continuous study of the above and many other problems may be carried on over a term of years with an almost certain benefit to psychiatry directly and the human race generally.

THE CHARACTERS OF CUTANEOUS TUBERCULOSIS FOLLOWING MEASLES.

FOLLOWING measles various forms of cutaneous tuberculosis may develop, such as gumma, lupus, or lichen scrofulosorum, either combined or separately, which latter is more common. Lupus is the most frequent of all and deserves mention because of the special characters it presents. Although not absolute, they impart a special aspect to this cutaneous lesion following rubeola. In lupus vulgaris, the process ordinarily begins by a small nodule which slowly enlarges and after a number of years attains a large size. Postubeolic lupus, on the contrary, has a sudden onset and usually several spots develop at the same time on different parts of the body like a true exanthema, occasionally resembling varicella. Successive eruptions are not common, the elements rapidly reaching their final dimensions. The process, therefore, is striking by reason of its wide dissemination. Patches are met with on all parts of the body and limbs, but rarely on the face; these lesions frequently assume the verru-

cous type. The elements composing the patches are usually small, varying from the size of a millet seed to that of a hemp seed, rarely reaching a centimeter in diameter; the smallest are formed by a single nodule, the larger by five or six agminate nodules. The patches are numerous, frequently as many as fifty, or less often there may be only five or six or less. These forms of lupus have a relatively benign evolution; the patches very rarely ulcerate and usually do not give rise to the great destruction of tissue met with in the ordinary forms of the disease. When once developed the eruptive elements often remain stationary and occasionally disappear spontaneously, sometimes leaving cicatrices or sometimes without trace. A slight pigmentation may be the only evidence of their former presence. Mild local treatment, such as the application of guaiacol, may result in a cure, and although the lesions do not usually give in to such simple therapeutic measures, they are, on the whole, easily cured by total excision, cauterization, or scraping, and do not relapse. A benign evolution of the process is the rule, but in some few instances the lesions undergo an evolution similar to that of lupus vulgaris. Generally speaking, it would appear that when the lesions are few in number they rarely have a tendency to spontaneous retrogression, but they nevertheless differ from ordinary lupus in that they can be easily cured by appropriate treatment. This benignity of postrubeolic lupic lesions might, at first sight, lead one to doubt the tuberculous nature of the process, but in every case in which histological examinations and inoculations have been carried out, the diagnosis has been unquestionably confirmed. For that matter, the tubercle bacillus is more easily demonstrated in these lesions than in ordinary lupus, the lesions sometimes being alive with bacilli. This occurs particularly in the very acute processes, manifested by an external generalized granulia.

Tuberculosis of the lymphnodes is less rare and in a number of cases it coincides with or precedes the cutaneous lesions. Joint tuberculosis is also met with after rubeola, but usually the lungs escape infection. In one or two recorded cases tuberculous meningitis caused death.

Briefly stated, ordinary lupus and postrubeolic lupus resemble each other only in the elementary lupic nodule and their histological characters, but differ profoundly by the number and distribution of the lesions and the evolution of the cutaneous changes. Ordinary lupus forms a single patch, postrubeolic lupus occurs in multiple patches; the former has a tendency to ulcerate and destroy the tissues, the latter to become fixed or with a tendency to retrogress. Ordinary lupus resists treatment, the postrubeolic form is hastened to recovery by treatment and, although the latter may not merit being regarded as a special morbid entity, it is, from its very peculiar clinical aspect, a lesion quite distinct from lupus vulgaris.

Among the other postrubeolic cutaneous tuberculoses it is to be remarked that verrucous tuberculosis from the viewpoint of development and distribution of the lesions offers the same characters as ordinary lupus, but histologically it presents the structure of an anatomical tubercle. Tuberculous cutaneous gummata rarely present such a vast dissemination or so rapid a development, only a few elements of lichen scrofulosorum being met with among the gummata. But as a rule the different forms of cutaneous tuberculosis rarely occur singly and may be simultaneously met with in the same subject with a more or less marked predominance of one or the other. Nevertheless, whatever may be the variations in their grouping, they preserve the remarkable characteristics already referred to and consequently should occupy a special place in cutaneous pathology.

IS FOLLICULAR TONSILLITIS A GENERAL MALADY?

THE common medical belief regarding this disease has been that it is a local malady, any constitutional symptom attending an attack being caused by the absorbed toxins, subsiding as soon as the toxins cease to be formed. Salzmann (MEDICAL RECORD, 1920, 3) and others have recently questioned the correctness of this, and now Guisez writes in the *Gazette des Hôpitaux*, July 19-21, 1921, xciv, 57, expressing the same doubt. He says that for the past dozen years his attention has been drawn to the possibility of the constitutional nature of chronic tonsillitis. The type of tonsillitis referred to is chronic, catarrhal, and follicular, the crypts being at times wholly or partly obliterated with retention of the contents. With benign flora thus retained nothing may happen, but when, as often occurs, virulent germs are retained a phlegmon may form, or there may be a general infection. The local symptoms may be insignificant so far as the patient himself is concerned, but careful examination will bring out the existence of a disease focus. In addition there are periods in which the patient complains of something wrong, such as pressure sensations or vague pains. There may be induced tenderness on external pressure over the tonsil. Of great clinical value is the redness of the free border of the anterior pillar. Owing to the fact that the tonsils tend to shrink in size after puberty these cases are most apt to appear in late childhood and the prepuberal or early adolescent periods. The condition once established may persist well into the adult period, say beyond the age of 30. The constitutional malady to be outlined is more common in young women.

The disease as studied by the author appears to have very little in common with the focal infection of tonsillar origin which figures so largely in American literature. In the latter, one organ or tissue usually bears the brunt—notably the articular system, and the seat of the focus is not

an essential factor in the picture, for this may be the teeth, nasal sinuses, middle ear, prostate, etc. The affection described by Guisez is limited strictly to the tonsil and he barely alludes to other primary foci. The young woman is apparently in inferior general condition, looks tired, has no appetite, and becomes fatigued, especially toward evening. She complains of various pains, in the limbs or back chiefly, and these are made worse on standing. She seldom eats before the middle of the day and by 4 or 5 o'clock in the afternoon is "all in." The thermometer, if used at this time, will show a slight elevation of temperature. This fact is evidence enough of a mild infection. Failure to improve with change of scene, tonics, and other reconstituents excludes neurasthenia, anemia, primary debility, and such diagnoses. Recovery following morcellation of the tonsil clinches the diagnosis. Of all the symptoms of slight chronic infection loss of appetite is the most valuable; and after operation the appetite returns and is keen. Among local conditions secondary to these infected tonsils the author notes especially orthostatic albuminuria, cardiac functional disturbances, including pseudoangina pectoris, which will be found described in the works of J. Mackenzie, and certain dermatoses. The author does not speak of the participation of the joints and with the exception of orthostatic albuminuria does not allude to implication of the kidneys. His disease picture could hardly avoid overlapping the picture of tonsillar focal infection in some minor details, but the autonomy of each is evident. The distinction may be made as follows: the picture drawn by Guisez is apparently a pure toxemia, while in cases of focal infection the condition is a mixture of toxic and metastatic manifestations. Again Guisez is silent on lesions which follow *acute* tonsillitis, and it is in this condition that we most commonly fear the appearance of endocarditis, nephritis, and some of the worst joint affections.

THE TREATMENT OF BEGINNING OF COXA VARA.

SINCE coxa vara is frequently due to rickets or tuberculous infection, medical and hygienic treatment of the patient must never be overlooked, and it is important to determine the time when treatment of this affection should be begun, otherwise much harm may be wrought. It is the osteitis which leads to softening of the bone and it is the osteitis which permits an essay at reduction. To appreciate the degree of the osteitis is no easy matter, but nevertheless it is absolutely necessary. The state of the skeleton cannot be easily judged under the thick layer of soft structures so that the periarticular lesions must form the basis of the estimation of the bone lesion; for the inflammation does not remain limited to the neck of the femur, but, extending beyond the joint, it involves the muscles, tendons, perivascular sheaths, cellular tissue, and even the skin, and here, as in all inflammatory processes, the lymphatics play a preponderant rôle. The reaction of organic defense is shown by the afflux of the lymph and its inevitable transudation and to this the effects of blood stasis are added. The edema resulting from the dilatation of the vessels in proximity to the focus of osteitis, with the consequent slow circulation, explains this state of affairs which must be dealt with. The infiltration of all the soft structures explains the imperfect nutrition resulting from a defective circulation of the blood and lymph in the parts. The muscles degenerate and the tendons undergo the same process, so that a coxa vara—at its onset a disease of the femoral neck—becomes a lesion of the entire articular and periarticular region. This is one of the chief causes of the difficulty in exploring the parts and is likewise a cause of failure in treatment when these lesions are overlooked. Therefore, before undertaking any direct treatment of the neck of the femur a preparatory treatment by massage is essential. Its effect is both beneficial and immediate, quite as much so as in fracture where methodical and mild massage reduces the hematoma and infiltration of the traumatized parts.

In coxa vara, massage fulfills two indications. In the first place it is a diagnostic measure because, after reducing the infiltration, the tumefied neck of the femur can be palpated. Therapeutically, it eases up the circulation by dispersing the extravasated fluids and rids the muscles of their morbid products. The diseased joint is in a rigid state of defense common to all arthropathies, assuming the most favorable position for this purpose in which all the muscles and other soft structures surrounding the joint take part in order to maintain the limb in this position. By proper massage the muscles relax and the surgeon should profit by this resolution, but to attain the desired end all depends upon the position of the patient. He should lie on the back and the limb should be held strongly in extension by an assistant grasping the foot so that the leg is in forced adduction with outward rotation of the foot. The femoral neck is thus, so to speak, offered to the frictions of massage which should be made in the direction of the inguinal fold. After this, the patient will be ready for the second phase of the treatment, namely the maneuvers of reduction.

For the purpose of carrying out these manual orthopedic maneuvers the muscular contraction must be overcome in order to avoid pain. This can be accomplished when the patient is at perfect rest lying on the back and sufficient time is allowed for muscular relaxation. The reduction is accomplished in two phases, the first of which prepares the second. This is why extension should be combined with adduction and external rotation which exaggerates the pathological position of the limb. The second phase is a sudden jar made as forcibly as possible, which pushes the limb with force in the opposite direction to the pathological position, that is to say toward abduction. A simultaneous effort

at internal rotation should be made. The difficulties in realizing this are numerous. The patient should be fixed on the table by the two hands of an assistant strongly applied on the two iliac crests and the hand on the diseased side may at the same time exercise a direct pressure on the anterior part of the neck of the femur. A single attempt only should be made at each séance at reduction on account of the pain, due to the osteitis. But no matter how severe the pain may be, it subsides quickly so that another attempt at reduction can be made on the following day and so on, until it is a *fait accompli*.

This treatment is not always completely successful, although it will generally improve the condition; but when the deformity has become permanent this treatment is dangerous and surgical interference becomes obligatory.

Pfeifferian Meningitis.

Recently there have appeared some isolated reports on the existence of a purulent meningitis due to Pfeiffer's bacillus. Cases were reported during and after the pandemic of influenza which appeared to stand in no relation whatever to the movement of the latter or of post-pandemic cases. This fact was used at times as evidence for excluding the organism in question as the cause of influenza. Four cases of this affection are reported in the *Acta Medica Scandinavica* for June 17, 1921, by Christiansen and Kristensen, one of whom represents the Blegdams Hospital and the other the Danish Serotherapeutic Institute, Copenhagen. In each instance the lumbar punctate contained the hemoglobinophile bacilli in pure culture. Of the 3 cases one ended in recovery. This was in a boy aged 2 years who was ill with the disease 5 weeks. Clinically the case was a typical one of uncomplicated meningitis. In the three fatal cases the duration of the disease was from 9 to 15 days. In the recovered case over a pint of cerebrospinal fluid was withdrawn during the illness. The bacteriological study is complete and leaves no doubt as to the nature of the causal organism. This was at first regarded as the meningococcus and the treatment was based on that supposition. After the change in diagnosis there was no standard treatment to prescribe, owing to the infrequency of the infection. There was no evidence of any connection between the four cases which were in all respects sporadic, and there had been no cases of grippe in the community at the time when these meningeal cases occurred.

Mumps-Pancreatitis and Diabetes.

The theory that the fatal diabetes of childhood might be due to metastatic pancreatitis complicating mumps, while attractive, has, so far as known, never been substantiated. Even if shown to be due to pancreatitis it would be difficult to impute the latter to antecedent mumps, and, on the other hand, clinical pancreatitis during the course of the latter, which has repeatedly been seen, is not known to be followed by diabetes of a progressive and fatal character. But there is a series of cases of transitory diabetes presumably due to mumps-pancreatitis, and in 1912 Cheinisse collected the case material. Of the total number, but one answers all of the requirements of medical science. The child complained of pain in the pancreatic area and vomited, while the stools showed steatorrhea and there were polyuria and glycosuria. No case has been reported since Cheinisse's summary which can pass muster and this author recently calls attention to a report by Belgian physicians (*La Presse Médicale*, September 10, 1921, xxix, 73) which does not measure up to the standard. A boy of 18 had gone through an attack of mumps 18 months before, but with no data pointing to clinical pancreatitis. He presented evidences of beginning diabetes, the urine containing enough sugar to cause balanitis. The condition promptly vanished under the proper diet. There is no mention of the condition of the stools, but some alleged symptoms of hepatic insufficiency sufficed to throw doubt on the pancreatic origin of the glycosuria.

News of the Week.

Maternity Bill Reported by the House Committee.—The Sheppard-Towner bill for protection of maternity and infancy, already passed by the Senate, was favorably reported on Nov. 7 by the House Interstate Commerce Committee. As approved by the committee the bill would limit to a period of five years the annual appropriation of $1,000,000 for use by the State and the Federal Government in the effort to protect infants and mothers. The appropriation of $450,000 for starting work under the bill was retained. Efforts will be made by the committee to have the bill considered by the House this month.

Public Health Service Not Subject to Military Rules.—Attorney-General Daugherty has handed down a decision stating that "the personnel of the United States Public Health Service is not a part of the military forces of the United States and therefore not entitled to certain exemptions allowed to members of the military and naval forces under the revenue laws." This decision was brought about as a result of confusion over the status of Public Health employees arising from executive orders issued by former President Wilson soon after the outbreak of the war which declared that the members of this branch of the Government service constituted a part of the military forces in times of threatened or actual war. Congress did not create the health service to perform military or naval duties, nor to be subject to military or naval rules, Mr. Daugherty said.

Cholera in Erivan.—Cholera in virulent form is raging in Erivan, capital of Armenia, according to a report from a party of investigators of the Near East Relief. The report states that the dead wagon makes daily rounds and tells the story of dire want and starvation that we have heard so often from the Near East.

Tuberculosis in Poland.—In a recent report from Dr. Charles Phillips, statistician of the American Red Cross Commission to Poland, it is shown that, in spite of the enormous spread of tuberculosis during the war, the number of cases is now actually less than in 1914, and the percentage of cases among the Jewish population is about

one-half that among the non-Jewish population. The average proportion of the difference is figured by Dr. Ganc as 100 to 180, although in some years it runs as high as 100 to 214. Dr. Ganc states that it is not only Jews of the rich and well-nourished classes who resist the disease, but also the Jews of the so-called "Lumpen-proletariat"—the poorest dwellers of the Ghetto. He asserts that the latter class of Jewish population is less subject to tuberculosis than the richest and most comfortable class of non-Jewish population. In a memorandum read before the Social Medicine Association of Warsaw on Oct. 13, 1921, Dr. Ganc stated: "The same rule works also among the Jewish population of London, New York, Budapest and Vienna, although perhaps less markedly than in Warsaw. The non-Jewish population of England, supposedly the healthiest of all nationalities, is still more subject to tuberculosis than the poorest Jews of the London Ghetto. In New York the average city adult death rate is 12.93 per thousand of population, but the Ghetto rate is below 10; the city's infant mortality rate is 85 per thousand, while the Ghetto rate is only 52, although this figure applies to a district so congested that the population averages 3,000 people to a city block. Dr. Ganc thinks one explanation is that the Jewish population has succeeded in developing a considerable resistance to certain diseases, particularly those associated with city life. Dr. Wadysaw Szmajch of the Charles and Mary Hospital declares that Jews resist tuberculosis better than other nationalities because they give more attention to their health than others.'

Flying Hospital Shown at Aviation Exhibit.—According to a report from a New York *Herald* correspondent, many new wonders are displayed at the aviation exhibit being held in the Grand Palais, Paris. Among them one of the most marvelous is a flying hospital, equipped with stretchers and able to carry a doctor and an assistant to perform regular operations in the air. There is an operating table, a full medical equipment and two patients can be carried on the stretchers. The machine is equipped with stabilizing appliances which will enable the doctors to work just as if they were in a city hospital. This is a Breguet biplane capable of developing a speed of 100 miles an hour.

Infant Mortality Among Colored Population of New York.—The Bureau of Child Hygiene of the New York City Department of Health has been conducting a special campaign against infant mortality among the colored population of the city. This work began in 1915, when the statistics of the Health Department showed that the infant mortality rate in the Columbus Hill District, which harbors a large colored population, was 314 per thousand births, while the infant mortality rate of an adjoining district, largely a white population, was 147.7. The statistics for 1920 show that the infant death rates of these districts have been reduced to 116.5 and 103.8 respectively. The infant mortality rate among the white population alone and among the colored population alone shows that for the city as a whole the infant mortality rate for the former in 1915 was 96.2 and for the latter 202 per thousand births; in 1920 the infant death rate was 83 for the white population and 164 for the colored population. The decrease in infant mortality for the period 1915-1920 was 13 per cent. for the white population, while for the colored population during the same period it was 18 per cent. This reduction in the infant death rate among the colored population is directly attributable to the energetic efforts of the Bureau of Child Hygiene of the Health Department, but it is also a sign of awakening on the part of the colored population to the importance of life-saving measures among its children.

The "Journal of Orthopædic Surgery," the official organ of the American Orthopedic Association and of the British Orthopædic Association, announces that in January it will change from a monthly to a quarterly publication. In issuing the *Journal* every three months it is planned to provide the readers with fully as much, or even more, reading matter than under the present arrangement, and it is hoped that the *Journal* may be made more valuable and interesting. The *Journal* will continue to be published in Boston under the existing management.

Ex-President Eliot's Opinion of Physicians.—In an address before the Twentieth Century Club of Boston, a couple of weeks ago, one-time president of Harvard University, Charles W. Eliot, remarking with disapproval that many "physicians now base their charges on the supposed income of the patient," said: "Physicians are constantly invited by patients of their own and by outsiders to prescribe alcohol. If that appeal is made to men in the habit of basing their charges on the income of the patient you see what a temptation is presented to the physician. Multitudes of physicians are yielding to that temptation." Dr. Eliot is as intemperate of speech as ever and as indifferent to facts as when he was younger.

Harlem Health Center Opened.—Nov. 10 Governor Nathan L. Miller, Mayor John F. Hylan, and Health Commissioner Royal S. Copeland formally opened East Harlem Health Center, 345 East 116th Street, a demonstration planned and financed by the New York County Chapter Red Cross to show the increased efficiency of housing all health and welfare agencies in a given district under one roof. Twenty-one health, nursing, welfare, and community organizations are combining in East Harlem Health Center. Dr. James Alexander Miller presided at the opening exercises and addresses were made by Governor Nathan L. Miller, Miss Lillian D. Wald, representing the Henry Street Visiting Nurse Service; Robert W. de Forest of the National Red Cross, Homer Folk of the State Charities Aid Association and the local Red Cross, and Dr. Herman M. Biggs, State Commissioner of Health.

Promotion in the Public Health Service.—Past Assistant Surgeons W. H. Slaughter, James G. Townsend, and Walter M. Jones have been promoted to the grade of surgeon, Public Health Service.

Dr. William C. Sandy, psychiatrist of the New York State Commission of Mental Defectives, has been appointed Chief of the Division of Mental Health of the new Department of Public Welfare of Pennsylvania.

Dr. John J. Moorhead of New York was recently decorated on Governors Island by General Robert Lee Bullard with the Distinguished Service Medal for his services as commanding officer of an evacuation hospital in France. Dr. Moorhead has hitherto received the Croix de Guerre, the Medaille d'Honneur, and the United States Army citation.

Hospital Notes.—A drive for a fund of $500,000 with which to build an extension to the Mt. Sinai Hospital, Chicago, is being conducted.

The United States Public Health Service has established a hospital for the treatment of trachoma at Russellville, Ark. The establishment of the hospital was contingent upon the county's placing the building, which has been donated by the Russellville Chamber of Commerce, in condition to receive patients. A fund for this purpose has been appropriated.

The new addition to St. Anthony's Hospital, Pendleton, Ore., erected at a cost of $200,000, is about completed. This addition will bring the capacity of the hospital up to 160 beds.

Dallas, Texas, is to have a new $1,000,000 hospital, erected under the auspices of the Methodist Episcopal Church.

The Board of Directors of the Babylon (Long Island) Hospital have voted to proceed with the erection of a building to cost $50,000 on a new site recently acquired in Bayshore. About $10,000 has already been subscribed toward the building fund.

Post-Graduate Hospital Dedicates Memorial Tablet.—The Post-Graduate Hospital, on Nov. 12, unveiled a memorial tablet dedicated to the nurses and doctors who served in the war while attached to the Post-Graduate Hospital unit at Savenay, France. Addresses were made by Col. Samuel L. Lloyd, director of a Base Hospital Unit, and Miss Amy Patmore, who served as the unit's chief nurse. The tablet contains the names of the 380 doctors and nurses who made up the staff of the base hospital. Five names are distinguished from the others by gold stars.

Methods Proposed for Better Care of the Insane in Ohio.—The Institute for Public Efficiency of Ohio has made recommendations to the Governor looking to the more efficient care and treatment of the insane in that State. Two of the seven State hospitals for the insane, the one at Athens and the one at Dayton, have shown a steady decline in the average daily population since 1915, while the others are filled to capacity. The report sent to the Governor recommends the redistricting of the State for insane hospital purposes; a proper classification and segregation of patients; the development of consulting staffs; the establishment of mental clinics, and the development of field work. It is felt that these measures would result in a material decrease in the number of those requiring institutional care.

Pediatric Societies to Hold Joint Meeting.—The New England Pediatric Society, the Philadelphia Pediatric Society, and the Section on Pediatrics of the New York Academy of Medicine will hold a joint meeting in New York City on Dec. 3. The day will be spent in visiting clinics at various hospitals in the city and there will be a dinner at the Hotel Pennsylvania in the evening. Information in reference to the meeting may be had by addressing Dr. Marshall C. Pease, Jr., New York Academy of Medicine.

Obituary Notes.—Dr. AUSTIN WILKENSON HOLLIS of New York died suddenly of cerebral hemorrhage in Watertown, Conn., on Nov. 6, at the age of fifty-three years. He was graduated from the College of Physicians and Surgeons of Columbia University in 1890, and was formerly professor of clinical medicine there. He was a member of the American College of Physicians, the American Medical Association, and the New York Academy of Medicine. Dr. Hollis was for many years visiting physician to St. Luke's Hospital and physician-in-chief of the New York Dispensary in Spring Street.

Dr. CHARLES N. SMITH of Toledo, Ohio, died on Oct. 25, at the age of sixty-one years. He was graduated from Bellevue Hospital Medical College, New York, in 1882, and served on the staff of several local hospitals. He was a member of the American Medican Association and of the American Association of Obstetricians and Gynecologists, of which he was elected president in 1913.

Dr. CHARLES ELIHU QUIMBY died suddenly of apoplexy at his home in New York City on Nov. 6, at the age of sixty-eight years. He was a graduate of the New York University Medical School in 1878, a member of the American Medical Association, the American Climatological Society, and the New York Academy of Medicine. He was visiting physician to the City Hospital since 1895 and consulting physician to the Manhattan State and Jamaica hospitals.

Dr. JAMES SYMINGTON of Tarrytown, a retired physician, died of cancer in the New York Hospital on Nov. 5, at the age of fifty-eight years.

Dr. JAMES P. BOYD, formerly of Akron, Ohio, died suddenly in Larchmont, Conn., on Nov. 10, at the age of seventy-one years. He was graduated from the Long Island College Hospital in 1875.

Dr. JOSEPH M. RATLIFF, a graduate of the Cincinnati College of Medicine and Surgery in 1878, died suddenly at his home at the Grand View Sanatorium, an institution for the care of the insane which he had conducted for many years, on Nov. 5, at the age of seventy-three years.

Dr. MARY VINCENT of Chicago, a graduate of the University of Michigan Medical School in 1875, at one time physician to the Sarah Hackett Stevenson Home, died of heart disease on Nov. 1, at the age of eighty-two years.

Dr. THOMAS C. THORNTON of Lewisburg, Pa., a graduate of the University of Vermont College of Medicine in 1862, died suddenly on Oct. 21, at the age of eighty-two years.

Dr. J. ANSON SMITH, superintendent of the County Asylum for the Insance at Blackwood, N. J., died following an operation for appendicitis on Oct. 29, at the age of fifty years. He was graduated from Jefferson Medical College in 1897.

Dr. JAMES CAMPBELL ANDREWS, a graduate of the Eclectic Medical College, Cincinnati, in 1868, died at his home in Philadelphia, Pa., on Nov. 2, at the age of eighty-four years.

Dr. THOMAS B. ROCHE, a graduate of the University of California Medical School in 1898, died at his home in Sacramento as the result of injuries received in an automobile accident while in gov-

ernment service at Fort McDowell, on Oct. 27, at the age of fifty years. Dr. Roche formerly served as a member of the San Francisco Board of Health and was at one time superintendent of the City and County Hospital.

Dr. GEORGE W. BRADLEY of Waverly, Ill., a graduate of the Louisville Medical College in 1871, died on Nov. 2, at the age of eighty-three years.

Dr. WILLIAM A. DICKEY of Toledo, Ohio, a graduate of the Louisville Medical College in 1877, died on Nov. 3, at the age of sixty-seven years. He was president of the Toledo Academy of Medicine and surgeon to the police and fire departments of the city.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, October 28, 1921.

Meeting of the British Association for the Advancement of Radiology and Physiotherapy.—This association held its annual general meeting on September 30 last. Dr. Robert Knox, the president, in reviewing the work which the Association had accomplished since its foundation, pointed out that the first steps toward the institution of the Cambridge Diploma in medical radiology and electrology had been taken by the Association which approached the senate of the university on the subject. Since those early days the University of Cambridge had consistently sought the advice of the B. A. R. P., and had recognized the course of instruction organized by it in London as qualifying for admission to the diploma examination. In addition to its educational activities, Dr. Knox went on to say, the B. A. R. P. had recently initiated the policy of issuing authoritative statements on medical subjects to the daily papers. There were certain objections to the frequent appearance of individual names in the public press, yet at times the need of enlightening the public on technical matters was urgent. The issue of manifestos approved by the council of the association appeared to him to fulfill the joint requirements of being authoritative and at the same time free from any suggestion of personal bias. Dr. Knox hoped some day to see in London an institute of radiology housed in a building worthy of the extent and importance of these subjects, having its own museum and library and perhaps having its own clinic, so that every possible facility for teaching and research in radiology and allied subjects might exist in the capital of the Empire. He called attention to the fact that these ideals could only be realized if the B. A. R. P. were supported by all medical men throughout the whole country who were interested in electrical subjects, no matter whether they exclusively specialized in them or not.

The Increase of Criminal Abortion.—Dr. Gordon Ley addressed recently a meeting of the infant welfare workers, teachers and mothers, arranged by the National Association for the Prevention of Infant Mortality at Morley Hall, Hanover Square, London. Dr. Ley dealt with the dangers of unintentional poisoning during pregnancy. As regarded the criminal aspect of the subject, he said that he feared that criminal operations were on the increase. There were parts of London where he felt sure such operations took place in hundreds every week, and were performed by doctors, midwives, and persons with no knowledge of obstetrics.

Panel Practitioners.—The panel practitioners of this country have given in to the terms laid down for them by Sir Alfred Mond, the new Minister of Health, that is a reduction of the annual fee of eleven shillings, agreed to about a year ago, to nine shillings and sixpence. The panel practitioners asked for thirteen shillings when the terms of a year ago were being discussed, and they expressed themselves as both dissatisfied and aggrieved at the fee being fixed at eleven shillings. At a conference of panel practitioners, held last week at the Central Hall, Westminster, which was attended in large numbers by such medical men from all parts of the country, the question was dealt with in private. A statement was given out that after mature consideration a decision had been come to to accept a reduction, not because it was deemed that a reduction was justified, but wholly from patriotic motives. It was proposed by the conference and adopted that a deputation should meet Sir Alfred Mond and suggest that the fee settled on should be ten shillings. In accordance with this proposition the Minister of Health was visited and the proposal passed made to him. However, when the meeting took place Sir Alfred Mond declared that no advance on nine shillings and sixpence could be offered. On being made acquainted with the ultimatum the conference decided to accept the first proposal without any further demur. The sole concession made by the minister was that the sum of nine and sixpence agreed upon should be guaranteed for a period of two years.

Hospital Crisis Still Urgent in London.—Sir Alan Anderson, speaking in London on Oct. 25 last to the members of the Charity Organization Society, gave fresh figures showing the serious situation of the voluntary hospitals in London. Speaking as one of the honorary secretaries of King Edward's Hospital Fund, Sir Alan Anderson said that they had during the summer to find out how the London hospitals stood in their own estimates. These figures were now in, and they showed a total estimated deficiency for the current year of £500,000. Expenditure would exceed total receipts by this amount. The sum available for distribution by the Hospitals Commission for the whole country was £500,000, so that the King Edward's Fund Committee had to see which of the hospitals were really on the rocks. It was recognized that the least solvent hospitals would be obliged to shut down or not pay their tradesmen's bills. London hospitals which appeared to be in this position of greatest need had an estimated deficiency of about £230,000 this year, which meant they were running into debt at the rate of about £20,000 a month. The fund had reported this to the Hospitals Commission, and "the ball was now with them" (a football term signifying in American vernacular that it "was now up to them"). There was sufficient evidence of a grave

and instant crisis. Unless some marked change should come over the whole picture of hospital finance a large number of beds would have to be closed. Very much the same thing was happening all over the country, except that in some towns difficulties had already been grappled with and either wholly or in large measure met. In 1913, before the war, hospital expenditure in London was £1,188,000. In 1920 the expenditure had risen to £2,841,000. In the same period the income of the hospitals rose from £1,478,000 to £2,447,000. The charity income had risen from £1,370,000 to £1,868,000, while payments by users or potential users had increased from £97,000. The Government grant in aid of the hospitals would cover only a short period of the emergency. In six months' time new schemes must be in working order. The deficiency had to be faced at once, and this was the point King Edward's Fund had reached. Sir Alan Anderson went on to deal with the proposals of Lord Cave's Committee that the hospitals should ask more from the classes which used them, and discussed the question of weekly contributions. King Edward's Fund, he said, did not actually agree that the users of the hospitals should pay more, but that they ought to impress on the people who used the hospitals that they should pay if they could afford the money. He hoped for a greater use of the Hospital Saturday Fund as a means of collecting fresh contributions. In conclusion he made it clear that no system of weekly payments by potential users could do away with charity. If such payments were to prevent the public from giving to the hospitals Sir Alan said, then the whole voluntary system would necessarily break down.

Perils of the Cinema.—At a conference of women social workers, held by the National Organization of Girls' Clubs recently, at the Mary Ward Settlement, Tavistock Place, London, Miss Neville, warden of the Mary Ward Settlement, maintained that in its present state the cinema stimulated wrong emotions. She said that the cinema showed us at our worst. We see sordid scenes, morbid scenes, and too much lack of self-control and drunkenness shown, on the one hand, and, on the other, too much luxury, motorcars, powdered servants, and so forth. Serious subjects are treated lightly, and there is a tendency to jeer at married life, and to treat immorality as a matter of course. She went on to say that experience had taught her that it was the easiest thing in the world to stimulate good taste in people and to teach them to be disgusted at bad films. It was remarkable what natural good taste even small children had, although a great effort was made nowadays to destroy it. It had been shown time and again that children preferred a beautiful and faithful film of bird or animal life even to thrilling adventure stories. Educationally the cinema had a great work before it. She had found that films showing beautiful swimming or dancing were invaluable in developing in young girls a sense of the dignity of the human figure, which was badly needed nowadays to combat objectionable dress and lack of self-control. The true function of the cinema, however, would always be to entertain, and it was the duty of the nation to see that such an important recreation was clean and artistic.

There is much truth in the contention that films do the young harm from the mental, moral, and physical standpoints. There is altogether too great an appeal to the animal side and the lower instincts of the human being and too little to the spiritual side and higher mental faculties. Films might be and should be of the greatest educational value to children. There are few better ways of teaching the young certain things, as, for instance, geography, natural history, entomology, zoology, and so on, than by the agency of films. Some physical injury is done to children by picture shows. The eyes are, in some cases, hurt to some extent, while in this country, at any rate, some of the halls in which films are exhibited are stuffy, not too well ventilated places, in which the vitality of the young tends to be decreased. In short, in a variety of ways these places of amusement and instruction could be immensely improved, and, instead of being a source of danger, might be rendered potent means of imparting useful knowledge and of providing healthful amusement for young and grown-up people alike.

Operations for the Removal of Tonsils.—There has been quite a lively controversy recently in the *Times* with regard to operations on school children, and especially with respect to the removal of tonsils. It has long been held by some in this country, and doubtless in America also, that tonsils are removed from school children on occasions somewhat indiscriminately and without due cause for the operation. But no one would perhaps go so far as Lieut.-Col. Kynaston, who declared in a letter to the *Times* a week or so ago that enlarged and even septic tonsils could be cured by internal medical treatment. The paper controversy at length resolved itself into a duel between Colonel Kynaston and one of the chief nose and throat authorities of London, Dr. Irwin Moore. In the last letter that Dr. Moore contributed he said that he had written a private letter to the army medical man, challenging him in the interests of medical science and of public health to discuss and go into the subject more fully with him. As the writer pointed out, Colonel Kynaston will then have the opportunity of giving the names of acknowledged authorities who support his view that the chronic enlarged and septic tonsils can be successfully treated by internal remedies. The subject requires free and wide ventilation and it would be instructive to learn the views of nose and throat specialists in America on this very important matter. Of course, it has been discussed frequently in your country, but it would be valuable to know on this side of the Atlantic the opinions of some of your leading authorities.

Professorship of Chemistry at Middlesex Hospital School.—Dr. W. B. Tuck has been appointed University Professor of Chemistry at Middlesex Hospital Medical School. He was a student at University College from 1902 to 1906 and took his degree in medicine in 1910, when he became teacher of chemistry to medical students at University College. He has, since 1919, been lecturing at Middlesex Hospital Medical School.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 3, 1921, clxxxv, 18.

1. Ether Day at the Massachusetts General Hospital.
2. Ether Day Address. Henry P. Walcott.
3. Ether Day Address, October 18, 1921. Frederick C. Shattuck.
4. The Personality of a Hospital. Harvey Cushing.
5. History of Insanity During the Last Century with Special Reference to the McLean Hospital. C. Macfie Campbell.
6. The Place of the Civil General Hospital in the Scheme of Medical Preparedness. M. W. Ireland.
7. Address of Samuel J. Mixter—Alumni Association, Massachusetts General Hospital.
8. Acceptance of Memorial Tablet.

2. **Ether Day Address, October 18, 1921.**—Dr. Frederick C. Shattuck, in this address, delivered on the centennial anniversary of the Massachusetts General Hospital and the diamond jubilee of anesthesia, states that the records of the hospital show that the first patient was admitted September 3, 1821. Up to January 1, 1922, there were 18 admissions, 122 during the year 1822. There were probably 60 beds in 1822. In 1823, when the wings were finished, there were 93 beds. Admissions to the wards in 1920 were 6185, 25,302 to the Out-Patient Department. The Out-Patient Service was started October 16, 1846, the same day that the first operation was done under ether. Speaking of the debt the hospital owed to those who had served it as trustees, Dr. Shattuck pays tribute to James Jackson, who with John C. Warren, was cofounder of the hospital. He first, in 1822, described "alcoholic neuritis," in 1855, "painful tumor near the cecum," now known as appendicitis, and in the same year published the medical "Letters to a Young Physician." Walter Channing, in 1843, published "Notes on Anhæmia," in special connection with the puerperal state. Therein are described cases of that form of grave anemia now called pernicious anemia. John Barnard Sweet Jackson was Curator of the Cabinet of the Boston Society for Medical Improvement, and also of the Warren Museum. His catalogue of the former cabinet, published in 1847, was characterized by a distinguished Philadelphia professor as "the most valuable contribution to pathological anatomy made up to that date in this country." Jacob Bigelow, a pupil of Benjamin Rush, whose Essay on Self-Limited Diseases, dealt a staggering blow to the heroic treatment of the day, to the holy trinity—bleeding, purging, and puking. Of this oration, Dr. Holmes said, "This remarkable essay has probably had more influence on medical practice in America than any similar brief treatise, we might say, than any work ever published in this country." Oliver Wendell Holmes, high as he ranks as poet and wit, ranks still higher for his clarion call on puerperal fever. It is noteworthy that Channing's paper on Anhæmia, Jacob Bigelow's on Self-Limited Disease, and Holmes' on Puerperal Fever were all published in the *New England Quarterly Journal of Medicine and Surgery*, and in the same year, 1842. Henry Ingersoll Bowditch, in conjunction with Morrill Wyman, was a pioneer in the treatment of pleural effusions by tapping. He was the first chairman of the State Board of Health of Massachusetts. Calvin Ellis played a conspicuous part in the advance in medical education inaugurated by the Harvard School, and, dying, left his whole property to the school. Other trustees of the Massachusetts General Hospital nearer our own time, to whom Dr. Shattuck pays tribute, are Henry K. Oliver, James C. White, Reginald H. Fitz, and Walter James Dodd, roentgenologist to the hospital, who, not knowing the danger from *x*-ray burns, was soon severely burned. He underwent fifty operations, suffered grievous pain, and died a martyr to science. His story should be widely known, and its lesson laid to heart. Richard C. Cabot, Father of Hospital Social Service, is happily still with us, and has seen his child grow rapidly to maturity and travel around the world. Dr. Shattuck said that if he were asked to name the three most conspicuous services which had been rendered to humanity through the medium of the Massachusetts General Hospital, he would unhesitatingly select Anesthesia, Appendicitis, and Social Service.

New York Medical Journal.

November 2, 1921, cxiv, 9.

1. The Pathology of Syphilis of the Central Nervous System with a Digest of Serological Reactions. Robert A. Kelly.
2. A Method of Preserving the Antigenic Properties of Gonococcal Proteins in Glycerol. Ralph Oakley Clock and Stanley D. Beard.
3. A Floccule Inhibition Reaction in the Blood Serum in Syphilis. Robert A. Kilduffe.
4. Nature of Antibodies and Complement in Relation to Immunity, with an Explanation of the Wassermann Reaction. Ferdinand Herb.
5. Syphilis. James H. Stevens.
6. Recrudescence of Visible Syphilitic Manifestations Occurring During Antispecific Treatment. Arthur Sayer.
7. Unilateral Nephritis. Nathaniel P. Rathbun.
8. What the General Practitioner Should and Must Know About Kidney Diseases. Henry Halpert.
9. A Case of Stone in the Ureter Voided After Fulguration. William Francis McKenna.
10. Chronic Nephritis with Double Edebohls Operation. Norris W. Vaux.
11. Important Points in the Diagnosis and Treatment of Chronic Gonorrhea in the Male. Benjamin Rosenthal.
12. Deective Teeth as the Cause of Two Cases of Infection of the Genitourinary Tract and of Two Cases of Asthma. G. A. Rueck.
13. Some Aspects of Lues in Its Relation to the Psychoses and Psychoneuroses. F. H. Barnes.
14. A Contribution to the Mercurial Therapeusis of Syphilis. L. G. Hadjopoulos, Reginald Burbank, and L. P. Kyrides.
15. Defective Teeth as the Cause of Two Cases of Infection A. Rout.

2. A Method of Preserving the Antigenic Properties of Gonococcal Proteins in Glycerol.—Ralph Oakley Clock and Stanley D. Beard, having successfully devised a method of preparing a stable pollen antigen, whereby the antigenic properties of the pollen protein are preserved by glycerol for a period of at least two years, attempted to find out whether glycerol would also preserve bacterial protein. They point out that saline vaccines do not represent the full immunizing properties of the bacteria. The gonococcus, even in living cultures, shows evidence of rapid destruction by autolysis. Gonococcus saline vaccines have not yielded uniformly satisfactory results, probably because they contain a considerable amount of nonspecific products of autolysis and too small and variable an amount of gonococcal proteins. The gonococcus glycerol vaccine is free from autolytic products. Glycerol being hygroscopic, prevents hydrolytic autolysis of the bacterial proteins, and the intigenic power is thus preserved. Gonococcus glycerol vaccine possesses many times more immunizing power than a corresponding saline vaccine, because the glycerol vaccine contains the bacterial proteins in a relatively unaltered and stable form. The glycerol vaccine does not readily deteriorate. It is not heated, thereby eliminating the possibility of protein changes due to partial heat coagulation. The gonococcus glycerol vaccine is prepared in concentrated form and is kept under the preservative action of glycerol until immediately before its administration, when it is diluted with physiological salt solution. The dosage begins with one hundred million and progressively increases by that amount at each subsequent dose up to one thousand five hundred million. For refractory cases the dosage may be continued up to two thousand million. The types of cases in which the gonococcus glycerol vaccine has been used in clinical trials with encouraging results are the acute complications of gonorrheal infection, including arthritis, epididymitis, vesiculitis, and prostatitis. The gonococcus glycerol vaccine is prepared as follows: The ten so-called Torrey strains of the gonococcus are grown on the surface of nutrient agar in Blake bottles. The sixteen hour bacterial growth is washed in normal saline by centrifugalization to free it from autolytic products formed during the growth of the bacteria. The bacterial mass, washed free of autolytic products, is immediately suspended in 66 2/3 per cent. glycerol to prevent any further autolysis or deterioration of the bacterial protein. The vaccine is not heated. The suspension is standardized and tested on white mice.

14. A Contribution to the Mercurial Therapeusis of Syphilis.—L. G. Hadiopoulos, Reginald Burbank, and L. P. Kyrides, in 1917, started experimental work on a new synthetic organic mercurial (mercurosal) prepared by one of them. Mercurosal, the disodium salt of mercury salicylacetic acid, has a percentage of mercury

averaging between forty-two and forty-three. It has certain attractive features in that it is soluble in water and has a relatively low toxicity, rendering it adaptable for intravenous administration. It was therefore decided to give it a trial in the treatment of syphilis. Beginning in 1917, they gradually introduced mercurosal in a 2 per cent. aqueous solution, first as intramuscular injections of 1 or 2 c.c., and later as intravenous injections of 4 to 8 c.c. Before the end of the same year the clinical and serological behavior of their cases encouraged them to abandon all other mercurials in favor of mercurosal. From a study of their primary cases the following conclusions are drawn: The abortive treatment of syphilis at the stage of chancre is no longer a possibility but a probability. It cannot, however, be stated with any certainty that mercurosal or any other mercurial can succeed alone without salvarsan. Cases are tabulated in which active mercurial treatment at this stage did not prevent the appearance of secondaries. The immediate effect of mercurosal in particular, and probably of all other mercurials, in early cutaneous and mucous syphilides is questionable. On the other hand, as marvelous a drug as salvarsan is in clearing cutaneous and mucous lesions, it often fails in completing a symptomatic, and more so a serological cure, when it is used alone without or with insufficient mercury. The place of mercurials as an adjuvant to arsenical treatment in secondary syphilis is of great significance because results obtained by mixed treatment are more lasting than by salvarsan alone. The value of mercurosal in contrast to other mercurials in secondary syphilis is incontestable. When mercurosal in conjunction with salvarsan treatment is persisted in long enough there will be very few cases that will not ultimately come under therapeutic control.

Journal of the American Medical Association.

November 5, 1921, lxxvii, 19.

1. Some Current Trends in Endocrinology. R. G. Hoskins.
2. Alcoholism in Relation to Mental Depression. Pierre Janet.
3. Physical Characters and Enzymatic Activities of Duodenal Contents: Findings During Gastric Digestion in Normal Young Men. C. W. McClure, A. S. Wetmore, and Lawrence Reynolds.
4. Fractional Analysis of the Duodenal Contents in Normal Individuals: Some Observations. Julius Friedenwald and Joseph Sindler.
5. Fractional Examination of the Duodenal Contents in Peptic Ulcer: Observations in Forty Cases. Max Einhorn.
6. Foci of Infection in Cases of Pyelonephritis: Study II. Hermon C. Bumpus, Jr., and John C. Meisser.
7. Rhinoplasty, with Special Reference to Saddle Nose. V. P. Blair.
8. The Blind Spot: III. The Relation of the Blind Spot to Medullated Nerve Fibers in the Retina. Harry S. Gradle.
9. Vaginal Cysts. Clarence B. Ingraham.
10. Injurious Combined Effect of Roentgen Rays and Radium, and Topical Remedies. George M. MacKee and George C. Andrews.
11. Magnesium Sulphate Solution as an Aid in Anesthesia. Arthur H. Curtis.
12. Studies in Blood Fat: Preliminary Report. David Murray Cowie and Lynne A. Hoag.

2. Alcoholism in Relation to Mental Depression.—Pierre Janet argues that alcoholism is not an intoxication of an accidental nature, which will disappear and leave no traces if alcohol is suppressed. In dealing with alcoholism we are dealing with an alteration of the mind—a mental disease—antecedent to the present absorption of alcohol and in one sense independent of alcohol. In the majority of cases the impulse to drink alcoholics began on a certain date that was connected in some way with some particular event in the person's life. It is easy to show that alcoholism begins under the same conditions as various forms of mental depression. Persons fall into the habit of alcoholism just as they sink into a state of mental depression, as the result of physical or mental overwork, a change of surroundings, a change of position as the result of a rupture, disappointment in a love affair, etc. This is the general rule, and there are fewer exceptions than we imagine. Diminution of alcoholism is primarily the work of the hygienist and the mental specialist. Those who have devoted themselves to the work of supplying workmen's cottages; who are seeking to give families healthful places of abode, with plenty of fresh air in their rooms, are doing more than one would at first imagine for the care of mental depression and of alcoholism. Those who have endeavored to assure workingmen, and more especially working women, a good, substantial diet at a reasonable price, have made an important contribution toward the suppression of alcoholism. But in addition to the physical side, shall we not some day study into the mental hygiene of our people? If we could make the social struggle less severe; if we could check the desire to attain social position too rapidly, and if we could discourage dangerous ambitions, could we not unite what now seem irreconcilable: Freedom of thought and tranquillity of beliefs? The physician should not concern himself chiefly with the disintoxication of the patient. He should take active interest in the disorder of depression which called forth the craving for the poison before the intoxication took place and which will bring back the same craving after disintoxication, no matter how complete it may be, has taken place.

3. Physical Characters and Enzymatic Activities of Duodenal Contents: Findings During Gastric Digestion in Normal Young Men.—C. W. McClure, A. S. Wetmore, and Lawrence Reynolds conducted this study at the Peter Bent Brigham Hospital. The subjects were fed on five types of meals. These meals consisted of: (1) 300 c.c. of a mixture of milk, water, and cottage cheese; (2) 300 c.c. of 20 per cent. cream; (3) 300 c.c. of 0.5 per cent. cooked cornstarch solution in which were dissolved 15 grams of lactose; (4) 300 c.c. of tap water. To each meal was added 40 grams of barium sulphate. A fifth type of meal consisted of 40 c.c. of 20 per cent. cream and 10 grams of barium sulphate. The barium in the meals permitted observation by means of the fluoroscope. The duodenal contents collected after feeding these meals all contained bile, showed rather characteristic degrees of viscosity, varied in color, and were usually very largely liquid, containing but a very small amount of the food originally fed. The finding of the differences in viscosity and color suggests that the character of the fluids entering the duodenum is in some way dependent upon the kind of food ingested. Before beginning the study of enzymatic activity the writers devised methods which would conform to the basic principles of the physical chemistry of enzyme action. Tabulated figures show that in the hourly specimens of duodenal contents derived from the milk and cottage cheese and the cream meals there were sufficiently uniform degrees of enzymatic activities to permit the estimation of average figures for the degree of each type of enzyme action. Duodenal contents derived from the fasting duodenum or from the water meals, and in specimens collected over periods of only 15 minutes, showed degrees of enzyme activities considerably below this standard. Similar results were also obtained occasionally in duodenal contents derived from the starch and lactose meals. These findings suggest the existence of some relation between kind of food eaten and the degree of enzyme action in duodenal contents. The hydrogen ion concentration of the duodenal contents derived from the various types of meals was determined by means of a potentiometer. The hydrogen ion concentrations were found to vary between 5 and 7.5, with, however, an occasional exception between 4 and 5. These findings are similar to those of McClendon and his co-workers. No relation was found between the degree of enzyme activities and the hydrogen ion concentrations. This observation, together with the finding of variations in the degree of enzymatic activities in relation to the types of materials ingested, suggests that food plays a more important rôle in the production of enzyme action in the duodenum than does the degree of acidity. This finding supports Pawlow's contention in contradistinction to that of the "secretin" theory of Bayliss and Starling. Enzyme activities were determined in the hourly specimens of duodenal contents derived from fifteen normal young men, after the ingestion of milk and cottage cheese, or one of the cream meals. On the basis of these observations, the normal minimum for enzymatic activity, as determined under these experimental conditions, is considered to be, for proteolytic activity, 2 mg. of nonprotein nitrogen; for lipolytic activity, 1 c.c. of tenth normal sodium hydroxide, and for amylolytic activity in the neighborhood of 1 mg. of glucose.

5. Fractional Analysis of the Duodenal Contents in Normal Individuals.—Julius Friedenwald and Joseph Sindler made fractional analyses of the duodenal contents of ten normal individuals according to the method of Einhorn with his special agar tubes. From these observations they feel justified in concluding that this method of examination presents a simple means of determining quantitatively the degree of alkalinity as well as the quantity of ferments present for several hours after the stimulation of the duodenal contents by means of a test meal. The degree of alkalinity is usually highest in the fasting state, and falls immediately after the test meal is given, and then gradually rises; it bears no relation to the curve of gastric acidity. A similar effect is observed usually in regard to the ferments, the strength of one ferment being wholly independent of the other. Finally these findings, obtained under normal conditions, appear sufficiently definite to serve as a basis for further studies of pathologic changes in the duodenal contents.

6. Foci of Infection in Cases of Pyelonephritis. Study II.—Hermon C. Bumpus, Jr., and John G. Meisser recall that in a recent study they attempted to show that pyelonephritis may often be due to focal infections, and that the colon bacillus, which is usually found in the urine and believed to be the cause, is a secondary infection. They now report a second series of cases which, with the six cases previously reported, shows that 82 rabbits were injected with strains of a green-producing streptococcus obtained from the teeth, tonsils, urine, and blood of patients suffering from pyelonephritis, and that in 63 of the animals lesions of the kidney were found. This, they believe, is evidence for concluding that pyelonephritis may often be due to focal infections harboring streptococci which have a selective affinity for the urinary tract, and that the colon bacillus, which is commonly found, and has been generally believed to be the cause, is of purely secondary importance.

10. Injurious Combined Effect of Roentgen Rays or Radium and Topical Remedies.—George M. McKee and George C. Andrews call attention to the fact that small doses of roentgen rays or radium, combined with topical irritants in strength, may result in severe injury. Any drug, chemical, remedy, or agent that is capable of effecting an inflammatory reaction in the skin may make the latter more susceptible to irradiation. Chrysarobin, scarlet R medicinal, iodine, mercury, pyrogallic acid, cantharides, resorcin, betanaphthol, tar, iodoform, sulphur, salicylic acid, and remedies of this kind effect hypersensitiveness of the skin. They cause least trouble when used as powders; they are more potent in solution, and most potent in the form of ointments. Caustics, such as sodium hydroxide, or potassium hydroxide, acid nitrate of mercury, zinc chloride, trichloracetic acid, nitric acid, silver nitrate, etc., all may enhance irradiation effects. Ultraviolet light, especially if applied at the point of visible reaction, may enhance the effect of roentgen rays and radium. Carbon dioxide snow must be used with great caution on irradiated skin. The writers have seen deep, slowly healing ulcers follow a five-second application of carbon dioxide snow with firm pressure in skin that had been permanently injured by roentgen rays two years previously. Prolonged applications of heat or cold, and friction, especially if combined with liniments, may enhance irradiation effects.

11. Magnesium Sulphate as an Aid to Anesthesia.—Arthur H. Curtis reports a case in which the injection of 310 c.c. of 4 per cent. chemically pure magnesium sulphate solution administered by hypodermoclysis resulted in the death of the patient. Post mortem examination demonstrated a marked jaundice, marked acute fatty changes of the liver, cloudy swellings of the parenchymatous organs, and multiple petechial hemorrhages of the pleura. He concludes (1) that preliminary hypodermoclysis of magnesium sulphate solution usually lessens the requisite amount of other general anesthetic and greatly relieves post-operative distress, and (2) that study of the fatal case herein reported, together with evidence from previous experimentation on animals, indicates that magnesium sulphate solution sometimes produces profound changes in the liver and cannot be considered a safe anesthetic for general use.

The Lancet.

October 15, 1921, cci, 5120.

1. A Lecture on Crime and Mental Deficiency. W. C. Sullivan.
2. Vital Statistics: Their Better Use in Public Health Administration. Arthur Newsholme.
3. Hair-Balls or Hair-Casts of the Stomach and Gastro-intestinal Tract. A Report of Two Cases of Hair-Cast of the Stomach with an Abstract of 108 Cases. Ivor J. Davies.
4. Treatment of Syphilis by Intravenous Injections of Mercury. J. Ernest Lane.
5. Four Genitourinary Cases Illustrating Some Difficulties in Diagnosis. J. W. Geary Grant.
6. Cultivation of Spirochetes on the Surface of Solid Media Containing an "Essential Substance." F. W. Twort.
7. The Accuracy of the Formalin and Sachs-Georgi Tests for Syphilis as Compared with the Wassermann Reaction. W. Neave Kingsbury.

3. Hair-Balls or Hair Casts of the Stomach or Gastro-intestinal Tract—A Report of Two Cases of Hair Cast of the Stomach with an Abstract of 108 Cases.—Ivor J. Davies thinks it not improbable that unreported cases of this condition occur not infrequently in the surgical practice of all large hospitals. Careful research in the literature shows the condition to be almost an entity for there is a close uniformity of feature in the reports. Moore states that the incidence of hair-balls in the human stomach may well be used as an argument in favor of evolution, as they are frequently found in animals in the season when the hair is shed, and but rarely give rise to serious symptoms, since they are frequently expelled by vomiting or passed in the feces with a thick coating of food particles. In human beings the hair-eating habit is usually confined to young females, and generally dates from childhood. There seems to be no correlation with an unstable nervous constitution as in nail-biting. The diagnosis is one mainly of differentiation of gastric tumor, and for all practical purposes lies between malignant disease and hair-mass. The early age, long history, good health, and the particular features of the tumor are almost peculiar to hair-mass. The free mobility of a hard, smooth mass apparently in a fluid sac is the most striking impression gained from the published records of hair-ball of the stomach. If one bears this fact in mind then the possibility of hair-ball will be remembered and a diagnosis can be definitely established by radiography. In one of the writer's cases the diagnosis was made before operation. In the other the hair-mass weighed 6½ pounds, the largest on record. In this case, except for occasional attacks of dyspepsia, definite disturbance of the digestion had only been present for six months prior to operation, though the huge mass of hair completely filled the stomach. In most instances the only abnormal physical signs recorded are those of an abdominal tumor, which is most commonly present in the epigastrium or extends across the hypogastrium. The tumor may take a lower position owing to gastroptosis, and when this is marked the pylorus may be in the pelvis. In the writer's case, in which the tumor weighed 6½ pounds, the position of the stomach had led to the provisional diagnoses of pregnancy and splenic anemia.

4. Treatment of Syphilis by Intravenous Injections of Mercury.—J. Ernest Lane recalls that the treatment of syphilis by intravenous injections of mercury was introduced into the Male Lock Hospital in 1895, and the following year he read a paper on it before the Third International Congress on Dermatology, held in London the following year. For various reasons he did not persevere with the treatment. In 1917 he decided to give the treatment a further trial, the results of which have been perfectly satisfactory. He has now treated 166 women in the Female Lock Hospital, 66 of whom were pregnant. The routine adopted was one injection of one of the salvarsan substitutes and five injections of cyanide of mercury solution per week; the doses of the latter varied with the tolerance of the patients, and it was found that many could stand a dosage of 40 to 50 minims. The writer is impressed with the value of intravenous injections of mercury in pregnant women and considers it infinitely superior to any other routine of treatment. It is not appropriate to the treatment of out-patients in the venereal disease clinics, but is most reliable for use in institutions where the patients can be induced to stay until the complete subsidence of all symptoms of syphilis.

7. The Accuracy of the Formalin and Sachs-Georgi

Tests for Syphilis as Compared with the Wassermann Reaction.—W. Neave Kingsbury reports the results of formalin tests carried out on 261 cases and the Sachs-Georgi reaction in 252 cases. Only 43 per cent. of the serums giving a positive Wassermann reaction showed a positive formalin test, while 9.5 per cent. of serums giving a negative Wassermann gave a positive formalin test. In the Sachs-Georgi tests the cases giving a negative Wassermann and a negative Sachs-Georgi is 97 per cent. of the total negative Wassermann reactions, but the proportion of positive results was poor. The writers claims that this investigation again proves that the formalin test is unreliable. As regards the Sachs-Georgi test the results are distinctly promising. The technique is much simpler than that of the Wassermann reaction on account of the omission of the complement and other constituents of the hemolytic system. But this is rather more than balanced by the great difficulty of determining the presence or absence of a precipitate in many instances. A strongly positive Sachs-Georgi reaction may be taken as evidence of the presence of syphilis, but a weak reaction must at present be looked upon with suspicion because of the difficulty of distinguishing the weakest positive reaction and the slight precipitation given by some negative serums. It appears possible, however, that the detection of the weakest positives may be made easier by modification of the antigen and by special methods of reading the result.

British Medical Journal.

October 15, 1921, No. 3172.

1. A Lecture on Pericarditis in Childhood.—F. John Poynton, in this article, discusses more particularly the nonrheumatic forms of pericarditis. In an analysis of 100 fatal cases of suppurative pericarditis of all varieties, 84 per cent. of the patients were under 4 years of age. This form of pericarditis rarely occurs as a solitary event; there was only one such case in this series, and the author has seen one other; 54 were associated with empyemata and 31 with pleurisy or pneumonia. The difficulties of diagnosis frequently lead to delay or oversight. One great cause of difficulty is the frequent absence of pericardial friction; this sign was recorded in only two cases in this series. The development of a definite effusion is the one great assistance in diagnosis when there has been no friction. The diagnostic signs to which Poynton attaches the most value are the gradual disappearance of the heart sounds step by step with an increase in the area of cardiac dullness. A noticeable feature in pericardial effusion is the upward extension of the dull area, sometimes on both sides, but particularly on the left. This upward extension compresses the upper lobe of the left lung, with the result that there may be an impairment of the percussion note over the left clavicle, below this tubular breathing from the pulmonary collapse, and below this again the wooden dullness of the pericardial effusion. Nevertheless, these signs may be puzzling, for one has to take into account the possibility of a pneumonia in the left upper lobe. The dull area due to pericardial effusion may extend far beyond the apex beat into the left axilla, and then the possibility of a left pleural effusion suggests itself. On the right side the precordial dullness may reach the nipple line; the direction of this right line extends from above downward and outward; when the heart is dilated and there is no effusion, the outline of the dilated right auricle is generally curved and forms with the hepatic line an acute angle. Unfortunately when there is, in addition, an adherent, thickened pericardium this distinction does not hold. There are interesting signs at the back of the chest in some cases of pericardial effusion—signs which are also met with when there is great cardiac dilatation. In children these signs are very striking. A patch of intense tubular breathing appears to the left of the spine about the level of the inferior angle of the scapula; below it the breath sounds, though diminished, may be natural and above it they are unaltered. Later the note becomes dull on percussion even to the base, and the area of tubular breathing expands downward, but over this area there may be no adventitious sounds. As to the treatment, in rheumatic pericarditis the process generally subsides and in these cases the author has not seen the course of the case perceptibly altered for the better by operative interference. The pneumococcal and other suppurative infections may also quiet down in very exceptional cases of slight severity, but far more frequently they tend to remain active. As a general rule one should move slowly to paracentesis in rheumatic pericarditis. In suppurative pericarditis it is safer to trust to drainage of the pericardium than to paracentesis. In exploring the pericardium Poynton prefers the abdominal route—in the French literature often termed Margan's route. By this route the ensiform is removed and the pericardium incised from below.

2. A Study of Some Factors Controlling the Normal Sugar Content of the Blood.—P. J. Cammidge, J. A. Cairns Forsyth, and H. A. H. Howard, finding it impossible to explain satisfactorily on present theories many of the phenomena observed in the course of an experimental investigation of diabetes mellitus to which they had been led by previous work upon the changes in carbohydrate content of the blood associated with pancreatic disease, have studied the subject afresh. As a result of these newer investigations they now hold a theory which may be summarized as follows: (1) The liver contains a diastatic ferment, the action of which is reversible. 2. In the fasting state the glycogenetic activities of this ferment are very largely inhibited by (*a*) an antiferment formed by the pancreas, (*b*) the impermeability of the resting liver cells to sodium chloride, (*c*) the reaction of the fasting blood and liver cells. (3) As long as the pancreas and liver are functionally intact and a flow of blood with a normal reaction is maintained, glycogenolysis will be constant therefor and the sugar content of the blood vary within very narrow limits. This is true of all animals of similar constitution, no matter what their habitual diet may be. (4) The entrance of food into the stomach causes a flow of acid, and when this acid reaches the duodenum a formation of secretin results. (5) The secretin (*a*) stimulates the liver cells to produce bile, thus permitting the entrance of sodium chloride, which activates the diastatic ferment; (*b*) causes the pancreas to pour out its alkaline secretion into the intestine to combine with the acid gastric contents, forming acid salts and sodium chloride, which pass into the liver and increase the activity of the diastatic ferment; (*c*) interferes with the formation of the internal secretin of the pancreas, thus diminishing its inhibitory effect on glycogenolysis in the liver. (6) Carbohydrates reaching the liver from the intestine or formed from proteins in the liver are converted into glycogen by the diastatic ferment, the efficiency of the process depending upon the extent to which the glycogenolytic action of the enzyme is inhibited by the internal secretin of the pancreas. Unless the power of glycogen formation possessed by the liver is exceeded, sugar as such, or formed from starch in the intestine, does not pass into the general circulation or play any direct part in the rise of blood sugar following feeding. This theory appears to account for the constant level of the normal blood sugar content of the blood in a fasting condition, and to explain the variations produced by the ingestion of food. It also permits of a reasonable explanation of the changes occurring in disease.

The Practitioner.

[illegible], 1921, cvii, 3

7. Traumatic Rupture of Diaphragm; Patient Lives Over Two Years. Henry Dodson.
8. A Case of Hematuria. J. Hirschmann.

2. Examination of the Blood in Diabetes Mellitus.—R. T. Williamson describes a simple blood test which he has been using for twenty-five years, and which has never given the reaction in any disease except diabetes. In carrying out the test only a small quantity of blood is required—a large drop. A test tube with a diameter of not more than a quarter of an inch is used. It is washed with water and the water jerked out of the tube, with the exception of one drop, which is allowed to remain at the bottom of the tube. The patient's finger is pricked, and 20 cubic millimeters of blood are taken up with a fine capillary tube, placed in the tube and mixed with the drop of water. Then 1 c.c. of a 1-6000 watery solution of methylene blue is added. Finally 40 c.mm. of liquor potassæ are added to the mixture. The contents of the tube are mixed by placing the finger tip at the open end of the tube and slowly inverting the tube six or eight times. The mixture has a definite blue or bluish green color. The tube is then placed in a water-bath or a wide test tube containing water at the bottom of the tube. The water is kept boiling. At the end of four minutes if the blood sugar is decidedly increased the fluid in the small test tube will have lost its blue color and have become a brownish yellow. When the blood sugar is not increased the fluid in the small test tube retains its blue or blue-green color after heating in the water bath four minutes. As a control the same procedure may be carried out with normal blood. The writer used this test for cases of diabetes when first seen, and finds it of value as an indication of the severity of the diabetes. In cases of so-called "renal diabetes" no methylene blue reaction will be obtained. This test does not preclude the necessity for making other blood tests to ascertain the exact percentage of sugar.

5. Some Uses and Doses of Hypnotics.—F. Wyatt-Smith summarizes his personal experience in the treatment of mental diseases as follows: "(1) I do not believe there is any danger of producing an addiction to hypnotic drugs by their intelligent medicinal use. (2) Opium, and its products, should never be regarded as hypnotics. (3) The bromides are of little practical use as such. (4) Bicarbonate of sodium and night-socks have a far better right to the title. (5) Chloral hydrate is, perhaps, the most generally useful of the cheaper hypnotics; and is, probably, not very dangerous even in cases of fatty heart. (6) Paraldehyde is the best mere nightcap in mild cases, and is useful in a dose up to half an ounce with the first dose of some other hypnotic, such as sulphonal, to anticipate its coming into action. (7) Sulphonal is, except for its high price, the best of our hypnotics in that it is also a decided mental sedative. It appears to be quite safe in doses up to at least a dram a day, given in divided doses of 30 grains night and morning, or, better, of 20 grains three times daily. (8) Hyoscine is our strongest agent in a hypnotic emergency, and is quite safe up to 1 50, and probably up to 1/33 of a grain, hypodermically. It should be given an extensive trial in delirium tremens.

Western Medical Times.

September, 1921, xli, 3.

1. The Mechanism of Muscular Action. E. H. P. Ward
2. Pellagra. E. M. Perdue.
3. The Best Treatment for the Asthenic Psychopath. J. Madison Taylor.
4. Things Hateful. J. C. Batson
5. "The Successful Treatment of Tuberculosis (or Any Other Disease) Consists in Overcoming Wrong Metabolism." R. O. Butterfield.
6. Functional Disturbances of Gastric Secretion, Motility and Sensibility. W. H. Foreman.
7. Letters to a Young Physician. Alfred Kahn.

6. Functional Disturbances of Gastric Secretion, Motility and Sensibility.—W. H. Foreman asserts that contrary to our teaching, gastric digestion and gastric sensibility suffer little from disturbances of gastric secretion. On the other hand, gastric digestion and sensibility are disturbed with average gastric acidity. The secretory function of the stomach is influenced by so many factors outside the stomach that the amount and character of the secretion gives little knowledge of the pathology in the stomach. In the interpretation of gastric motility we must consider (*a*) organic disease in the stomach, (*b*) the gastrointestinal tube as a unit with its segmental irritability and tone, (*c*) derangements in other viscera, (*d*) nerve and psychic stability. Pain in the epigastrium may be: (*a*) true gastric pain in organic disease in the stomach or duodenum, (*b*) pain "referred" from other structures, (*c*) true gastric pain from organic or functional derangements in other portions of the gastrointestinal tube or in other structures, visceral or somatic, (*d*) reflex pain in epigastric somatic structures from visceral disease or visceral dysfunction. The reflex occurring over the splanchnic and spinal nerves, (*e*) pain due to hyperirritability, instability, or disease of the nerve centers.

Indianapolis Medical Journal.

September, 1921, xxiv.

1. Strangulation from Enlarged Thyroid in Full-Term Pregnancy. E. E. Padgett.
2. The Study of Therapeutic Agents by County Societies. A. G. Osterman.
3. A Case of Food Idiosyncrasy. James C. Carter.

2. The Study of Therapeutic Agents by County Societies.—A. G. Osterman has been advocating to county medical societies a more thorough study of drugs, their properties, chemistry, and everything that is known about them. Last year in the county society to which he belongs they selected for discussion the drug sodium citrate, for the reason that in its study they found many pathological conditions where this drug or its combination with others acted almost as specifics. Among the facts brought out about sodium citrate were its wonderful property of relieving the viscosity of the blood, and also when added to the blood outside of the body, its power to prevent its coagulation. When taken into the stomach it loses its acid radical, being excreted as a carbonate, adding to the alkalinity of the blood, diminishing the hydrogen ion, and relieving excessive acidity from whatever cause. In studying the effects of sodium citrate on infants its beneficial effect in all conditions of hyeracidity and resulting spasticity of the duodenum (colicky babies) was brought out. Sodium citrate added to milk prevents the massive coagulum of excessive acidity, the curds following its use being small, and always soluble. The acidosis of diabetes mellitus, and the intolerable itching that sometimes develops during its course around the genitalia and anus are promptly relieved by its administration. In the plethora of the last months of pregnancy, sometimes the forerunner of eclampsia, some cases can hardly be bled because of the viscosity of the blood. Here relief is obtained by the combination of citrate and calomel. In old chronic plethoric asthmatics, great eaters with high blood pressure, shortness of breath, wheezing, cough, emphysema, and the usual dilatation of the right side of the heart, the citrates in combination with the vasodilators give relief. The use of vaccines in acute infections never gives results until acidosis is relieved. The citrates are especially indicated in the Neisserian infections where the vaccines most often fail simply because this acidosis is lost sight of. The citrates of potassium may act better here than the sodium salt, on account of its effect on the kidneys. Chronic furunculosis can sometimes only be relieved by the thorough and persistent administration of sodium citrate. Irrigation with a solution consisting of 5 parts citrate of sodium, 20 parts sodium chloride, 500 parts water will close suppurating sinuses, and used as a hot moist application will sometimes abort furuncles. This agent is useful in influenza and acute lobar pneumonia, its effect being due to its remarkable property of relieving the high viscosity of the blood, taking the burden off of the heart and allowing of a freer and easier circulation through the lungs.

Nature of Bee Poison.—Flury obtained the poisonous secretion of 200,000 living bees for analysis. He found a large lipoid fraction and concludes that the active principle is a complex association of lecithin, and a basic compound which is related to two quite different animal toxins, viz.: snake-venom and cantharidin.—*Schweizerische medizinische Wochenschrift.*

Book Reviews.

CLINICAL BACTERIOLOGY AND HAEMATOLOGY FOR PRACTITIONERS. By W. D'ESTE EMERY, M.D., B.Sc., Lond. Director of the Laboratories and Lecturer on Pathology and Bacteriology, King's College Hospital, and Lecturer on General Pathology, London School of Medicine for Women. Sixth Edition. Price, $3.50 net. Philadelphia: P. Blakiston's Sons & Co., 1921.

THE new edition of Emery's familiar and excellent work will be welcomed by its large number of friends. There are but few changes to be found, chiefly in the introduction of certain new methods. The bacteriology is necessarily very brief in a book of this size, but the methods given are purely clinical. It is a work for practitioners rather than for laboratory men, although the latter may well find points of interest and value in it. The American readers will wonder why he has devoted so much space to the estimation of the opsonic power of the blood for we have come to believe it of little value. The section on cytodiagnosis is excellent.

URINARY ANALYSIS AND DIAGNOSIS by Microscopical and Chemical Examination. By LOUIS HEITZMANN, M.D. Formerly Professor of Pathology and Bacteriology, Fordham University School of Medicine, New York. Fourth Edition. Price, $4.00. New York: William Wood and Company, 1921.

IN this fourth edition of the book there have been few changes although the text has been quite thoroughly revised. There has been added a chapter on the Determination of the Functional Efficiency of the Kidneys by Walter T. Dannreuther which is fairly complete. In other respects the plan of the previous editions has been closely followed as will be recognized by all who are familiar with the book. About two-thirds of the volume is devoted to the microscopical examination which is apparently considered by the author to be rather more important than the chemical examination. He claims to have reached a degree of proficiency in the recognition of cellular elements found in the urine that has not been reached by other investigators, and discusses the criteria whereby many difficult diagnoses may be made. The book is profusely illustrated with drawings that are often excellent. The author uses the term pus-corpuscle in a very loose and confusing manner, at times apparently considering these bodies as identical with leucocytes but in other places deriving them from epithelial cells. There will be many who will dispute his claims to diagnostic ability, especially in the recognition of the origin of epithelial cells, but it must be admitted that he has probably studied this subject more thoroughly than the majority of his critics.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume iv, Number 5. New York Number. March, 1921. Published Bi-monthly. Price per year, $12.00. Philadelphia and London: W. B. Saunders Company.

THIS number of the Clinics presents contributions of the clinics of nineteen authors in ten different institutions. As usual the titles exhibit a wide range of material so that the volume contains something of particular interest to nearly every medical reader. Longcope calls attention to the jaundice that occasionally follows the administration of arsphenamine, Pardee speaks on disease of the coronary arteries, and Holland on gastro-intestinal symptoms. McCann's discussion of basal metabolism and Ottenberg's of transfusion are both timely and interesting. Bullowa has an interesting contribution on scarletina but his photographs of the desquamation do not show what they are intended to show.

AIDS TO CHEMISTRY. By WILLIAM PARTRIDGE, F.I.C., Joint Public Analyst for the County of Dorset; Lecturer in Chemistry (Public Health), University of London, King's College. Price, $2.00. New York: William Wood & Company, 1921.

THIS is a new book, rather than a revision of the previous editions. It contains a large amount of information packed in a small space, and it should prove of service to medical students in following lectures in chemistry. It is too condensed to be of use to those who have not studied the subject. The volume is smaller than its predecessors, but this is an advantage. We recommend the book to the medical student who is struggling with this subject in some large textbook.

AIDS TO OPERATIVE SURGERY. By H. C. ORRIN, O.B.E., F.R.C.S., Ed., Surgeon, Ministry of Pensions Orthopedic Hospital, Newcastle-upon-Tyne; and late Civil Surgeon to the Third London General Hospital; late Surgeon to and Medical Officer-in-Charge of the Red Cross (Weir) Hospital, London, etc. Price, $1.75. New York: William Wood & Company, 1921.

THIS is a much-needed addition to a useful series. All of the "Aids" or "Compends" on Surgery which we have seen omit or minimize the subject of Operative Surgery. A student preparing for an examination has no time to go through the encyclopedic treatises labeled "Surgery"; but he can read, and refresh his memory in, some small volume such as this. All the more important operations are described quite briefly; and while only the absolute essentals are given, no step has been omitted. This volume, like others of the series, is intended a a companion to larger works. In a future edition, the addition to each section of a few lines giving the Indications for the various operations would add to the value of the book.

EINFÜHRUNG IN DIE ALLGEMEINE KONSTITUTIONS—UND VERERBUNGSPATHOLOGIE. Ein Lehrbuch für Studierende und Aerzte. Von Doctor HERMANN WERNER SIEMENS. Price 64 marks. Berlin: Julius Springer, 1921.

THE theoretical section deals with the conception of the congenital construction, of which the status arthriticus is an example, the disposition or factors which predispose to or invite disease, and the inheritance of disease. The practical section is devoted largely to the concepts of Mendelism and to the diagnosis and therapeutic management of the inherited element. The author fully covers familial diseases. The number of pages of the present volume is 229 and there are many charts showing the descent of diseases. The reader would be puzzled by the author's terminology were it not for the presence of an ample glossary. The previous literature of this subject is not large, although the author gives 67 bibliographical references, chiefly to articles in periodicals.

RÔLE DES COLLOÏDES CHEZ LES ÊTRES VIVANTS. Essai de Biocolloidologie. Nouvelles Hypothèses dans le Domaine de la Biologie et de la Médecine. Par AUGUSTE LUMIÈRE. Price 16 francs. Paris: Masson & Cie., 1921.

IN this work M. Lumière expounds a new theory regarding the origin and nature of the physiological and pathological phenomena in the living body of plant or animal. He holds that all transformations, all reactions which concern growth and nutrition have to do with matter in the colloidal state. Colloids form pseudo-solutions composed of very fine particles called by Naegeli micellæ, held in suspension in the intermicellar fluid. The micella has an inert center surrounded by active matter. It is animated by so-called Brunonian movements and undergoes continuous transformations. As a result of these changes its perigranular envelope may wear away and the inert nucleus enlarge and lose its faculty of movement—a process called ripening. As a result of this ripening it amalgamates with other micellæ and so-called flocculation occurs, the entire mass forming a coagulum. These minute micellæ have collectively an enormous surface estimated as two millions of square meters for an adult man. Sudden flocculation means death by so-called anaphylactic shock. Slow flocculation produces diseased states of the nature of chronic anaphylaxis. Protein antigens accidentally introduced into the body threaten flocculation, and the aim of treatment of the future will be to prevent flocculation or dissolve the coagula thus produced.

This, in brief, is the biological thesis which M. Lumière sustains in the book before us. He formulates his conception of micellar evolution in saying that life depends upon maintenance of the colloidal state, while flocculation causes disease and death. The book is interesting, and the theory, if found correct, would explain many biological phenomena which are as yet not well understood.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 17, 1921.

DR. SAMUEL BRADBURY IN THE CHAIR.

The Coronaries and Aneurysm of the Left Ventricle.—Dr. MORRIS H. KAHN made this presentation. He stated that aneurysm of the left ventricle, being the most common, might be taken as the type of aneurysm affecting the heart wall. Its usual site was at the apex or in the anterior wall immediately above it. The anterior or descending branch of the left coronary was the one involved when the left apex was affected and might be obstructed atheroma, fibrinous clot, or calcareous deposit. The pouch varied in size and was lined by stretched endocardium, white, opaque and greatly thickened. Dr. Kahn had had occasion to observe two cases at the Beth Israel Hospital, both clinically and pathologically, which were of interest. The first case showed a localized aneurysm involving the apex and not very extensive, while the second involved almost the entire wall of the left ventricle. The wall of the ventricle at the site of the aneurysm was frequently much thinned out, even as thin as a sheet of blotting paper, and the muscle was replaced by connective tissue. The aneurysm usually contained blood clot which was laminated and adherent to the endocardium. The symptoms of aneurysm of the heart were not otherwise distinctive from the symptoms of the cardiovascular disease in the course of which the aneurysm developed. Whenever extensive myocardial changes existed, as indicated by the symptoms and by electrocardiographic observations, or when symptoms of coronary thrombosis were diagnosed, myocardial degeneration and thinning of a portion of the ventricular wall should be suspected. The form usually taken by the clinical picture was, first, an attack of angina that might be synchronous with the closure of the coronary artery and might be associated with pericarditis; second, infarction of the cardiac muscle producing a pericardial reaction with localized adhesions. There might be severe pain in the precordium associated with a constant point of tenderness over a localized area of the precordium. Examination usually showed a feeble apex beat and weak heart sounds such as one naturally obtained where there was myocardial involvement. Sometimes there was gallop rhythm and splitting of the first sound. Reduplication might occur in the systole; this was explained by the myocardial inadequacy to overcome pressure. Pericardial changes were frequent, so much so that they had been given as the cause of the aneurysm. There might be pulsus alternans. Leucocytosis was present and might occur synchronously with the coronary closure. The electrocardiographic findings were significant in myocarditis. Changes that took place in electrocardiographic findings within a short interval of time and without the influence of medication must necessarily be attributed to functional, nervous, toxic, or organic causes. When changes were so important as widening or notching of the Q R S wave, or variation in the T phase, they indicated changes in the myocardium. A characteristic alteration took place in the form of the T wave following ligation of branches of the left coronary artery. There was a change of the T wave from a strongly positive peak, immediately after ligation, to a markedly negative one, and then a slower return to the positive or isoelectric form. The *x*-ray and the fluoroscope were of little help, though usually they would show dilatation of the left ventricle. The leaden pallor said to be characteristic of these cases of ventricular aneurysm was supposed to be due to peripheral vasoconstriction. Dr. Kahn gave a lantern slide demonstration of the findings of the two cases referred to in his paper and reported these cases more in detail.

Dr. E. LIBMAN said that he had noted, as Dr. Kahn had mentioned, a peculiar color of the face in patients who had an old thrombosis in the distribution of the left coronary artery. It had been difficult to describe this color. The best description he had found was that given by Sansom, who, however, did not interpret correctly the type of case in which it occurred. Sansom described a "leaden color covering an earthy tint of skin" as being characteristic of certain cases of aortitis. At that time the coronary arteries were not usually investigated, and Sansom had probably not noted that that color was quite characteristic of the cases of old thrombosis. Dr. Libman believed that the color was dependent upon nutritional changes in the skin and not a spastic condition of the vessels. It was true that there was a similar color present at the time of some severe attacks of coronary thrombosis. As regards the leucocytosis, to which Dr. Kahn referred, Dr. Libman said that he had for a long time used that as a means of diagnosis of thrombosis of the coronary artery as differentiated from conditions causing severe pain in the cardiac area which were not associated with thrombosis. If the initial thrombosis closed a larger vessel, and particularly if there was present disease of the collateral arteries, necrosis of the myocardium ensued, and often pericarditis. If, after an attack of so-called angina pectoris, there developed a leucocytosis within the first thirty-six hours, and no other cause was present for the leucocytosis, one could say that the lesion was a thrombosis. Of course, leucocytosis might also occur with large myocardial lesions unassociated with coronary thrombosis, but such lesions were exceedingly rare. He believed that the diagnosis of aneurysm of the heart secondary to coronary thrombosis could be made more frequently than it had been done in the past. Sternberg had stated that aneurysm of the heart had been diagnosed correctly only twice in the series of cases reported in the literature up to the time he had published his monograph. Dr. Libman had diagnosed the condition in a number of cases, and in those cases which had come to post mortem examination the diagnosis had been verified. The aneurysms were most frequent in the left ventricle near the apex, because the thrombosis was most common in the descending branch of the left coronary artery. The aneurysms were less common in the septum and rarest in the auricle. One could entertain the suspicion that aneurysm was present if one found a marked pulsation of the heart between the apex and the left border of the sternum, with the presence of very poor heart sounds. This was especially true if in the previous history there was evidence of a clinical picture which pointed to a thrombosis in the coronary system. Other points had been given by various authors which were supposed to be of value for the diagnosis. Skoda had stated that marked pulsation of the heart accompanied by a poor pulse was suspicious. In some cases of aneurysm of the heart, however, the pulse was often not poor in quality during a large part of the period of observation. The murmurs that had been described as occurring with aneurysm of the heart were quite varied. There had been noted a presystolic murmur, a musical murmur, a squeaky murmur, a continuous murmur, systolic, and diastolic murmurs. Dr. Libman stated that there was one difficulty that must be understood if one wished to use the signs which he described as being of value for the diagnosis. The symptomatology of coronary thrombosis was simulated much more often in cases of disease of the root of the aorta than in cases of hypertension. In such cases of atherosclerosis of the aorta, however, one usually encountered a marked hypertrophy of the left ventricle. If a coronary thrombosis occurred in such a case, even though the heart were weakened, the thrust of the left ventricle might be still evident, and the heart sounds would be poor. On such instances, however, the most marked thrust was mainly in the region of the apex, whereas in cases of aneurysm of the heart one encountered a marked pulsation which reached from the apex over to the left border of the sternum. In fact, it had been claimed by one writer that in cases of aneurysm of the left ventricle (those that occurred in the front of the heart were the only ones now being discussed), the pulsation was to the right of the apex, and the apex itself did not share in the pulsation. In connection with the question of diagnosis of aneurysm due to closure of the coronary artery, Dr. Libman related the case of a

man, forty-one years of age, who gave a history of having suffered from pain on exertion, located between the scapuli for a period of seven years. When he came under observation the systolic blood pressure was only seventy, and the diastolic fifty. On testing the spine, no evidence of spondylitis was brought out. There was marked pulsation of the heart extending from just to the right of the apex over to the left border of the sternum. The first sound of the heart was almost inaudible. The pulsation in the radial artery was easily palpable. Because of these physical signs, the patient was carefully questioned for a history of any attacks that might have been presumed to mean coronary thrombosis, and a history was obtained of three such attacks. The following morning the family physician was informed that the patient, who up to that time was supposed to have been suffering from some spinal disease, was liable to die suddenly. The physician stated that the patient had already died suddenly. Dr. Libman pointed out that aneurysm of the heart occurred not only with disease of the coronary artery, but also secondary to other forms of myocardial disease, especially gummata. One patient had developed an aneurysm of the heart a few days after she had been operated upon for intestinal obstruction due to carcinoma of the ascending colon. Two days after the operation there were evidences of cardiac insufficiency, and there was a loud murmur and marked thrill just to the left of the sternum. A possibility was entertained that the patient had a communication between the two ventricles, of congenital origin, and that perhaps the physical signs had been overlooked until the patient developed the evidences of cardiac insufficiency. At autopsy, however, there was found to be present an aneurysm of the septum with perforation into the right ventricle. The aneurysm was due to necrosis of the heart muscle. The coronary arteries showed practically no change. The necrosis was apparently of toxic origin, an idea that was confirmed by the fact that there were found a number of very small areas of necrosis throughout the musculature of the heart.

Dr. MARCUS A. ROTHSCHILD emphasized that it was incorrect to speak of electrocardiographic diagnosis of coronary artery disease or of myocarditis. The electrocardiogram only gave a physiological diagnosis, it demonstrates disturbances of conduction. Clinically, the cause of these defects must be determined. It had been demonstrated that the usual pathological lesions found were muscular damage resulting from coronary artery disease or interstitial myocarditis. However, it was not fair to infer, as Drury had recently done, that electrocardiographic changes were necessarily found whenever the coronary circulation was disturbed. As yet it was not known how great a defect in conduction was necessary to deform the electrocardiogram. Dr. Rothschild also emphasized that a negative finding did not exclude the possibility of pathological change. A positive electrocardiographic finding, however, which was permanent, he believed to be a distinct aid in diagnosis and prognosis. The electrocardiogram was another example of an instrument of precision which was of value if used in conjunction with clinical medicine, but of little value if used by itself.

Dr. KAHN, in closing the discussion, said speaking of the value of leucocytosis as a diagnostic aid that in a number of cases the leucocytosis was a hindering factor in the diagnosis. In two cases with abdominal angina and leucocytosis, on the basis of the leucocytosis, abdominal operation had been performed and nothing found. Autopsy in these cases showed coronary closure with myocarditis.

Leucopenic Leucemia.—Drs. NATHAN E. BRILL and N. ROSENTHAL presented this paper which was read by Dr. Rosenthal and illustrated by lantern slides.

Dr. BRILL first spoke, saying that he had asked Dr. Rosenthal to read the paper for two reasons, first, to spare his own voice, and, second, which was most important, because Dr. Rosenthal was really the author. He has insisted on having Dr. Brill's name associated with the work because he felt that he had learned from the speaker many of the facts about leucemia and its special types. Few observers in this country had had the opportunities of studying so many examples of leucemia as had the physicians at Mt. Sinai Hospital, where a yearly average of fourteen to sixteen cases of this disease had been steadily maintained for years. When one reflected that in the fifteen years of Osler's service at Johns Hopkins Hospital only twenty-four patients with this disease were admitted one realized what a wealth of material in the study of leucemia was offered at Mt. Sinai Hospital. This number would seem to indicate that possibly leucemia was more prevalent in the Jewish race. However, anybody who worked with the study of the histology of the blood would recognize what a severe task, what a strain upon the eyes, such a study demanded. Therefore, Dr. Rosenthal deserved the greatest credit on having applied himself to this study with untiring zeal and with uncommon intelligence so that the speaker could conscientiously say that the author of the paper was in every way qualified to present the subject of leucopenic leucemia as an expert.

Dr. ROSENTHAL then presented the paper. He said that most pathologists and hematologists considered aleucemia or leucopenic leucemia to be true leucopenia on account of the similarity of the lesions in the hematopoietic organs. There was, however, considerable difference of opinion in regard to the blood picture. Based upon studies carried on at the Mt. Sinai Hospital, they had come to the conclusion that the leucopenic leucemias were true leucemias both clinically and pathologically. The blood picture also resembled that of ordinary leucemias with the exception of the leucocytosis. Whenever leucopenic leucemia was suspected the differential blood examination must be done with the greatest care. In such leucemias they had always found a slightly increased, normal or subnormal white blood cell count associated with an absolute and often relative increase of a certain group of mature or of premature white blood cells responsible for the leucemia. A leucemic blood picture was absolutely essential for the diagnosis of leucopenic leucemia. One must also bear in mind that transitions might occur from the leucopenic to the leucocytic form and *vice versa*. The underlying pathogenesis of the leucopenic form of leucemia was not clear. From their studies of the lesions of leucopenic leucemia the cause of the failure of the appearance of more cells in the circulating blood could not be determined in all cases. In one case of leucopenic monocytic leucemia they came to the conclusion that most of the large monocytic cells were derived from the liver and spleen, but were held back by the capillaries of the lungs. The capillaries of the lungs were filled with large numbers of cells, while the peripheral capillaries contained very few cells. This was in accord with Aschoff's idea. He pointed out this infiltrative action on the part of the lung and considered it one of the chief reasons for the failure of numerous histiocytes present in the splenic and hepatic veins from reaching the general circulation. The classification of leucopenic leucemias was similar to that of the ordinary varieties. They formed three main groups, namely, the lymphoid, myeloid and monocytic leucopenic leucemias. Leucopenic leucemia of the lymphoid type had been studied and described since 1865, when Cohelm called attention to it. The symptoms and course of this leucemia resembled the leucocytic form. General adenopathy, splenic enlargement, weakness and loss of weight were the chief symptoms. The leucopenic type was less frequent and might occur at any age. The pathological lesions were similar to the leucocytic form, but the bone marrow and other organs were usually much less infiltrated. The blood picture was characterized by a slightly increased, normal, or subnormal white cell count with both an absolute and a relative lymphocytosis. Transitions to the ordinary lymphatic leucemia might occur as a terminal manifestation, and *vice versa*. The course was rarely acute. Most of the cases were chronic and appeared less malignant than the common forms. The following cases were then reported in detail, in which the blood pictures were as follows: A case of *leucopenic lymphemia:* Red blood cells 5,220,000, hemoglobin 98 per cent; white blood cells, 12,600; platelets, 128,000; polymorphonuclear neutrophiles 13.0 per cent.; polymorphonuclear eosinophiles, 0.5 per cent.; lymphocytes, 85.0; monocytes 1.0 per cent. One lymphoid cell with two nuclei. The oxidase reaction was present only in the polymorphonuclear cells. A case of *leucopenia of the myeloid type*, in which the onset was usually insidious with weak-

ness, pallor, and often pains in the upper left quadrant of the abdomen. The lymph nodes were not enlarged. The liver and spleen were usually enlarged. The course was usually chronic extending five or six years; acute cases also occurred. In this case the blood picture was as follows: Red blood cells, 1,976,000; hemoglobin, 38 per cent.; white blood cells, 2200; platelets, 190,000; polymorphonuclear neutrophiles, 23 per cent.; polymorphonuclear eosinophiles, 1 per cent.; polumorphonuclear basophiles, 1 per cent.; lymphocytes, 40 per cent.; monocytes, 1 per cent.; myeloblasts, 28 per cent.; myeloblasts and Auer bodies, 1 per cent.; myelogones, 2 per cent.; myelogones and Auer bodies, 2 per cent. In this type of leucemia the recognition of premature myeloid cells, such as myelocytes, myeloblasts and myelogones was of great importance. As there was no reports of cases of leucopenic monocythemia in the literature Dr. Rosenthal said he wished to cite one case admitted to the service of Dr. Brill about two years ago. This man came into the hospital complaining of progressive weakness for a period of ten months, with a typical attack of grippe a few days before. At the time of admission he complained of profound weakness and was practically unable to move; no bone or joint pains; fever, but no chills or night sweats. He was removed to Lincoln Hospital, where he gradually improved and was discharged at the end of five weeks, but never entirely recovered. Five months ago he began to have profuse drenching night sweats; became progressively weaker, and had had a cough with whitish expectoration. The liver was palpable about two inches below the free border of the ribs. The spleen filled half the abdomen, was hard, smooth, but not tender. The patient gradually lost ground. Transfusions and *x*-ray treatments were of no avail, except that the spleen became slightly smaller. About one week before death he developed ascites and some purpuric manifestations. *X*-ray therapy in this case produced an extreme leucopenia, even to a count as low as 600 which, on discontinuation of the *x*-ray treatment, rose to 3000. A blood examination at this time showed a monocytic crisis of 44 per cent., which warranted the diagnosis of leucopenic leucemia of the monocytic type. The relative and absolute monocytosis was present also on a later examination. The oxidase reaction of most of the large mononuclear and transitional cells in this case was positive. On the basis of their studies they concluded that (1) leucopenic leucemia was a general term for the leucemias without lymphocytosis; (2) the symptoms, course and varieties of the leucopenic forms of leucemia were similar to the leucocytic forms, and (3) that an absolute increase of mature or premature white blood cells was essential for the diagnosis in addition to the clinical manifestations.

Dr. BRILL opened the discussion (See page 888).

The Occurrence of Hyperchromic Anemia in Chronic Nephritis.—Dr. BENJAMIN BERG made this presentation, in which he said that during the course of certain forms of chronic nephritis, anemia played a prominent role in the picture of the disease. Attempts had been made to correlate the anemia with the presence of edema, dilution of the blood being considered a possible explanation. Reference was made to a number of these attempts and attention called to the work of Aubertin and Yacoel (*Presse Médicale*, xxviii, 461, 1920), who collected a series of cases which demonstrated that anemia was practically exclusively encountered in cases of chronic nephritis showing nitrogen retention, and no edema. Two cases were reported with repeated blood and urine examinations which presented two syndromes: The first a severe anemia characterized by a high hemoglobin index, relatively little change in the morphology of the erythrocytes, absence of abnormal forms in the blood, and a leucopenia; the second was a chronic nephritis with high nitrogen figures, and uremic symptoms. Two series of cases were studied, the first series being twelve cases of chronic nephritis with nitrogen retention, and the second fifteen cases of chronic nephritis with non-nitrogen retention. As far as possible those cases were chosen in which one could be reasonably certain that the anemia was not secondary to some complication such as hemorrhages, parasitic disease, or new growth. A study of these cases indicated that severe anemias occurred nearly exclusively in chronic nephritis associated with nitrogen retention. There was, however, a large group of cases which did not fit in either group. These cases might be in a stage transition. Through the nitrogen figures had not increased, there was present a moderate anemia. In such cases the anemia might be the precursor of changes in the figures for blood chemistry. In the writer's series of cases, the relative frequency of anemia in all types of chronic nephritis coincided, approximately, with Cabot's figures. The erythrocytes in this series, however, did not reach the low levels reported by Cabot and Aubertin. Edema held no constant relation to the presence or absence of anemia. Anemia might occur in the absence of edema, and edema might occur without the associated anemia. The most striking feature of the anemia in the nitrogen retention group was the hemoglobin index. Blood smears in cases of chronic nephritis with nitrogen retention and a severe anemia in the cases studied by the author were usually negative for the abnormal forms found in pernicious anemia. However, a few polychromatophilic macrocytes were found in a case studied by Dr. N. Rosenthal. Further studies were needed on this point. The erythrocytes were usually well preserved and well filled with hemoglobin; macrocytes and normoblasts were not found. The leucocytes showed no marked changes either in number or character. The differential count, except for a slight polynucleosis, was not abnormal. The blood picture presented by these cases was not uncommonly found in such conditions as carcinomatosis, accompanied by severe anemia; in the latter form, however, abnormal erythrocytes or leucocytes, or both, were apt to be present. The nature of the anemia in chronic nephritis with nitrogen retention, therefore, could not be determined from the blood picture alone. Studies of the bone marrow and spleen were necessary to properly interpret the anemia. Studies made thus far seemed to suggest that the hematopoietic organs were profoundly affected in this form of nephritis. So far as the etiological factor was concerned, nothing could be determined until more was known about the etiology of uremia. The anemia might be due to an hemolytic agent acting directly upon the erythrocytes; it might also be due to an inhibitory action, by the same agent or some other toxic factor, upon the hematopoietic organs; a combination of both factors would probably be responsible. The writer expected to undertake investigations directed toward determining more accurately the reaction of the bone marrow and spleen in cases of chronic nephritis associated with nitrogen retention, and accompanied by severe anemia.

Dr. LIBMAN said that it was interesting that nearly everybody had overlooked the occurrence of this hyperchromic form of anemia in cases of chronic nephritis associated with nitrogen retention. He had seen blood examinations in such cases that showed an index as high as 1.5. The important point was that the observations of Widal and Aubertin, as well as those of Dr. Berg, added another condition to those in which anemia was present with an index of over one. The other conditions were pernicious anemia, certain cases of leucemia, neoplasm, especially those involving the bone marrow, infection by the *Bothriocephalus latus*, and the pernicious anemia of pregnancy (anemia gravidarum). It did not appear that there would be any great difficulty in the differentiation of cases of nephritis with hyperchromic nephritis from pernicious anemia, even though there had been described by Christian a diminution in renal function in cases of pernicious anemia. Although nitrogen retention might occur, partly due to this cause and partly to congestion of the kidney toward the end of the disease, the figures did not rise as high as they did in the cases of nephritis, and the uremic breath was not present.

Dr. BERG, in closing the discussion, said that this one patient in whom transfusion was done showed such a remarkable change that he thought it was a remedy that should be thought of in severe anemia in chronic nephritis.

SECTION ON PEDIATRICS.

Stated Meeting, Held February 10, 1921.

DR. MINER C. HILL IN THE CHAIR.

A Case for Diagnosis.—Dr. GAYLORD W. GRAVES pre-

sented this patient, a girl 11½ years of age. Her mother had died from carcinoma; her father and sister, 10 years old, were in good health. With a single exception there was no record of disease in her family that could have a bearing on the case. The patient's history was negative except for the occurrence of chickenpox, otitis media, and influenza. Recently she had lived with an aunt in a surburban town, attended school, and apparently been in good health. About December 20, 1920, she became mildly ill with nausea and abdominal pain, which was annoying only when she moved about. There was no vomiting or diarrhea and the symptoms subsided within two days. About a week later they recurred and then culminated in vomiting which was not explained by any indiscretion in diet. Examination showed that the patient belonged to the thin, rapidly growing, rather neurotic type, somewhat apprehensive, and devoid of elasticity in her movements, particularly her gait, which had at first seemed unnatural following her few days' illness. She walked a trifle stooped as though favoring a sore appendix or a bladder with a stone in it, but her steps were more like those of a person treading a series of rough railroad ties under the compulsion of keeping a rail between the feet. There was a suggestion of increased tension on the right side of the abdomen but no definite tenderness or rigidity. Both knee jerks were active and there was no apparent weakness in the foot or leg action. The urine showed a very faint trace of albumin, an occasional hyaline cast, one finely granular cast, and about 40 leucocytes per field. Eight days later, following dosage with an alkaline diuretic mixture, the urine was normal. During this time there had been no recurrence of the symptoms but the child still walked unnaturally. A more careful examination was made, looking for the existence of flat foot and pressure sores, but nothing was remarked except that the feet showed good arches when the child's weight was not imposed upon them in standing. It developed that rising up and down on the toes, walking on tiptoe, and standing on one foot were all extremely difficult owing to failure of balance. The knee jerks were somewhat overactive. It was only at this time that the writer became convinced that the case was actually neurological. During the ten days before the next visit, the aunt noticed that the child's feet at times assumed a peculiar position with the toes involuntarily turned up. On inspection this was confirmed and at the same time a slightly exaggerated hollowing of the arch of the rest of the foot and unnatural convexity of the dorsum were remarked, the condition being bilateral. Both knee jerks were now found to be definitely exaggerated; a bilateral Babinski was found, and a Romberg test though a bit uncertain seemed strongly suggestive. Vision, pupillary reactions, speech and bladder and rectal control had been normal and there had been no disturbances in cutaneous sensation. A blood Wassermann taken on January 22 was negative.

The patient was last seen on February 5, and seemed much improved generally, having gained three pounds during the last month. The suggestive signs, on February 5, though less marked, still presented practically all those mentioned, with possibly a very slight jerking of the eyes laterally when they were held voluntarily in extreme conjugate deviation. No actual nystagmus was found. The writer was inclined to believe that this was a case of Freidrich's ataxia. This view furthermore occurred quite independently to Dr. Frank McLaury even before he saw the patient on January 22, after having heard the story from the child's relatives. No spinal Wassermann had been taken but it seemed highly unlikely that the symptoms could be explained by spinal syphilis. An active knee jerk did not militate seriously against the diagnosis of Friedrich's ataxia as this sign had been repeatedly present in similar cases when cerebellar ataxia was excluded and the latter course proved that of so-called hereditary spinal ataxia. A history note in connection with the case was that the patient's maternal grandmother's cousin's daughter, the offspring of the marriage of first cousins, developed a form of paralysis of the legs at about this age, and died at about 25 years.

A New Method for Treating Acute and Chronic Empyema in Children.—Dr. A. L. SORESI presented these patients and described a device which he had invented for the drainage of empyema, illustrating it with lantern slides. The first patient was a little boy operated upon for empyema three times at the Greenpoint Hospital. He was in very poor condition; his hemoglobin was down to 35. He had had incision and finally rib resection. The empyema had lasted 1½ years. A radical operation, it seemed, would have killed the child, so this tube was used and the child made a good recovery. The second patient was a child who had had chronic empyema of two years' standing, which had been operated upon. The child was in exceedingly poor condition. Again he used the tube described and the child recovered. The third patient was a child operated upon at St. Catherine's Hospital. The child gave a history of having had hydrocephalus when born, and later had a severe empyema. In this case also rapid drainage had been secured with this tube and recovery ensued. Dr. Soresi stated that the formation of pus he regarded as a defense mechanism, and he never removed fluid, whether purulent or clear, until the acute process was over. There was during the acute stage very little danger from the absorption of pus because the lymphatics were clogged. Sometimes, however, fluid collected to such an extent that it caused severe pressure symptoms, and it became necessary to drain the chest in order to relieve these pressure symptoms. In operating upon a child for empyema, one of the first essentials was that the child should be comfortable. A child that had empyema usually had such a low vitality that the pain and discomfort of frequent dressings might be a determining factor as to life or death. The child must be comfortable during operation and immediately after, and all the time until he was well. In operating upon children Dr. Soresi stated that he did not use a general anesthetic, but used cocaine 1-500, and went very slowly. The use of a general anesthetic in these children he regarded as a surgical crime. He said that nearly everyone had devised a treatment for empyema for which he claimed 100 per cent. cures. Personally he was convinced that there was no such thing as 100 per cent. of cures in empyema because one might strike cases in which no method of treatment could effect a cure. The introduction of a rubber tube kept up irritation and so kept the lung draining for a long time. The device presented was so constructed that it was flush with the pleural cavity so that it caused no irritation and usually pus ceased to discharge after three or four days. The device consisted of a metal tube about an inch in length and having an oval lumen, the long axis of which measured ½ inch and the short axis ¼ inch at the widest part. The tube was constructed in two sections so that the lower one-half could be inserted through a very narrow incision and the upper half then inserted into a grooved track in the lower half. The tube was fitted with a one-way rubber valve which permitted the escape of pus and prevented the entrance of air. The tissues were closely approximated to this cannula by a suture, and a rubber tube was connected which drained into a bottle swung about the patient's neck by a cord. This was a great advantage because it permitted the child to be up and about, and as a rule, after twenty-four to forty-eight hours the bottle was no longer required. The incision was usually made between the ninth and tenth ribs, close to the lower border, to avoid injury to the diaphragm. Dr. Soresi advised against the introduction of the finger for the purpose of breaking adhesions during the treatment of an empyema.

Dr. HENRY KOPLIK said he had done a great deal of work on empyema and appreciated the value of the apparatus presented. The ingenious part of it was the valve that allowed the pus to escape and prevented the entrance of air. Dr. Koplik stated that he had invented a device for the drainage of empyema which consisted of a rubber tube inside of a flange, but the rubber tube sometimes became clogged. He thought Dr. Soresi's device was more ingenious because it never could become clogged and in a young child it would be an ideal procedure. The devices for the treatment of empyema were as many as the books that were written and one of the most ingenious was that used at Mount Sinai Hospital, where the patient was placed on a stretcher above the bed and the pus collected in a bottle by means of a tube inserted into the pleural cavity, and drainage brought about by negative pres-

sure that was there was a suction on the pleural cavity that expanded the lung. Dr. Soresi's device, however, had the advantage that it could be introduced into private practice, whereas the procedure just mentioned was only suitable for hospital use. Dr. Koplik said he agreed with Dr. Soresi that it was sometimes very disastrous to introduce a finger into the pleural cavity to break up adhesions as this might result in setting up a septic pneumonia. He thought the point should be emphasized that in children under two years of age the incision should be made without any resection of any kind; or a modification of the Bülow operation which is a suction method. In children above two years of age we should resect in order to have plenty of room and so that a fistula would not form, but failures would occur with any operation. In closing, Dr. Koplik complimented Dr. Soresi in having presented such a simple method of intervention for the treatment of empyema, one that was within the reach of almost every practitioner.

Dr. SORESI emphasized the advantage that was offered by this method in that it permitted the child to be up and walk about. This was a factor that greatly hastened recovery in these weakened and run down children. He stated that the boy he had shown had walked down stairs immediately after the operation. For a young child he did not believe any method could be quicker than this one. As to the valve which Dr. Koplik had praised, he thought that was the weakest part of the device, because he had not been able to obtain good rubber that would not curl when pus stuck to it. He was now trying to have the valve constructed of two layers of rubber with thin wire netting between. In dealing with empyema in children he did not break up adhesions and he made it a point not to be too radical.

Interpretation of the Clinical Pathology of Mastoiditis in Children.—Dr. S. J. KOPETZKY said that in coming before the Section on Pediatrics to speak of the clinical interpretation and pathology of mastoiditis in children he came because the majority of these cases were seen by the pediatrician first, and it was the symptoms that were interpreted by the pediatrician in the first place. The pathology of mastoiditis had developed so far that cases at first considered to be atypical were now considered in groups and were typed. He sketched these types and pointed out the salient clinical characteristics and the pathology that was accepted for those types. As it was very difficult to take a section and correlate that section to bedside findings so as to make the point clear he said he would sketch the principal pathological points first. There was no discussion or argument nowadays as to the ordinary characteristic type of mastoiditis in which there was a coalescence of the mastoid cells, and the intracellular walls broke down and large cavities were formed lined with granulation tissue, and impinged on vital organs. When the periosteum was involved we found induration and pain on pressure and temperature elevation and a decided sinking of the posterior canal wall, and all the other signs with which they were familiar. When the process invaded the cells they were lined by mucous membrane and contained blood vessels, and the inflammation extended along these blood vessels and they became obliterated and the osteoclasts came and absorbed the bone matter. This was the type of mastoiditis that we all knew and very seldom missed. It was the type that one found on the operating table and in the autopsy room and it was more or less independent of the germ which in the beginning infected the patient. There was another type of mastoiditis which was clinically different from the coalescing type in which there was no pain on pressure, no pressure on the periosteum, and no pressure on the tympanic cavity. These patients instead of having a continued rise in temperature, had a drop after a primary rise, and then a subsequent rise, and ran a typically septic temperature. One might carry such a patient along for a considerable time and the sepsis would continue, and finally when they came late to operation they would have sinus involvement and the blood vessels were involved, but the cells were not broken down; the air cells in the mastoid cavity had not coalesced. One found a bony covering but the whole area would be hemorrhagic. This type he called the hemorrhagic type of mastoiditis. It was most common with hemmorrhagic systemic infection such as streptococcus influenza, though he had seen it in other types of infection. When the pathology of mastoiditis was first studied some years ago the contention was made that this was a stage preceding the coalescing stage. He was convinced that these two types were not interchangeable, though one might get mixed types. Each type was a distinct lesion. He had seen instances in which operation was delayed as long as one month and the hemorrhagic type was still present. This brought up a question of the revision of the indications for mastoid operation in the light of pathology. It also brought up the question of repeated paracentesis in cases in which paracentesis was not indicated by the lesion. These patients being septic after paracentesis, even though they might have a reasonable discharge, continue to be septic, and in view of the fact that repeated paracentesis did not remove the cause of sepsis by cutting the ear drum two, three, or four times, they should be submitted to more effective measures of treatment. If a patient had both the hemorrhagic and coalescing types of mastoiditis which went beyond a certain length of time, it should be borne in mind that the primary effort should be directed to saving the patient and mastoidectomy should not be avoided. It should be remembered that after repeated paracentesis we had adhesions, and scar tissue that caused trouble later in life. The histories of patients with ear troubles later in life often showed that they had had middle ear infections and mastoiditis and that operation had been avoided by four or five incisions. It was far better to operate at the time when operation was indicated and the patient would recover with a perfectly functionating middle ear. The slides showed the detail of these two types of mastoiditis better than by attempting a detailed description. The hemorrhagic type of mastoiditis was most dangerous from the standpoint of infection of the larger vessels. A thrombosis might start in the mastoid vessels and extend into the general circulation and this would be marked by a secondary rise in temperature. The point Dr. Kopetzky emphasized was that there was a stage in acute mastoiditis which was dangerous to the life of the patient, which presents sepsis, and the sepsis can be eradicated by radical operation. This group did not always present the classical symptoms of mastoiditis. The otologist would recognize these cases and by bringing them to operation could avoid intracranial complications. The prevention of mastoiditis was largely in the hands of the pediatrician and the general practitioner. If the physician was satisfied to allow his patient to go along with a running ear changes in the bone might occur and the question of preserving the hearing must be weighed against a surgical procedure which in one-half competent hands offers very little danger. The danger of mastoidectomy was exceedingly overestimated.

Dr. LEWIS FISHER of Philadelphia said that as an otologist he naturally had the otological view. The otologist usually saw those cases which had lasted for some time and were not doing well, while the pediatrist, on the other hand, saw many mild cases which never reached the otologist. The otologist was, therefore, prone to be impressed with their seriousness much more than the pediatrist. Dr. Kopetzky had done a great service in calling attention to the seriousness of some of the mastoid infections. A proper classification was always of great value, but unfortunately it was not always easy for the clinician to make such a classification. It is much easier to classify at operation or on the slide than at the bedside. Some cases of mastoiditis unquestionably got well without operation. Mastoiditis might be roughly divided into two classes: (1) a condition where there was a mastoid empyema—the mastoid cells were filled with pus but were not carious; with drainage this condition could get well without interference; (2) where the process had extended and involved the bone itself; these cases did not get well without operation. Occasionally there might occur a more or less prolonged septic temperature as the result of absorption of toxins from the jugular bulb. This might appear early in cases of middle ear infection, but many of these also got well without operation. Mention was made of this simply to emphasize the fact that many cases although threatening in appearance got well without operative interference, *but*, it was impossible to tell

always when one was dealing with a simple mastoid empyema until possibly the case was in grave danger. It was therefore well to weigh the risks the patient ran by waiting. There was, all things considered, probably less risk to the patient in an early operation in competent hands, than there was by waiting for the appearance of unmistakable signs of serious or perhaps intracranial complications.

Dr. KOPLIK said the whole trouble with the question of mastoiditis was that the otologists did not agree among themselves. There was in New York a school of otologists who wished to go in and drain, as they said, "from behind." In his children's wards it was surprising to see that this question divided itself into one of ages. In the younger children under one and one-half years of age having otitis media, which was probably mastoiditis from the start, three or four reincisions might be made; the children ran a temperature but they recovered. If the ear was examined a month later in those cases there was only the old involvement and the child's hearing did not suffer in the future. No less a man than Dr. Whiting incised and reincised ears in babies and they did very well. The question of the subsequent effect on the hearing had not been brought up. Reincision in these young children had not seemed to affect the hearing. Mastoiditis in older children was a different matter. The bones were ossified in children from the third, fourth or fifth year up, and the more cases he saw the more he was inclined to adopt the dictum, "If one or two incisions do not help it is better to drain the mastoid from behind and save the hearing of the patient and subsequent months of suffering." It was not so easy to diagnose the different forms of mastoiditis at the bedside. The temperature was no guide since there were cases in which the temperature did not rise above 100 or 100½° F. and still the ears would be discharging and mastoidectomy indicated. He agreed that in older children the risk of waiting was greater than the risk of early simple mastoid operation.

Dr. SIDNEY V. HAAS said this was a most interesting subject because of the difference of opinion of the pediatricians on the one hand and the otologists on the other. The question arose as to how common real operative mastoiditis was; it was in reality a relatively rare condition, when one considered the number of cases of acute middle ear disease that the average pediatrician saw, and how few required mastoid operation, although mastoid symptoms were present at some time, it must be that cases requiring operation at once were fairly uncommon. It was unnecessary to be frightened by early symptoms. Early operative procedures were often resorted to quite unnecessarily. There are, of course, cases of fulminating mastoiditis just as there are cases of fulminating appendicitis, and excepting in these, urgency in operation rarely exists. There is in most departments of surgery a tendency to wait until the acute inflammation subsides before resorting to operative interference, and this should hold true in the subject under discussion. Mastoiditis may be primary, and there were cases of jugular and sinus thrombosis which gave no otological symptoms and required the pediatrician or the internest to make the diagnosis. Dr. Haas stated that he had had cases in which there had been a delay of six, eight, and ten weeks because the otologist could not find sufficient indications for operating, and these cases with late mastoid operation, ligation of the jugular, and emptying of the sinus were of excellent prognosis.

Dr. WILLIAM A. SCRUTON stated that Dr. Kopetzky had brought to their attention some very important material and those who had taken part in the discussion had added to it. Dr. Scruton said he was an otologist and his viewpoint was frequently at variance with that of the pediatrician, who generally showed a tendency to procrastinate concerning operation for mastoiditis. Unfortunately the diagnosis of mastoiditis and the indications for operation could not be prescribed in the text books with sufficient definiteness, except for the typical case, on account of wide variation; for instance, a very badly involved mastoid might be present and yet the cardinal symptoms of tenderness and temperature might be absent. Concerning septic sinus thrombosis, one of the other speakers stated that the pediatrician found it necessary to make the diagnosis for the otologist. This was the extravagant statement of an individual, and certainly could not be accepted generally. In the matter of myringotomy it was his opinion that one only was necessary as a general rule. If the case did not progress well, there were probably granulations blocking off the aditus, and additional myringotomy would be of no avail. Only men with considerable experience should attempt myringotomy, on account of certain dangers. Paracentesis in the bulging area was quite safe for the inexperienced.

Dr. JAMES G. CALLISON stated that he had just published a report on five and one-half years' experience with mastoiditis and middle ear disease in children. He was quite frequently called in consultation and one of his greatest pleasures was to see the smart young pediatrician who had an elaborate speculum look into the ears. In the older days the general practitioner or the pediatrician might slip by the ear but the younger men were pretty well posted. When we saw thirty thousand men fail to pass their examination and unable to do duty to the nation because of acute suppurative otitis media which had gone on to chronic mastoiditis, it was time to awaken to the importance of this subject. Dr. Kopetzky had shown the slides as they occurred in life as well as at post mortem.

Dr. WALTER LESTER CARR endorsed the opinion of two of the speakers on the question of reincision in cases of otitis media. In his association with an institution for ear diseases he was impressed with the advantages of early operation in mastoiditis and that reincision of the drum would only delay operation. The value of *x*-ray pictures was important. Although the mastoid cells were not fully developed in babies he recently had had a case on his service where there was a positive blood culture and the baby died with a general infection, which on autopsy was found to come from the mastoid. In 200 recent mastoid operations he had learned that 1 per cent could have been delayed, which he thought favorable for any type of operation. With reference to sinus thrombosis, as mentioned by the reader of the paper, the leucocyte counts in five recent cases were 18,000; 10,000; 13,000; 8,000; and 8,000. One gave a positive blood culture and one gave a culture after operation. Credit was due to the otologists and he felt that pediatricians should work in cooperation with them.

Dr. KOPETZKY stated that every one was entitled to his own opinion when that opinion was backed by pathological and anatomical facts, but when an opinion was based simply on a man's observation, and the observation was limited, astigmatic, or otherwise open to criticism, it might be questioned. Dr. Koplik was right for the pathology and the anatomical conditions afforded a basis for his contention. The infant mastoid was simply a cell. Babies had empyema of the mastoid antrum; they had no other mastoid cells, or if there were a few cells they lay low and in that position only. The position of the adult antrum was above the middle ear. In the infant, the external auditory canal was all that covered the antrum, and incision was in the natural place of drainage and one might successfully drain the infant ear in that way. The embryonic tissue was in the process of resolution and if there was scar tissue it would be absorbed and the changes were only temporary. Those children did not get periosteal involvement and intracranial complications. The other cases of which Dr. Koplik spoke had also a pathological basis. In addition to having no temperature, in many cases they had no pain. They were painless because there was no mechanical pressure. The factor which stopped this process was the removal of stagnating pus. In those that had a profuse discharge from the middle ear pus also came from the tympanic cavity and the cells might be all broken down but the periosteum did not become involved and hence there was no pain and no temperature.

Zinc and Fecundation.—The vulgar have been known to speak of the testicular fluid as "lead," but Bertrand and Vladesco actually claim that zinc plays an important role in all vital processes in vertebrate animals and notably in fecundation. This conclusion is based wholly on experiment. Their paper was read before the Academy of Sciences in July last.—*La Presse Médicale.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June, 1921.

(*Continued from page* 835.)

HISTOLOGY

1. Describe the methods of bone development.
2. Describe the structure of cardiac muscle.
3. What are Brunner's glands, and where do they occur?
4. Describe a non-medullated nerve fiber, and tell where they occur.

PATHOLOGY

5. What are the varieties of leucocytes and what pathological forms do they show?
6. What are the forms of parenchymatous nephritis and what is their histology?
7. What is acidosis and what are its evidences?
8. Define cretinism and distinguish it from myxedema.

BACTERIOLOGY

9. What are the most common intestinal parasites which may be found in man?
10. What are the three principle varieties of *Taenia?* Describe the *Taenia suginata.*

PRACTICE OF MEDICINE

1. Describe five modern instruments of precision available in diagnosis.
2. Describe the eruption of (1) measles, (2) scarlatina, (3) varicella, (4) variola.
3. Differentiate (1) hematemesis, (2) hematuria, (3) hemophilia, (4) hemoptysis.
4. What, how much and how often would you feed a three months old bottle-fed infant?
5. Describe the *x*-ray. What are its uses, its dangers, and how can the latter be avoided?
6. Give names and causes of murmurs heard at the apex of the heart; also the ones heard at the base.
7. Describe ascites and name three chronic diseases of the liver in which it is absent.
8. Name five diseases and give reasons therefor, in which the ophthalmoscope is an important aid in diagnosis.
9. What are the physical signs of a cavity of the lung (1) with elastic walls; (2) communicating with the bronchial tubes?
10. What is the difference in the length of time between inspiration and expiration and the significance of variations therefrom?

ANSWERS.

HISTOLOGY.

1. *Development of Bone.*—"The development of bone is either intramembranous or endochondral. In the latter a cartilage stage intervenes, otherwise the history in each case is the same. A synopsis of endochondral development is as follows: (1) A solid shaft of hyaline cartilage, non-vascular and without any marrow cavity. (2) In the center of this shaft the cartilage cells enlarge, their lacunæ enlarge and coalesce, particularly along lines extending toward the ends of the bone. The rosette produced by this excavation is called the primary areola of Sharpey. (3) Lime salts are deposited in the thin walls of these spaces, making calcified cartilage. (4) Osteogenetic cells and blood vessels from the periosteum enter the cartilage spaces. The cartilage cells disappear with this invasion and the excavation, begun by the cartilage cells, is further enlarged by the bone cells. The excavated areas are now called the secondary areolæ of Sharpey, the cavities having a rich blood supply quite in contrast with the primary areolæ. The marrow cavity is excavated and the shaft becomes longitudinally porous. Endochondral bone, therefore, develops *in* cartilage, not *from* cartilage. (5) Osteogenetic cells attach themselves to the wall of these enlarged Haversian canals and become enclosed in lime deposits, forming thus the outer lamellæ and outer row of bone cells of each Haversian system. Cells with lamellæ are added centripetally to this outer row and thus ultimately complete the Haversian system, leaving a small central canal containing vessels and a nerve. Ossification begins in the center of the cartilage shaft and proceeds gradually toward each end, so that all the above changes occur at one and the same time. After birth these changes go on at the ends of the bone, so long as it keeps growing. During this period the bone is made thicker by deposits from the periosteum forming the circumferential lamellæ of bony shafts. These lamellæ are added without the intervention of a cartilage stage and therefore represent intramembranous development."—(Hill's *Histology.*)

2. *Structure of Cardiac Muscle.*—"The walls of the heart consist mainly of peculiar striped muscle, the myocardium, which is enclosed between the visceral layer of the pericardium, or epicardium, externally, and the endocardium internally. The muscular fibres differ from those of ordinary voluntary striped muscle in several ways: they are shorter, many of them being oblong cells with forked extremities which are closely cemented to similar processes of adjacent cells; they form a reticulum, and the nuclei lie in the centres of the cells. Moreover, in some of the lower mammals, in the young child up to the end of the first year, and occasionally in the human adult also, still more peculiar fibres, the fibres of Purkinje, are found immediately beneath the sub-endocardial tissue. These are large cells which unite with each other at their extremities; their central portions consist of granular protoplasm, in which sometimes one, but more frequently two nuclei are embedded, and the peripheral portion of each cell is transversely striated. These cells, in short, present in a permanent form a condition which is transitory in all other striped muscle cells."—(Cunningham's *Text-book of Anatomy.*)

3. *Brunner's Glands.*—"The submucosa of the dudoenum differs from that of the rest of the small intestine, in that it contains, especially in the upper half of the duodenum, the glands of Brunner (glandulæ duodenales). These are small acinotubular glands, closely resembling the pyloric glands of the stomach, which lie in the submucous coat, and send their ducts through the muscularis mucosæ to open on the surface between Lieberkühn's glands, or sometimes into these glands themselves. They can be exposed by removing the peritoneal and muscular coats, and also some of the submucosa, when they appear as little round or flattened masses of a reddish gray color, varying in size from 1/50th to 1/12th of an inch in diameter (·5 to 2·0 mm.). They form an almost continuous layer as far as the opening of the bile duct; beyond this they diminish progressively, and completely disappear near the duodeno-jejunal flexure."—(Cunningham's *Text-book of Anatomy.*)

4. *Non-medullated Nerve Fibres:* "Most of the fibres of the sympathetic system, and some of the cerebro-spinal, consist of the gray or gelatinous nerve fibres (*fibres of Remak*). Each of these consists of an axis-cylinder to which nuclei are applied at intervals. These nuclei are believed to be in connection with a delicate sheath corresponding with the neurolemma of the medullated nerve fibre. In external appearance the non-medullated nerve fibres are semitransparent and gray or yellowish gray. The individual fibres vary in size, generally averaging about half the size of the medullated fibres."—(Gray's *Anatomy.*)

PATHOLOGY.

5. *Varieties of leucocytes:* Lymphocytes, large mononuclear leucocytes, transitional leucocytes, polynuclear leucocytes, eosinophiles and basophiles.

Pathological forms: Myelocytes, large lymphocytes, plasma cells, and myeloblasts.

6. *The forms of parenchymatous nephritis*, are: Acute, and chronic.

In acute parenchymatous nephritis, the "kidneys are generally swollen, engorged, more vascular, and of red color; in the second stage the organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles, and fibrin. The capsule is easily detached, and is more opaque than normal. If the termination is favorable the swelling lessens, the vascularity diminishes, and the

tubules gradually return to their normal condition."—(Hughes' *Practice of Medicine.*)

In chronic parenchymatous nephritis, the "kidney is large, often twice its natural size, smooth, and white or yellowish white in color. The capsule is nowhere adherent to the organ. Upon section, considerable tumefaction of the cortical substance and rarity of vascular striæ are recognized. The medullary substance shows no appreciable alteration, its color being normal. The convoluted tubes are irregularly dilated and thickened, and filled with broken-down granulated epithelium and fibrinous casts. In pronounced cases there is fatty degeneration of the tubular epithelium. The intertubular matrix is greatly thickened—a change due to hyperplasia of the connective-tissue elements, to the migration of the white corpuscles and their subsequent multiplication and fatty transformation, and to a quantity of fluid exudation, the product of the increased pressure in the veins. As the affection progresses the connective tissue tends to undergo contraction, and the organ becomes pale and reduced in size, the capsule becomes more or less adherent, and the surface of the kidney becomes uneven. During this contracting stage small hemorrhages may appear, scattered throughout the cortex."—(Hughes' *Practice of Medicine.*)

7. *Acidosis* denotes a decrease in the fixed bases of the blood and other tissues of the body, or a *relative* increase in the acid ions. The alkalinity of the blood is decreased; but it is never acid.

Evidences of acidosis, are: Increase in the respiration rate; lowered carbon dioxide tension in the alveolar air; lowered CO_2 content of the blood; decreased alkalinity of the blood; increased acidity of the urine, with excess of ammonia; sometimes, a fruity odor on the breath.

8. *Cretinism* is a congenital form of myxedema.

In *myxedema:* "The disease is of slow onset. When it is fully developed the patient presents a heavy, stolid countenance. The face is broadened, the lips and tongue thick, and there is a diffuse red flush upon the cheeks, contrasting with the yellowish pallor of the rest of the face. The hair is scanty, coarse, and brittle. The teeth become carious, and the speech is heavy, slow, and thick (leathery voice). There is great intolerance of cold. The skin is enormously thickened, *dry*, and often scaly, but does not pit on pressure. The hands and feet are broad and spade-like, and the gait is clumsy. The temperature is always subnormal. The menses are irregular, and there is often a tendency to hæmorrhages. The bowels are constipated. The mind is slow and dull, and later the mental condition may become very grave; hallucinations or delusions leading to dementia or suicidal tendencies may appear. It must not be forgotten that often toward the end albuminuria may occur, and the skin may pit on pressure. Glycosuria is an occasional symptom."—(Wheeler and Jack's *Handbook of Medicine.*)

In *cretinism:* "As regards the subcutaneous infiltration, supraclavicular swellings, and mental defects, the condition resembles an exaggerated form of myxœdema. No disease presents more strikingly characteristic features. The child is dwarfed or stunted in growth; the face is very ugly, moon-shaped, and the cheeks hang in pendulous folds; the tongue is too large for the mouth; and the voice is harsh or squeaky. The hair is coarse, except over the swelling between the scapulæ, which are covered by a soft down-like hair. The belly is very prominent and pendulous; umbilical and inguinal herniæ are common. The gait is clumsy, and of a waddling type. The sexual organs are rarely developed, though in female children the menses may appear once or twice; but sexual desire is never excited, even in those cases that live to adult age. Cretins are usually incapable of being taught reading or writing, and their vocabulary is always limited. They are sometimes peevish and cross, but the majority are placid and affectionate. In untreated cases death usually occurs during childhood, but a few cases reach adult life, without, however, advancing at all in intelligence."—(Wheeler and Jack's *Handbook of Medicine.*)

BACTERIOLOGY.

9. *The most common intestinal parasites, found in man* are: Tæniæ, or tapeworms; Nematodes, or round worms (trichina spiralis, ascaris lumbricoides, oxyuris vermicularis, ankylostomum duodenale; and Trematoda.

10. *The three principal varieties of Tænia* are: Tænia solium, Tænia mediocanellata, and Tænia echinococcus. The *Tænia saginata* (or *mediocanellata*) is the commonest type of tapeworm; its length may be from 15 to 20 feet; its head has four suckers and no hooklets; its body is provided with many hundreds of proglottides, the size of each being about 16 by 8 millimeters. The intermediate hosts are cattle.

PRACTICE OF MEDICINE.

1. FIVE MODERN INSTRUMENTS OF PRECISION:

(1) The *spectroscope* is an instrument for studying the composition of light by the formation of a spectrum. It consists, essentially, of a slit with parallel edges, a biconvex lens, a prism, and a telescope.

Use of spectroscope in medicine.—For the detection of blood stains on clothing, implements, etc.; for examination of the blood in cases of suspected poisoning by carbon monoxide and (other) poisonous gases; to detect blood, bile pigments and their decomposition products in urine, and pathological fluids.

(2) The *ophthalmoscope* is an instrument for examining the interior of the eye by light.

It is used to examine the fundus of the eye, the sclerotic, choroid, retina, optic nerve, vessels of the retina; for the detection of optic neuritis, retinitis and hemorrhages, embolism of the central artery of the retina. It is an aid to diagnosis in various injuries of the head, and spinal cord, in nephritis, diabetes, pernicious anemia, syphilis, tuberculosis, alcoholism, lead poisoning, and other diseases.

(3) The *laryngoscope* is an instrument for examining the interior of the larynx; it is, essentially, a combination of two mirrors by which a view of the larynx is obtained. The vocal cords, epiglottis, cartilages, base of the tongue, and lower parts of the pharynx may be inspected by its use; changes in the color, form, mobility, and functional activity of these parts may be observed.

(4) *The sphygmanometer* (for blood pressure).

"The portable instrument of Janeway is accurate and practical because of its broad arm piece, which excludes the errors (high readings) inherent in the narrow compression bands when applied to unusually fat or muscular arms, and because of its accurate regulation of pressure by stopcock. *Technique:* The hollow armlet applied midway between shoulder and elbow is inflated by the hand bulb until the radial pulse is lost, then by the outlet thumbscrew the pressure is lowered until the pulse return is just perceptible. As the pressure is equal in all parts of the closed system, the height of the mercury column in the manometer tube is an exact index, and the reading represents the 'maximum' or 'systolic' pressure. 'Diastolic' or 'minimum' pressure is determined by noting for ten or twelve pulsations the increasing amplitude of the pulse wave registered by the mercury column as the pressure is reduced in 5-mm. series. The point causing maximum excursion is the index of diastolic pressure. Below that is a limited pressure area of equal amplitudes. The 'mean' pressure represents the average of systolic and diastolic readings. Diastolic readings run about 25 to 40 below systolic, and in low tension vary 50 to 80, and in regurgitation up to 100 mm. A loose band or a rapid or excessively small pulse makes diastolic pressure determination impossible, and in every case the arm band should be closely adjusted, the arm supported at the heart level and the same position taken for a series of tests. The limit of error in calcareous arteries is but 5 to 10 mm., and is negligible or easily estimated. The same figures represent the difference between females and <males and the standing> and sitting posture. In normal pressure four factors are concerned, viz., the initial heart energy, peripheral resistance, blood volume, and the elasticity of the vessels. The normal readings, according to Janeway, are: For young adults, 100 to 130; older adults, 100 to 145; children, 90 to 110; infants under two years, 75 to 90. Excitement may cause a rise of 40 mm., and concentrated physical effort a slight increase."—(Greene's *Diagnosis.*)

(5) *Dare's Hemoglobinometer:* "A circular disc of tinted glass, representing variations in blood coloring matter of a known degree, is brought into direct con-

trast by transmitted candle light with a film of the fresh whole blood drawn by capillary attraction between two glass plates, one transparent, the other translucent and white. A detachable observation tube and a circular shield protect the eyes from extraneous light, and the percentage of hemoglobin may be read directly from the scale. The instrument may be used in daylight if pointed at some dark object, and its readings are not affected by an excess of leucocytes."—(Greene's *Diagnosis.*)

2. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles: Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

Smallpox: The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. Period of incubation is from eight to fourteen days.

Chickenpox: The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. The period of incubation is from four to fourteen days.

3. *Hematemesis* is the vomiting of blood; the blood comes from the stomach.

Hematuria is the condition in which blood is voided in the urine.

Hemophilia is the condition in which a person has a tendency to bleed freely on the smallest injury; the coagulability of the blood is lessened.

Hemoptysis is the spitting of blood.

The only two of these conditions which require differentiation are hematemesis and hemoptysis.

Hematemesis.	Hemoptysis.
1. Previous history of gastric, hepatic, or splenic disease.	1. Previous history of pulmonary troubles.
2. Blood is vomited.	2. Blood is coughed up.
3. Blood is dark colored and not frothy.	3. Blood is frothy and bright red.
4. Blood may be mixed with food.	4. Blood may be mixed sputa.
5. Giddiness or faintness usually precedes vomiting.	5. Sensation of tickling in the throat usually precedes.
6. Nausea and weight in epigastrium.	6. Dyspnea and pains in the chest.
7. Often followed by melena (black, tarry stools).	7. Is not usually succeeded by melena.

4. *For three months' old bottle-fed baby:* Milk, six tablespoonfuls; barleywater, six tablespoonfuls; sugar, two teaspoonfuls.

Six such feedings in the twenty-four hours.—(From Chapin and Pisek's *Diseases of Children*).

5. "The *x-rays* are invisible; cannot be deflected, refracted, or concentrated; are not influenced by the magnet, and produce none of the ordinarily recognized effects of heat. The rays cannot be polarized, travel with the velocity of light, and cause fluorescence in certain substanes, notably in the tungstate of calcium, platocyanid of barium, and the platocyanid of potassium. They have a marvellous power of penetration. . . . The real nature of the rays remains unknown. They resemble the ultraviolet and Becquerel rays in their action on a charged electroscope and in producing fluorescence in certain substances, but the latter have not the penetrating power of the former."

Uses: "In fractures the rays enable us to determine the nature of the injury, the amount of splintering, the existence of impaction, the question whether or not the fragments are in contact or can be brought in contact, the direction of the line of fracture, the variety of deformity, the existence of more than one fracture, the presence of epiphyseal separation or dislocation alone or with a fracture, the existence of an ununited fracture, the presence of callus, and if the splints are holding the fragments in apposition." . . . The relations of parts can be determined; diseases, cysts, tumors and other pathologial conditions of bone can be recognized; conditions about a joint, arthritis deformans, ossifying bursitis, foreign substances within the joints, the character of deformity or defect can be determined; intrathoracic conditions can be recognized, such as thickened pleura, extensive effusion, cavity formation, consolidation; variations in the size, shape and position of the heart; aneurysm; dilated aorta; enlarged glands; constriction, dilatation, diverticulum, and tumors of esophagus; size, shape, position, motor activity, contraction, tumors, stenosis of stomach; obstruction, ptosis and dilatation of intestine; position of kidneys, renal calculus; ureteral calculus or kinks; vesical calculus; foreign bodies in any part of the body. The *x*-rays are also used in the treatment of various diseased conditions.

Dangers vary "from falling out of hair or slight irritation of skin to the production of sterility, extensive sloughing or even chronic non-healing and painful ulcers, cancer, and death."

"Unnecessary exposure to *x*-rays is to be avoided. The operator should remain as far away from the excited tube as possible, and have between it and him a lead screen no less than one-quarter of an inch in thickness and of dimensions sufficient to protect his entire person. The patient is to be protected from undue irradiation by means of lead-glass or lead-covered tube-holders and lead diaphragms. In treatment of lesions beneath the skin some form of filter should be used over the exposed area."—(From DaCosta's *Modern Surgery*).

6. (1) A systolic murmur, soft and blowing, heard best at the apex, and transmitted to the left axilla and toward the angle of the left scapula, indicates mitral regurgitation. (2) A presystolic murmur, harsh and rough, heard best very near the apex, and not transmitted, denotes mitral stenosis. (3) A diastolic murmur, soft, heard best in the second right intercostal space, and transmitted down the sternum or toward the apex, denotes aortic regurgitation. (4) A systolic murmur, harsh, heard best in the second right intercostal space, and transmitted into the carotids, denotes aortic stenosis. (5) A diastolic murmur, heard best in the second left intercostal space, denotes pulmonary regurgitation. (6) A systolic murmur, heard best in the second left intercostal space, and not transmitted to the large vessels of the neck, denotes pulmonary stenosis. (7) A murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a hemic or functional murmur, and denotes as a rule an impoverished condition of the blood.

7. *Ascites* is a collection of serous fluid in the peritoneal cavity.

The *causes* are: Portal obstruction, chronic inflammation of the peritoneum, abdominal tumors, cardiac disease, Bright's disease, chronic emphysema, anemia, cirrhosis of the liver.

Symptoms, etc.: Generally of gradual onset; abdominal distention, sense of weight and fulness; dyspnea; gastrointestinal disturbances; lineæ albicantes, presence of fluid may be detected by palpation, percussion or aspiration. If due to heart or lung disease, ascites will occur elsewhere, and the legs are generally affected first; in hepatic disorders the abdominal distention is marked and appears early; in renal disease, the abdominal fluid is generally small in amount.

8. *Five diseases in which the ophthalmoscope may be an aid in diagnosis:* (1) *Optic neuritis.* "Instead of the pale pink, clearly defined, disc, we may note that the papilla is swollen and hyperæmic, the margins hazy or woolly, the central vein increased in size, while the central artery may be of normal size or contracted."

(2) *Optic atrophy.* "Instead of a swollen hyperæmic papilla, we may find the disc pale and hollowed on the surface ("cupped"), the vessels shrunken, and often outlined by two white lines representing their thickened coats."

(3) *Retinitis.* "There may be a diffuse cloudiness of the fundus, especially of its central regions. The papilla may be congested, swollen, and indistinctly outlined; the retinal veins may be engorged; bright or dark red hemorrhagic patches and white exudations and degenerations may be observed."

(4) *Cataract.* "The fundus may be invisible owing to opacity of the lens; or the opacity may be in striæ, flocculi, or dots. Light thrown obliquely on the lens will show up the opacity better than the transmitted light from the ophthalmoscope."

(5) *Tubercle* "may be seen as one or more round, yellowish spots in the choroid, usually near the disc, occurring in the later stages of miliary tuberculosis."—(From McKisack's *Dictionary of Medical Diagnosis.*)

9. Signs of cavity of the lung:— "(*a*) When there is not much thickening of the pleura or condensation of the surrounding lung-tissue, the percussion sound may be full and clear, resembling the normal note. More commonly there is defective resonance or a tympanitic quality which may at times be purely amphoric. The pitch of the percussion note changes over a cavity when the mouth is opened or closed (Wintrich's sign), or it may be brought out more clearly on change of position. The cracked-pot sound is obtainable only over tolerably large cavities with thin walls. It is best elicited by a firm, quick stroke, the patient at the time having the mouth open. In those rare instances of almost total excavation of one lung the percussion note may be amphoric in quality. (*b*) On auscultation the so-called cavernous sounds are heard: (1) Various grades of modified breathing—blowing or tubular, cavernous or amphoric. There may be a curiously sharp hissing sound, as if the air was passing from a narrow opening into a wide space. In very large cavities both inspiration and expiration may be typically amphoric. (2) There are coarse bubbling râles which have a resonant quality, and on coughing may have a metallic or ringing character. On coughing they are often loud and gurgling. In very large thin-walled cavities, and more rarely in medium-sized cavities, surrounded by recent consolidation, the râles may have a distinctly amphoric echo, simulating those of pneumothorax. There are dry cavities in which no râles are heard. (3) The vocal resonance is greatly intensified, and whispered pectoriloquy is clearly heard. In large apical cavities the heart-sounds are well heard, and occasionally there may be an intense systolic murmur, probably always transmitted to, and not produced, as has been supposed, in the cavity itself. In large excavations of the left apex the heart impulse may cause gurgling sounds or clicks synchronous with the systole. They may even be loud enough to be heard at a little distance from the chest wall. A large cavity with smooth walls and thin fluid contents may give the succussion sound when the trunk is abruptly shaken, and even the coin sound may be obtained."—(Osler's *Practice of Medicine.*)

10. "The *interval between inspiration and expiration may be prolonged,* instead of these two sounds closely succeeding each other. When this occurs the inspiratory sound may be shortened, or the expiratory sound may be delayed in its commencement. If the inspiratory sound is shortened, it is the result of consolidation of the lungs; if the expiratory sound is delayed, it is the result of lessened elasticity of the lung-structure, and is most commonly associated with emphysema."—(Hughes' *Practice of Medicine.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	S. W. Welch, Montgomery	Montgomery	Jan. 10
Arizona*	A. [illegible], 207 [illegible] Building, Phoenix	Phoenix	Jan. 3
Arkansas	T. [illegible], Brinkley	Little Rock	
California	C. B. Pinkham, Sacramento	Los Angeles	Feb. 13
Colorado	David A. Strickler, Empire Building, Denver	Denver	Jan. 3
Connecticut*	R. L. Rowley, Hartford	Hartford	
Delaware	H. W. Briggs, Wilmington	Wilmington	Dec. 13
Dist. of Col'bia	E. P. Copeland, Washington	Washington	Jan. 10
Florida*	W. M. Rowlett, Tampa	Tampa	June 12
Georgia	C. T. Nolan, Marietta	Atlanta	
Idaho*	L. T. Hansen, Wallace	Boise	
Illinois	F. C. Dodds, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Iowa City	
Kansas	A. S. Ross, Sabetha	Topeka	Feb. 14
Kentucky	A. T. McCormack, Louisville	Louisville	Dec. 6
Louisiana	E. W. Mahler, New Orleans	New Orleans	
Maine	F. W. Searle, Portland	Portland	
Maryland	J. M. P. [illegible], Hagerstown	Baltimore	Dec. 14
Massachusetts*	W. L. Bowers, 1 Beacon St., Boston	Boston	
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor	June 13
Minnesota	T. M. Davitt, St. Paul	Minneapolis	
Mississippi	J. D. [illegible], Jackson	Jackson	
Missouri	C. H. [illegible], Jefferson City	[illegible]	
Montana*	S. A. Cooney, Helena	Helena	April 4
Nebraska	H. H. Antles, Lincoln	Lincoln	Nov.
Nevada	S. L. Lee, Carson City	Carson City	
N. Hampshire	C. D. [illegible], Concord	Concord	
New Jersey	A. W. [illegible], Trenton	Trenton	June 20
New Mexico	R. [illegible], E. Las Vegas	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Jan 23.
No. Carolina	K. P. B. Bonner, Morehead City		June
No. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Jan. 3
Ohio	H. M. [illegible], Columbus	Columbus	Dec.
Oklahoma	[illegible], Shawnee	Oklahoma City	Jan. 10
Oregon	[illegible] Williams, Portland	Portland	Jan. 2
Pennsylvania	N. [illegible], Harrisburg	Philadelphia	Jan. 10
Rhode Island	[illegible], Providence	Providence	
So. Carolina	A. E. [illegible], Columbia	Columbia	
So. Dakota	H. [illegible], Bonesteel	Pierre	Jan. 17
Tennessee	A. B. DeLoach, Memphis	Memphis, Nashville, Knoxville	
Texas	T. J. Crowe, Dallas	Dallas	
Utah	[illegible], Salt Lake City	Salt Lake City	
Vermont	W. S. [illegible]	Burlington	Feb. 14
Virginia	J. W. Preston, Roanoke	Richmond	Dec. 13
Washington	[illegible], Olympia	Olympia	Jan. 10
W. Virginia	W. T. [illegible], Charleston	Charleston	Jan. 19
Wisconsin	J. M. [illegible], Ashland	Milwaukee	
Wyoming	J. D. [illegible], Cheyenne	Cheyenne	Oct.
National Board	J. S. [illegible], 101 Medical Arts Building, Philadelphia		

*No reciprocity recognized by these States.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

SYPHILIS AND ITS TREATMENT. By Wilfrid S. Fox. 195 pages with 53 illustrations. Price $9.00. Published by Paul B. Hoeber, New York.

THE HEART—OLD AND NEW VIEWS. By H. L. FLINT. 177 pages with illustrations. Price $4.00. Published by Paul B. Hoeber, New York.

AUTOEROTIC PHENOMENA IN ADOLESCENCE. By K. MENZIES 100 pages. Price $1.50. Published by Paul B. Hoeber, New York.

WHAT TO DO IN CASES OF POISONING. By WILLIAM MURRELL. 273 pages. Price $1.25. Published by Paul B. Hoeber, New York.

THE MORPHOLOGIC ASPECT OF INTELLIGENCE. By SANTE NACCARATI. 44 pages. Published by G. E. Stechert & Co., New York.

THE MEDICAL CLINICS OF NORTH AMERICA, July, 1921. 273 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

THE SURGICAL CLINICS OF NORTH AMERICA, August, 1921. 297 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

LA FUNCION DE LOS CUERPOS AMARILLOS. By Armando F. QUINTERNO. 188 pages. Published by Luis L. Gotelli, Buenos Aires.

NUT GROWING. By ROBERT T. MORRIS. 236 pages with illustrations. Price, $2.50. Published by The Macmillan Company, New York.

Medical History.

DR. ELIZABETH BLACKWELL*

HER CHARACTER AND PERSONALITY.

By SARAH J. McNUTT, M.D.,

NEW YORK.

WHEN in 1873 I entered the College of the New York Infirmary for Women and Children, four years had passed since Dr. Elizabeth Blackwell had left the institution to make her home in London, yet the whole atmosphere of the College and Hospital was still surcharged with her wonderful personality. This influence clung to me during my College and Hospital experiences and has been an inspiration through my entire professional life. So strong was this feeling that when I went to Europe in 1896 one of my strongest desires was to meet the woman who had so greatly helped in shaping my life, and therefore my first pilgrimage was to Hastings-by-the-Sea, the summer home of Dr. Elizabeth Blackwell.

I found her, small and gray haired, but one of the most vivacious women I had ever met. So young looking and appearing, one could never

Elizabeth Blackwell.

think of her as old. She was charming in manner, likeable, and above all perfectly human. Her bright, intelligent eyes and smiling face showed her delight at seeing one so recently from New York who could tell her directly of the people she knew and the work in which she was so deeply interested. Every moment was spent in answering her rapid pointed questions.

I left her presence feeling that I had received a benediction. Never again would I need to wonder why she had been such a power in work for women. My brief visit had shown me that, once convinced that a cause was right and just, and a need in the world, she would with masterful persistency, keep on to the end, kindly and untiringly until victory was won. She could see clearly the vision through intervening clouds and forecast the success ahead!

Elizabeth Blackwell was born in England in 1821 where the first eleven years of her life were spent. She was the third daughter in a large family of nine brothers and sisters who grew up to adult life, bound together by strong ties of natural affection. She had the advantage of the give and take, which always comes in large families, and does so much to develop character.

It was a healthy, out-of-doors home life passed chiefly in the then small town of Bristol. The children were taught at home by governesses, and all developed such a passion for books that no gift was so greatly prized as a new book, and all their pocket money was spent in adding to their bookish treasure.

In 1832 a great change took place when her father emigrated to the United States with his large and increasing family. The trip took seven weeks. The following six years were spent by Elizabeth in New York City, as a day pupil in an excellent school. Here the family first met William Lloyd Garrison, who became a life long friend, and whose daughter, Mrs. Henry Villard, is still one of the Infirmary Trustees.

In 1838, when Elizabeth was seventeen years old, her father removed to Cincinnati, Ohio, and within a few months after their arrival he died suddenly, leaving the widow and nine children unprovided for.

The family ties were very closely knit among the Blackwells, centering in the father, whose warm affection, sense of fun, and talent for rhyming represented a beneficent providence to his adoring children and we can well understand what his passing on meant to them. In reply to a petition that a small telescope, which the children had been using from the garret window, might be moved to a parapet wall on the roof for a more extended view, a disappointing reply was received, but so full of fun that they accepted it meekly and enjoyed the denial.

Anna, Bessie, and Polly:—
Your request is mere folly
The leads are too high
For those who can't fly.
If I let you go there
I suppose your next prayer
Will be for a hop
To the chimney top!

So I charge you three misses
Not to show your phizzes
On parapet wall or chimney so tall,
But to keep on the earth,
The place of your birth.
"Even so," says Papa, "Amen," says Mama,
"Be it so," says Aunt Bar.

Of the strenuous graduating days a brother writes: "Our Sis came off with flying colors and the reputation of being altogether the leader of the class. All the class agreed that our Elib was a great girl and I found that she was a universal favorite with both professors and students." One can hardly imagine a sweeter family atmosphere. The three elder sisters soon established a Day and Boarding School for Young Ladies, and the eldest brother obtained a position in the court house. Dr. Blackwell, in writing of herself at that time said: "Notwithstanding our close and arduous teaching occupation, we eagerly shared in the active awakening of thought that marked the times, such as political interests and the higher education of women."

In 1842 the elder brothers, entering into business, the boarding school was given up and Elizabeth

*Read at a meeting of the Alumni Association of the College of the New York Infirmary for Women and Children, March 16, 1921. Much of the material used was gained from the autobiography of Dr. Blackwell, now in the Library of the Academy of Medicine. I have quoted freely from this book.

occupied herself with private pupils. The family removed to the pleasant suburb of Walnut Hills just outside of Cincinnati, where the Lane Seminary was situated, with Prof. Stowe (husband of Harriet Beecher Stowe) as its head. This healthy place, with its intellectual resources became the home of the Blackwell family for many years. At this time Lucy Stone became the wife of Elizabeth's elder brother.

The family life was still full and active and of this period Dr. Blackwell writes: "I keenly enjoyed the home, but felt the need of a more engrossing pursuit than the study of Music, German, and Metaphysics and the ordinary interests that social life presented." It was at this time that the suggestion of studying medicine was first presented to her by an interested woman friend. This friend finally died of a painful disease. A little before her death she said to Elizabeth: "You are fond of study, have health and leisure; why not study medicine? If I could have been treated by a woman physician, my worst sufferings would have been spared me." Elizabeth at once repudiated the suggestion as an impossible one, saying, "I hated everything connected with the body, and could not bear the sight of a medical book." She resolutely tried for weeks to put aside the idea suggested by her friend but it constantly recurred to her. Of these days Dr. Blackwell writes:

Other circumstances forced upon me the necessity of devoting myself to some absorbing occupation. I became impatient of the disturbing influence exerted by the other sex. I never remember the time, from my first adoration at seven years old, of a little boy with rosy cheeks and flaxen curls, when I had not suffered more or less from the common malady, falling in love. But whenever I became sufficiently intimate with any individual, to be able to realize what a life association might mean, I shrank from the prospect, disappointed or repelled. In my journal of that time can be found the following sentence, written during an acute attack:—"I felt more determined than ever to become a physician, and thus place a strong barrier between me and all ordinary marriage. I must have something to engross my thoughts." But the struggle with natural repugnance to the medical line of life was so strong, that I hesitated to pass the Rubicon, and fought many a severe battle with myself on the subject.

As the idea still continued to gain force, however, she wrote to, and consulted with, several physicians known to her family in various parts of the country, as to the possibility of a woman becoming a doctor. The answers she received were curiously unanimous, and briefly amounted to this: the idea, though a valuable one, was impossible of execution. This verdict however, was rather an encouragement than otherwise to a young and active person who needed an absorbing occupation. She reasoned, if an idea was really a valuable one, there must be some way of realizing it. The idea of winning a doctor's degree gradually assumed the aspect of a great moral struggle, and as such possessed immense attraction for Elizabeth. This aspect of the subject was increased by a circumstance which made a very strong impression on her mind.

There was at that time, a certain Madam Restell, flourishing in New York City. This person was a noted abortionist and known all over the country. She was a woman of great ability, and defended her course in the public papers. She made a large fortune, drove a fine carriage, had a pew in a fashionable church, and though often arrested was always bailed out. She was known distinctively as a "Female Physician," a term exclusively applied at that time, to the women who carried on this vile occupation. This undoubtedly accounted in part for the ostracism shown the Drs. Elizabeth and Emily Blackwell when they commenced to practise legitimate medicine in New York City. Dr. Blackwell wrote at this time:

That the honorable term Female Physician should be exclusively applied to those women who carried on this shocking trade, seemed to me a horror. It was such an utter degradation of what might and should become a noble position for women! I made up my mind fully to undertake the Study of Medicine, if the friend who had promised to help me fulfilled her promise, and already I felt separated from the rest of womankind. But alas for promises and plans, she offered to lend me one hundred dollars when I had been told I needed three thousand dollars! A force stronger than myself, then and afterwards, seemed to lead me on, a purpose was before me which I must inevitably seek to accomplish. I knew, however insignificant my individual effort might be, that it was in a right direction and in accordance with the great providential ordering of our race. Thrown entirely upon my own resources, I decided to spend the next few years in teaching in the South to accumulate the necessary funds for future use; meanwhile doing preliminary work wherever I was situated, and could find doctors in sympathy with my aims.

In spite of these prejudices, wherever Dr. Blackwell went she made warm personal friends among the most intelligent people. To continue in her own words:

In the summer of 1847 with my carefully hoarded earnings I resolved to seek an entrance into a medical school. Philadelphia was then considered the chief seat of medical learning in America. So to Philadelphia I went and cautiously but persistently made application to the four medical colleges for admission as a regular student. I also enlisted the services of my friends in the search for an Alma-Mater. During these fruitless efforts my kindly Quaker adviser said to me: "Elizabeth, it is no use trying, thee cannot get admission to these schools. Thee must go to Paris and don masculine attire to gain the necessary knowledge. This suggestion of disguise was also made to me by some of my medical friends. But neither the advice to go to Paris, nor the suggestion of disguise tempted me for a moment. It was to my mind a moral crusade, on which I had entered, a course of justice and common sense, and it must be pursued in the light of day and with public sanction in order to accomplish its ends.

Applications for admission to the schools of Philadelphia and New York City were refused. She therefore obtained a complete list of the smaller schools of the Northern States (country schools as they were called). She sent her application for admission to twelve of the most promising, where full courses of instruction were given under able professors. The result was awaited with much anxiety. No answers came for some time, but at last to her immense relief (though not surprise, for failure never seemed possible), she received a favorable answer. Hobart College, Geneva, New York, now the medical department of Syracuse University, alone had the vision, and to it came finally the honor of conferring the first medical degree ever granted a woman on the American continent. Upon receipt of her letter, the faculty referred her matter to the students and they decided to invite the courageous applicant, and passed resolutions, a copy of which was sent to her, and reads as follows:—

At a meeting of the entire medical class of Geneva Medical College, held this day, October 20th, 1847, the following resolutions were unanimously adopted:

1. *Resolved:* That one of the radical Principles of a Republican Government is the universal education of both sexes; that to every branch of Scientific Education the door should be opened equally to all; that the application of Elizabeth Blackwell to become a member of our class meets with our entire approbation; and in extending our unanimous invitation we pledge ourselves that no conduct of ours shall cause her to regret her attendance at this institution.

2. *Resolved:* That a copy of these proceedings be signed by the Chairman and transmitted to Elizabeth Blackwell.

T. J. STRATTON, Chairman.

Dr. Stephen Smith, her loyal classmate has presented an account of their college years, so I largely omit them.

She spent the summer of 1848 studying in the hospital wards of the Great Blockly Alms House of Philadelphia. Blockly was the pioneer hospital of America to admit a woman to study in its wards. In making her application she had a letter of introduction to one of the directors.

She says:

He received me most kindly, but informed me that the Hospital was so dominated by politics that if he, as a Whig, should bring forward my application it would be inevitably opposed by the other two parties, viz., the Democrats and Native Americans. My only chance of admission lay in securing the support of each of those parties without referring in any way to the rival factions. I accordingly undertook my sole act of "lobbying." I interviewed each political leader with favorable results and then sent in a petition to the first Board meeting, when lo! a unique scene took place. All were prepared to fight in my behalf, but there was no one to fight. I was unanimously admitted, to reside in the hospital. This unanimity, I was afterwards told, was quite without precedent in the records of the institution.

During the summer of 1848 the famine fever was raging in Ireland. Multitudes of emigrants were attacked with fever while crossing the ocean, and so many were brought to Blockly that it was difficult to provide accommodation for them, many being laid on beds on the floor. But this terrible epidemic furnished an impressive object lesson, and I chose this form of typhus as the subject of my graduation thesis, studying in the midst of the poor dying sufferers. Leaving Blockly, I was conscious of the great gain in medical knowledge and worldly experience which it had afforded.

At last the day arrived, January 23, 1849, which should be a Red Letter date for all Medical Women, for then the first full medical degree was conferred upon an Anglo-Saxon Woman. The graduating exercises of the class of 1849 took place in the large Presbyterian Church in Geneva, New York, which the interest in the girl graduate crowded to the door. While the student body marched two and two from the college to the Church, Elizabeth considering it more ladylike, went to the Church on the arm of her brother and sat with him apart from the others. Her historian quaintly remarked that she was modestly but suitably garbed in a black brocade silk gown, invisible green gloves, black silk stockings, etc.

After her classmates had received their diplomas, Elizabeth was called up alone, the President rising to receive her and present her diploma. (He had remained seated while presenting the others). Her biography says, "On receiving her diploma, Elizabeth said, 'I thank you, and by the help of the Most High, it shall be the effort of my life to shed honor upon this diploma.' She then bowed, the President returned her salutation, the audience applauded, Dr. Webster, Prof. of Anatomy, rubbed his hands gleefully, and the learned counsellors and the Faculty nodded grave approbation to each other." Elizabeth says in her diary, "As I came down from the platform, I was much touched by the graduates making room for me in the front row and insisting that I sit with them for the remainder of the exercises." As the audience passed out, the Bishop of New York, Right Reverend Alonzo Potter, congratulated her on her course, to the great astonishment of the conservatives. The ladies collected in the yard as she appeared and opened their ranks to let her pass. Several spoke to her most kindly, apparently forgetting how they had maligned and ostracized her during her college course.

The admission of a woman for the first time to a complete medical education, and full equality in the privileges and the responsibilities of the profession, produced a widespread effect in America. The National Medical Association meeting in 1849 at Boston censured Hobart College for granting a degree to a woman, but on receipt of her College record her honor list and her thesis on Typhus, they acknowledged that the college was justified in granting her, her degree. Concerning this criticism on her beloved Alma Mater, she writes from Europe: "I received today a very pleasant letter from Dr. Webster (Anatomy Professor at Geneva). I was much gratified to find that their course to me has been approved by the profession in America. It would have grieved me inexpressibly if they had been condemned for the aid they had given me, and there seemed to be a decided possibility of it when I left. But he tells me, my thesis was commented on in the Report on Medicine at the National Medical Convention held in Boston, and their course in relation to me justified and approved. The thesis was received with applause. This information is quite a relief to me, for the thought would be too painful that I could injure the college friends who did so much for me."

Immediately after graduation, Dr. Blackwell went to Europe, a rare extravagance in those days, even for male students. She succeeded in visiting hospitals in London and Paris, and for some months submitted to the severe imprisonment of the great school for Midwives, La Maternité, where she gained most valuable experience in maternity work, not obtainable as well elsewhere. After two years study in Europe she returned to America in 1851. The next seven years of New York life were years of very difficult, uphill, unceasing work. She says: "I had no medical companions, the profession stood aloof, and society was distrustful of the innovation."

The utter loneliness of her life became so intolerable that she decided that she must have some personal interest to fill her heart. Just at this time, while visiting a public institution for children, a little red-haired tot left her companions and ran directly toward Dr. Blackwell, smiling and seeming absolutely confident of a welcome as she clasped the strange lady's knees with her tiny arms. Her faith found an instant answer in Dr. Blackwell's heart, and little Kittie soon took the vacant place and satisfied the innate motherhood with which few

have credited this practical woman. She soon proved so congenial that the Doctor very soon adopted her, an act which she never regretted. Was it not the "Divine Hand" that reached down and gently drew together for their mutual comfort and satisfaction, those two who so greatly needed each other, the friendless sunny hearted child and the sweetfaced, yearning hungry-eyed woman.

Dr. Elizabeth was essentially a pioneer, not only in studying for her degree but throughout her entire medical life. Of this period she writes, "I am glad I and not another have had to bear this pioneer work."

In the spring of 1852, she gave a course of lectures on the physical education of girls, something unheard of then, though common enough today. These lectures were published by George Putnam in 1852 under the title: "The Law of Life, with Special Reference to the Physical Education of Girls," by Elizabeth Blackwell, M. D. With the following dedication: "To American Women. These lectures were delivered to a class of ladies during the past Spring; the wish of the class and an earnest desire to call attention to a much neglected part of education have induced me to publish them. They are the first fruits of my medical studies. I would offer them as an earnest of future work."

The social and professional connections which resulted from these lectures gave her her first start in her practical medical life. Many of the intelligent circle to which these lectures were given belonged to the Society of Friends who have always been the warm supporters of the various institutions she founded. In the early days, her practice was largely a "Quaker" practice. Dr. Mary B. Hussy, her first baby, was the granddaughter of her staunch Quaker supporter, Stacy B. Collins. From this time also dates the friendship of Robert Haydock and Hannah, his wife, daughter of Deborah Wharton of Philadelphia, a Quaker minister of that day, Samuel B. Willetts, and others.

Being refused admittance to all the dispensaries and so deprived of their valuable practical work she decided to take the advice given in jest when work was refused in the City dispensaries to "get a dispensary of your own." So in 1853 with the aid of friends, she hired a room on Tompkins Square for a dispensary. Mrs. Cornelia Hussy, Dr. Hussy's mother, actively assisted her in arranging the room and the medicines, thus instituting the first dispensary in the world run by women physicians. A charter was obtained in 1854. From this modest beginning has grown the New York Infirmary for Women and Children.

There was, as yet, no hospital opportunity for medical women therefore in 1857 indoor, or hospital patients, were admitted to the infirmary, and a ward for twelve lying-in patients was added at that time. In 1859 the out-practice department was started, and also this same year a "sanitary visitor" was employed, who went into the homes of the poor to give simple practical instruction to the mothers in the care of their infants. In 1865, upon the urgent advice of several prominent physicians who felt, that otherwise a low grade college then attempting to secure a charter would succeed, the New York Infirmary applied for and obtained its college charter.

In 1868, Dr. Elizabeth in her opening address said "The College must be an honest and earnest attempt to give to women, the very highest education that modern Science will afford." These ideas of Dr. Blackwell in the years that followed were never lost sight of as long as the College lived. It was resolved at the first to make the quality of the instruction and the requirements for graduation equal to the best schools for men in the country.

In New York the first meeting to consider the organization of nursing for our army in the Civil War was held at the suggestion of Dr. Blackwell in the parlors of the Infirmary. This little meeting was the germ from which subsequently developed the splendid organization of the United States Sanitary Commission. This association rendered to our soldiers aid much like that which the Red Cross rendered in the World's War, and in fact it was the forerunner of our American Red Cross.

Great strides had been made in medical opportunities for women during the twenty years since Dr. Blackwell graduated. Opportunities for the highest medical education were opened to them. Boston, Philadelphia, Chicago, and New York each had a hospital which medical women controlled, and in 1869, considering her pioneer work in America ended, Dr. Blackwell decided to return to Great Britain. During all these years she had been in frequent communication with her many warm friends in England who had continuously urged her to return and assist them to secure medical opportunities for women in London and Edinburgh. Among these friends she counted Sir Philip Paget, then leading surgeon of England, Florence Nightingale, Ruskin, and many other notable people whose approbation greatly encouraged her.

After a short rest in England Dr. Blackwell entered eagerly into the pioneer work, so bravely commencing in London. The campaign against the double standard of morality had just been commenced, and in it she took an active part for the next seventeen years.

Convinced of the supreme importance of the medical profession as the great conservator of health we find her aiding in the formation of the National Health Society and seizing every opportunity to lecture to all classes. She lectured to working women on how to keep a household in health, and on the religion of health before the Sunday Lecture Society. In addition to a large and growing practice she worked in the little Dispensary which afterward became the New Hospital and London School of Medicine for Women.

A severe illness in 1873 broke up her plan of life and she went to the continent in the hopes of regaining her health. When the London School of Medicine was established she was able to return and accept the chair of Gynecology, but by the end of the term returning ill health made her realize that future residence in London must be given up. From then until she settled down permanently at Hastings, her time was divided between Southern Europe and her English home. She took a lively interest in all the vital medical and Social questions of the times. Her interest in the medical education of women never flagged. The last few years of her life were spent at Hastings, lovingly and tenderly cared for by the adopted daughter, Kittie now grown to womanhood.

Dr. Mary Putnam Jacobi has stated of the Blackwell sisters—"They did not seek wider opportunities in order to study medicine but they studied medicine in order to secure wider opportunities for all women."* Elizabeth said, "The thorough education of a class of women in medicine will exert an important influence upon the life and interests of women in general." As I have shown, it was more a sense of duty than an intense interest in the subject that led Elizabeth Blackwell to study medicine so it has been well said "Among all the pioneer group of women physicians, hers chiefly deserves to be called the record of an heroic life."

When Elizabeth Blackwell died on June 1, 1910, a great light went out.

Distinguished Jewish Physicians in Christian Rome.—Doctor Blustein, having recently made the statement that the Jews were victims of papal persecution in Rome, he is answered by Dr. Cecchetelli, who asserts that this race received better treatment in the Eternal City than in any other place in Europe. At the close of the XII and beginning of the XIII centuries there flourished in Rome Emanuel Zifroni, Jewish physician, poet, astronomer and mathematician. He is believed to have been on friendly terms with Dante and even to have suggested to him, in part at least, his great trilogy, by writing a poem of the same scope—the journey of a Jew through Hell and Heaven, accompanied by the prophet Daniel. The name of this prototype poem was "Mechabberoth." During a long interval the Popes were attended by Jewish physicians. In 1385 the Roman Senate reduced the amount of tribute payable by the Jewish community because medical men of that race had refused to charge poor people for their services. Pope Boniface IX gave a certificate or diploma to the Jewish physician Elias Sabbas and latter addressed a document of the same scope—a sort of letter of recommendation— to Angelo di Manuele. Although Pope Sixtus IV was implacable against the Marani or Spanish Jews he employed as physicians Roman Hebrews. Leo the Great, patron of Raphael and Michelangelo, held a veritable court of Jewish practitioners. The German Reuchlin wrote to Bonetto, one of the latter, asking him to use his influence over Leo to obtain some sort of concession. Many other examples are enumerated of Popes who patronized Jewish physicians. An exception was Paul IV who introduced the Ghetto into Rome, but at least a score of popes seem to have gone out of their way in extending friendly recognition of the medical members of this race.—*Il Policlinico.*

The Pharmacopœia of Nicolas Lemery.—Lemery lived in the reign of Louis XIV of France, he was familiarly known as "the great Lemery," and was a doctor of medicine and pharmacy, a chemist, and a laboratory man. He was endorsed by the Faculty of the Medical School and the King's physician. Imagine yourself in the rue Galande following a crowd of medical students. It turns into a court, at the end of which is a low placed door through which you pass to descend into a cellar lit with the glow of furnaces. Here Lemery, barely 30 years of age, is delivering a lecture on chemistry. You would naturally be much impressed. But what does he tell you? That oil of new-born pups mixed with earthworms is a sovereign remedy for sciatica. The pups and worms are boiled together in oil to obtain this drug. For gout and "vapors" the best medicine is the freshly voided urine of a cow. To stop nosebleed, hold in the armpit a dried frog (this idea he pilfered from an earlier adept). There is found in his book mention of many of the tissues or fluids of the human body. The saliva of a healthy young man taken in the fasting state is recommended for snake and mad-dog bites. A cranial bone, dried and pulverised, is the treatment for epilepsy, but it must be taken from a young, robust man, immediately after a violent death, so as to conserve the vitality of the tissues. Finger- and toenails are good emetics, earwax is good for whitlow, and so on. One reads through the list without finding a single foundation for the use of any of these substances; not once even by accident is there any connection between cause and effect. But some of these superstitions come down to our day, as the use of cobwebs for hemorrhage, wearing amber beads for infantile convulsions, and of course, the horsechestnut carried in the pocket for rheumatism.—*Le Progrès Médical.*

The Earliest Obstetrical Literature.—Josephson discusses in succession the accounts of the birth of the children of Red-dedet in the Westcar papyrus, of Esau and Jacob from the Hebrew Scriptures and of Hercules as narrated by Hesiod, Homer, and Ovid. When Red-dedet felt the first pains she received a visit from Isis and other goddesses disguised as dancers. They took the parturient woman in a room and shut themselves in with her. Isis stood in front and another behind her, while the third acted as accelerate. When Isis repeated some mystic words the child escaped into her hands, whereupon she washed it and tied the cord, placing the newborn in a special bed. One goddess foretold that it would be King, and another endowed it with health. But the mother was in reality pregnant with triplets. A second child was now born followed by the third and the ceremonies were repeated.

This myth needs an interpretation. It represents, in part, the accouchement of an Egyptian lady of quality in the Middle Dynasty. Four midwives are supposedly present. Isis, the chief midwife in the myth stands before the parturient woman (compare the Latin word *obstetrix*), pronounces the magic word which causes the delivery, washes and names the infant. Another midwife who is behind the mother is believed to sit in a chair and support her (the socalled obstetrical chair was a recognized piece of furniture among ancient and medieval peoples and was used as late as the XVIII century. The third midwife pressed on the belly and aided in expulsion. Two goddesses took no part in the confinement, one making the prophecy while the other conferred health as above stated. The explanation of the confinement comes about in part from hieroglyphs of the period. There is much more to the myth but it does not bear on midwifery.—*Upsala Läkareförenings Forhandlingar.*

*From a chapter on "Woman in Medicine" by Mary Putnam Jacobi, in "Woman's Work in America," compiled by Annie Nathan Mayer.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 22.
Whole No. 2664.

NEW YORK, NOVEMBER 26, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

X-RAY DERMATITIS.*

BY MARY L. H. ARNOLD SNOW, M.D.,
NEW YORK.

X-RAY and radium, representing the most powerful therapeutic agents possessed by the medical profession in the relief of human suffering, may also produce deleterious effects, dermatitis or sequelæ, conditions dreaded by the operator as well as the patient. Such effects may occur in any *x*-ray practice where the *x*-ray is operated by a novice or one unskilled or careless in technique. Important factors in its production are lack of adequate protective apparatus for the operator and patient; lack of or inadequate filters; the strength of the rays including their cumulative effect; the proximity of the tube, and the duration of the treatment including repetitions. Besides the factors dependable upon the operator, are the patient's susceptibility and idiosyncrasy.

Proper protective apparatus should include a "box opaque to *x*-rays," entirely enclosing the tube. "The diaphragm leaves, the lead glass in front of the screen, must also be opaque" to the *x*-ray. Test this by placing a second screen over the first which if it fluoresces shows the first screen unsafe.

Although we are usually protected from "the direct beam," scattered or "vagrant" radiation is ignored and yet it "is of the same penetration as the original beam." The human body "also scatters *x*-rays as translucent material scatters light." These scattered radiations according to Hernaman-Johnson[1] are overcome "(*a*) In the diascope by making the whole front opaque to *x*-rays; (*b*) in the couch, by a moving 'panel' and by extensive flaps of lead rubber attached to the screen." The same authority warns against the danger of true secondary radiation when "certain metal articles are worn close to the body, and then only if the precautions," noted above, "are not effectively carried out." A. E. Barclay,[2] in an article entitled "A Danger of the Coolidge Tube for Screen Work," well illustrates the radiations producing a "secondary screen image (5 per cent. of the strength of the primary image) from the anticathode," and advises when the upright screen stand is used to prevent the danger "by turning the tube upside down with the anticathode below so that its image goes upward above the primary *x*-ray shadow," or the use of an experimental hooded tube. Protective working paraphernalia, gloves, aprons, etc., are necessary essentials.

Protection is afforded the patient by exposing only the necessary part. Use proper filters of glass, leather, aluminum, lead, or copper. Some think in fluoroscopic work the use of a sole leather or aluminum screen is necessary for protection. "A new device for increasing the protection of both the patient and the roentgenologist" has been recently described by Geo. E. Pfahler,[3] M.D., consisting of opaque lead rubber—Hercules red rubber packing—forming a protective shield about the tube and "closing off the line of radiation through the opening in the tube."

The use of the ray without proper *filters* is another cause of dermatitis, particularly with heavy doses, and over-exposure, or a series of rayings. The use of aluminum or sole leather for eliminating the short rays which mostly affect the skin increases the number of exposures possible before the production of an erythema. Without filters 5 H. is usually an erythema dose, but with filters a much larger quantity of rays will not produce an erythema, the dosage depending on the thickness of the filters used, other factors being equal. Two methods[4] are commonly used: "1 6 erythema doses are given at intervals of three days until a reaction of the desired degree is gradually produced" as a "6 in. spark, 3 ma., 10 in. distance, 3 mm. aluminum filter for 2 min." The second method necessitates the operator knowing what definite dose will give the reaction when used once, when Holzknecht's chromoradiometer is used. "One H. is about a third of the amount of the *x*-ray that must be applied at one session in order to produce a visible reaction on the face; three or four H. is a full dose and would not be repeated until the reaction had developed and subsided, usually not for several weeks. Two H. repeated every two weeks maintains "a constant moderate reaction." Pfahler's[5] present technique consists of "5 milliamperes at 126,000 volts, filtered through 10 millimeters of aluminum or glass, at a focal skin distance of 30 cm. for a period of 40 to 50 min." He finds "that 40 minutes will rarely give an erythema and that 50 minutes will generally give an erythema." Glass, if of the same standard as aluminum, is preferable to aluminum. Copper may be used "½ mm. of copper being equal to 13 mm. of aluminum measured photographically" according to the same authority. Filters must not only be used, but must be of requisite thickness. Dr. Bèclerè[6] reports ulceration resulting in two cases because of insufficient thickness of filters. Witherbee and Remer[7] have shown with a 3 in. spark gap, 3 ma. 8 in. distance unfiltered with 4 min. exposure an erythema appears in about 15 days. "The hair will fall out in three and one-half weeks and will regrow completely in four months."

*Read before the National Physical Therapeutic Society, Washington, D. C., June 21, 1921.

This dose producing temporary epilation is a skin unit and is thus represented:

$$\frac{3\ (\text{spark gap}) \times 3\ (\text{ma.}) \times 4\ (\text{min.})}{D^2 = 8 \times 8} = \frac{9}{16}$$

"A 3 in. spark gap, 3 ma. 8 inches distance, unfiltered, with a 5 min. exposure, will produce an erythema in about 10 days, the hair will fall out 3 weeks afterward and will not regrow in 6 months. Bronzing of the skin occurs in 4 weeks. This represents an erythema dose, the limit of unfiltered dosage, and is thus represented:

$$\frac{3\ (\text{spark gap}) \times 3\ (\text{ma.}) \times 5\ (\text{min.})}{D^2 = 8 \times 8} = \frac{45}{64}$$

$$\frac{45}{64} \div \frac{9}{16} = 1\tfrac{1}{4}, \text{ or } 1\tfrac{1}{4} \text{ skin units} = 5\text{H}.$$

The filtered doses are similarly figured with "a separate standard or formula for one skin unit," for "each thickness of aluminum," but the divisor is the distance only, not the distance squared. The authors have made a table for varying thicknesses of aluminum filters and consider that with 3 mm. aluminum filters 2½ skin units is a filtered erythema dose.

$$\frac{5\ (\text{spark gap}) \times 9\ (\text{ma.}) \times 7.7\ (\text{min.})}{D. = 6} = 2\tfrac{1}{2} \text{ skin units} = 10\text{H}.$$

This is a formulated dose which in our experience also demands the consideration of the patient's physical condition as to powers of resistance and his susceptibility. Shearer does not agree with them, but Hirsch says that Witherbee and Remer's method is "of value only for the estimation of skin effects." I. Seth Hirsch advocates for the biological dose the "use of a practical ionization chamber (iontoquantimeter) based on biological effects." The same author[8] says "in treating by the modern method, using the heavy dosages so depth absorption will approach surface absorption as closely as possible," to still further increase the absorption quotient at the depth, the ray is filtered with the view of cutting out the softer rays. For practical purposes, however, rays filtered through 1 mm. of copper are homogeneous. Heavier filtration is now in vogue—10 mm. of aluminum, ½ mm. of copper or ½ mm. of zinc. The above methods have been mentioned because in use. Time and experience will prove their worth. In our practice the fractional dose method is employed, using 2 ma. 5 in. spark gap, 15 in. distance, 15 min. 3 times weekly, if conditions warrant, and with or without filters, according to the condition treated.

The *strength* of radiation depends on the energy of the tube and the distance. Reducing the voltage at a constant milliamperage reduces the quantity or intensity and softens the rays; whereas reducing the milliamperage at a constant voltage reduces the intensity but leaves the quality of the ray unaltered, the quantity or intensity or total energy incident on a plate varying inversely as the distance squared.

It has been thought that a low vacuum tube produced a dermatitis more quickly than a higher vacuum tube because the skin more easily absorbed the low penetrating rays, but Remer and Witherbee[8] have demonstrated experimentally that "it took just one-half the time for the same biological effect in the doubled spark gaps." Their conclusion is "that the *quality* of the ray and the absorption of those of long wave length have little to do with the biological effects in the skin. On the other hand, it seems that the factor which determines this effect is solely the *quantity* of *x*-ray reaching the skin, for it is obvious that the high spark gap produces more rays that reach the skin than the same dose with a low spark gap. When the same voltage (if quality depends on voltage) was used with filtered and unfiltered rays, the time was greatly increased to produce the identical erythemas, the filters lessening the quantity of *x*-ray reaching the skin." Diminishing the spark gap with unfiltered doses lengthens the exposure time for an unfiltered erythema dose 1¼ skin units. Diminishing the spark gap and increasing "the thickness of the filter lengthens the time for a filtered erythema dose 2½ skin units." In radiological work dosage is a very important question. How many exposures may a roentgenologist make of a certain portion of the body? How much heavier dose is a safe dose? Has the patient been radiographed before presenting himself? If so, when, how many times, and how long? These are factors for the roentgenologist, be he a radiographer or a radiotherapeutist, to consider when a patient presents himself for a radiogram or for radiotherapeutic treatment. Dr. Witherbee[10] has given us a working formula for the greatest number of exposures in a given case that can be made without producing a roentgen-ray burn or to produce an erythema or a temporary or permanent alopecia, but it is figured without the consideration of the personal index of debility or susceptibility. One skin unit is represented thus:

$$\frac{3\ (\text{spark gap}) \times 3\ (\text{ma.}) \times 4\ (\text{min.})}{8\ \text{in.} \times 8\ \text{in.}} = \frac{9}{16}$$

a dose "producing temporary alopecia."

Substituting skin distance 12 in. for plate distance given in the "Army Manual" of 20 in. in A. P. head of which the factors are 5 inch spark gap, 40 ma., 1/5 min., plate distance 20 inches.

$$\frac{5\ (\text{spark gap}) \times 40\ (\text{ma.}) \times 1/5\ (\text{min.})}{12 \times 12} = \frac{5}{18},$$

and dividing the fraction representing a skin unit by the fraction just obtained where skin distance has been substituted for plate distance we have:

$$\frac{9}{16} \div \frac{5}{18} = 2\ 1\ 40 \text{ plates or } 2 \text{ plates}.$$

That is two exposures for A. P. head radiographic work under above spark gap, ma., time and distance would be a dose producing a temporary alopecia. In like manner the number of safe exposures (excluding the personal index of health, susceptibility, and previous exposures) that will produce said effect can always be computed by dividing $\frac{9}{16}$, representative of 1 skin unit, by the fraction obtained through substituting in the formula the skin distance for the plate distance. An aluminum filter 1 mm. thick will permit "6 times the number of plates" allowed without filters without endangering the patient (excluding the consideration of other

factors as previous exposures, state of health, and susceptibility).

Witherbee warns against "overlapping the areas exposed," and in order to avoid *x*-ray burns from a patient going from one laboratory to another advises the use of an *x*-ray history—we might say chart—including a record of spark gap, milliamperage, time, distance, number of exposures, date of last exposure, and patient's position. We should say "with dates," for who knows with an erratic patient which exposure would be his last? By following Witherbee's advice, and taking into account susceptibility and state of health as factors, *x*-ray burns may be avoided as you may determine whether your dose is given too soon, as to time, or too much, as to strength, remembering the time required for an erythema to appear—10 to 14 days—and to disappear, which is about from 2 to 6 weeks. For those who use an interrupterless machine and a Coolidge tube, valuable information may be found in this article by Dr. Witherbee.

Tousey thinks "about 3 ma.. with a 6 inch resistance, 10 inches distance, for one minute is a normal dose of ½ H. which may be repeated every two or three days until a reaction gradually becomes established." A Holzknecht unit is "the discoloration of the platinocyanid pastil at skin distance or at the same distance as the skin," according to some operators 1 H. measured at skin distance "is an erythema dose equal to 4 H. with the pastil at one-half the distance to the skin," which latter is the original method. Hirsch[12] has noted "the absorption of the roentgen rays by a substance depends upon its thickness, its atomic weight, and its density" . . . . and the penetrability of a body depends not only upon the facts given (inversely in proportion to their density, atomic weight, and thickness), but also upon the variety of *x*-rays used. It is often thought that hard rays are not so dangerous as soft rays, but they have a marked effect on the deep structures as noted in tonsillar radiation, where a 7 in. spark gap, 4 ma. of current, 15 inches distance was used for 7 min. over each tonsil. In one instance it produced an oedema of the neck resembling mumps, only also noticeably affecting the neck below the chin, although no erythema resulted until the second treatment.

X-rays have a *cumulative* effect. Dermatitis may follow a single exposure without filters, the patient being exceptionally susceptible; or, if heavy, even with filters; or if too prolonged; or if the patient is too close to the tube. It may develop in from one to fifteen days. It may follow a number of moderately heavy doses covering too long a period of time. In radiographic practice it is apt to follow one or a few heavy exposures. If raying be combined with fluoroscopy it may follow because of too long exposures. In radiotherapeutic practice, it is more apt to be the cumulative effect of fractional doses covering weeks or even months, or to be the effect of a few heavy doses repeated at, comparatively, too short intervals. Codman[13] reported three cases of dermatitis appearing after the fourth week. Fuchs[14] reported a case where there was a development of vesicles 15 minutes after exposure. I recall one case following twenty-two exposures with a current of 2 ma., 4 in. spark gap, 15 in. distance for 15 min. without filters. Another followed an exposure of 7 inch spark gap, 4 ma., 7 min., 15 inches distance with filters of 2 mm. of aluminum. Dermatitis may also *recur*, as noted by Pusey and Caldwell[15] in the report of three severe cases of dermatitis having "a superficial necrotic membrane; relapses occurred in each case approximately two months after the disappearance of the first dermatitis."

Haxthausen[16] has recently reported the development of a case of *x*-ray ulceration nine months after the treatment. A weeping dermatitis following an erythema occurred several weeks after the last exposure, and disappeared after a few weeks following the use of ointments. A second erythema, followed by ulcerations, occurred nine months later after the exposure.

Precaution must be taken in cases that have been exposed to artificial freezing, fulguration, or any process lessening the vitality of a part as an *x*-ray dermatitis occurs more quickly in such tissue.

The *proximity* of the tube is of considerable importance. As a rule from 13 to 15 inches from the target is the minimum distance from the body, the distance being increased with increased thickness of the body. The operator should never hold the patient where exposed, or hold the film or plate.

The *length* of the exposure depends on the strength of current. The greater the strength, the shorter the time. An intensifying screen or duplitized films will lessen the exposure time and the milleamperage required.

Idiosyncrasy is also a factor in spite of Kienbock's[17] theory. There is a great difference in the susceptibility of people in respect to condition and resistance. Sometimes in a case of lupus erythematosis or butterfly lupus there will be a dermatitis from one or two treatments with 2 ma. of current with a 4 inch back up for 10 min. without filters with the anticathode 15 in. distant. Codman[18] believes that the susceptibility of a patient varies "in the dryness or dampness of his skin, in his electrical resistance, in his anemia or plethora; in the acidity or alkalinity of his sweat, in his vasomotor irritability." The question of alkalinity is of special importance, as in radiotherapeutic practice we are treating debilitated cases representing hyperacidity. Charrin[19] gives the blood's alkaline reaction the first place in the immunizing processes of the body. We use sodium bicarbonate in these cases. It increases the alkalinity of the blood and lymph and so increases the power of the plasma[20] to "absorb CO_2 from the tissue and then to eliminate this gas." Lange also found that unfavorable symptoms are mitigated when an alkaline medium is used.

We once treated a patient who was highly susceptible to the *x*-rays for a fibroid tumor. Severe itching and a stinging condition, "due to secondary overdilatation of the arterioles and hyperemia of the skin, and its sensory nerve endings," occurred similar to that following large therapeutic doses of diphtheretic antitoxin; petechial spots on the lower limbs followed this stage, although the patient had been most carefully screened.

There is also a difference as to the susceptibility of parts, as the ear or nose will react more quickly than the hand, and owing to the cartilaginous character of the ear the dermatitis is more difficult to

cure. Dr. William Benham Snow[24] noted seventeen years ago that the physical condition of the patient should be considered. "Aged people and those whose vitality is reduced by sickness are more susceptible to the injurious effect than persons in good health," which we have since seen emphasized in our practice. This is also true when the patients are cachectic, asthenic, or toxic, as noted by Lange.[25] The blood is also a factor, owing to changes in its cellular content.

In a paper[26] entitled "The Examination of Patients in Ultra-Violet Radiation," reported in the *Archives of Radiology and Electrology*, September, 1920, note was made that at the Institute patients showing a "spotty appearance" on being exposed to a beam of ultra-violet radiation, or in photographs taken in a particular manner with an arc lamp, were more "susceptible to radium radiation than the relatively unspotted. Some are almost free from spots, while others are thickly covered." This might give the radiologist a clue as to a patient's susceptibility to radiations.

Dr. A. J. Pacini[27] has tersely stated factors worthy of consideration as follows: "The same character of relative change in radiability induced by pathology that one secures in a certain location has an entirely different value in some other region of the same viscus. So that the orientation of the modulant must be studied in the light of the reaction of the normal physiology effect against the pathological invasion. All pathology invading the human body, if it produces registrable *x*-ray evidence, that evidence will be manifested as a variant from the normal according to one, two, three, or all four of the *x*-ray modulants. (1) Changes in radiopacity without great change in structure; (2) obliteration of gross histology by superadded material; (3) elimination of gross histology by tissue displacement and (4) changes in the relative size of a histologic group."

An *x*-ray *dermatitis* is similar to any other when beginning. It often passes unnoticed by the novice, so he is apt to ray his patient with the result of a dermatitis of the second degree. It is well to ask a patient to notify you of the presence of a noticeable blush or erythema when bathing, for the change is noticed sooner after bathing the part. Tousey[25] has noted that the Cooper Hewitt mercury vapor lamp, which is deprived of red rays, will reveal the earliest dermatitis. An *x*-ray dermatitis has a well defined outline corresponding to the diaphragmatic opening or size of the cylinder or cone used, or opening in any protective covering used. The patient may first complain of a slight itching or a sensory disturbance. When it follows accumulated doses, as when the fractional dose method is used, it is usually preceded by tanning. Otherwise a single heavy dose may cause an erythema which will be followed later by tanning. Occasionally the redness will develop before the tanning in certain conditions, especially in lupus cases. It may cause freckling in some cases. Telangiectasis sometimes, but rarely, follows one exposure. Some authorities think it follows only a severe burn, but I have seen four such cases follow a light raying. At the present time we are treating a case of epithelioma where the skin shows that tendency even before raying. We are using the static brush discharge and have given her but four rayings besides warning her of the possible outcome if the ray is to be used as her case demands. Dermatitis may occur as an acute or chronic dermatitis, or as relapses. William Benham Snow[28] noted, in 1902, "dermatitis, when it does occur, as it is certain to in all cases except when special precautions are taken, as in the treatment of acne, and the conditions in which it is used for its tonic effect, may appear in one of three types, which are similar to the dermatitis arising from other irritating causes. The condition has been well described by Beck, as follows: "The *first* is characterized by hyperemia, infiltration, increased temperature, exfoliation in small scales, associated with a tormenting itching. It seems that there is a retrogressive metamorphosis (atrophy) of the differentiated elements of the skin, viz, glands, hair, and nails. The main feature of the *second* degree consists in the formation of blisters—the inflammatory signs are well pronounced, the tension considerable, and the pain intense accordingly. After the blisters are removed the corium is exposed as a red and sore surface—bullous form of roentgen ray dermatitis. The *third* and gravest degree is characterized by the escharotic destruction of irradiated tissues. They show the sign of dry gangrene, and appear brownish black. If they exfoliate by a slow suppurative process, or, if they are removed, as they should be, by surgical interference, a granulating ulcer remains, the cicatrization of which may take months—the necrotic form of dermatitis."

Many authorities consider four stages of dermatitis, calling a temporary erythema the first degree. This may last from two to ten days. The second degree of dermatitis ends in vesicles or bullæ. If unable to diagnose an *x*-ray dermatitis from a dermatitis from other sources, factors already mentioned may be considered which, with a perusal of Dr. John H. Stokes' article on a "Scheme for Presenting the Subject of the Inflammatory Dermatoses to Students in Terms of Fundamental Cutaneous Reaction Signs,"[27] will make a decision conclusive. If the vesicles rupture, there is a weeping surface covered later by a pale grayish covering. A third degree shows a dark red surface, ruptured vesicles or bullæ causing a wet surface covered with a yellowish gray membrane which when removed leaves a raw bleeding surface. There may be itching, burning, fever, or sleeplessness, with or without nausea. Recovery takes place in periods varying from six weeks to several months. Pigmentation or telangiectasis, which is apt to persist, may follow. A fourth degree is characterized by a bluish red contracted skin. Necrosis underneath is followed by a "hard, leathery, dark grayish mass of mummified tissue," with an indurated inflamed periphery. In the treatment of many cases it is necessary to bring about a first degree dermatitis in order to obtain the best results, as, for instance, in pustular acne the best results follow after the induction of a temporary erythema. To ray sufficiently to bring this about without having a second or third degree dermatitis following is of the utmost importance. Even in post-operative raying best results follow an erythema dose or its equivalent. The erythema requires no special attention except suspension of treatment until it subsides.

Vaseline or zinc oxide ointment usually allay any slight itching or burning sensation, or a reflected incandescent light arrests troublesome symptoms.

Occasionally a case may show a faint pinkness directly after an exposure which disappears before the next exposure. The freckling may last a long time. The tanning may disappear in a few weeks or may last from six to eight months. Hair as a rule will regenerate in from four to twelve weeks. Sometimes a longer time is required, dependent on the dosage employed. Sometimes, but rarely, the hair does not return. New nails form in the course of a few months, as in cases of paronychia, where a dermatitis of the first degree is desired, but where the operator must be exceedingly careful to induce a first degree dermatitis *only*, as the nails react very quickly. In dermatitis with vesiculation, the crisis of the reaction may occur in from one to two weeks, then follows a period of quiesence from two to seven days. Several weeks may elapse before all signs disappear.

(To be continued.)

VIEWS REGARDING CONDITIONS IN THE BILE TRACT.

By L. WINFIELD KOHN, M.D.,

NEW YORK.

A KEEN interest has lately manifested itself in the study of the biliary system and for the extraordinary revival of spirit in this direction, the work of Lyon[1] must be given its well-earned credit. Through his work our access to the biliary system seems not as far removed as it formerly did, but should it be proven that we are still distant from our goal his work will at least have enjoyed the satisfaction of having given the great impetus to studies that we hope will bring to us a better understanding of the biliary tract. Should Lyon's contentions which are based more or less upon Meltzer's theory of contrary innervation prove not entirely compatible with future ideas that are liable to result from work along these lines, it must be admitted that the effort made by him seemed to be founded upon logical reasoning.

The theory of contrary innervation has been accepted by many of our physiologists in so far as it applies to muscular movement of the alimentary tract, and some of them subscribe their acquiescence as to its control of the musculature of the biliary tract but the fact nevertheless remains that scepticism attaches to such an admission. However, should this be the true nature of the function of the biliary tract, it would still seem improper to solve our biliary problems according to this principle alone, for it appears from the standpoint of the Meltzer-Lyon method that unless the gall bladder or common duct evacuation predominated, our conclusions would be bound to fail us and it is just as likely as not that the flow from the liver itself is quite prominent or even predominant.

Origin of Bile.—A great deal of reflection and thought arises as to the origin of the different types of bile mentioned by Lyon. He contends that the light-colored A bile comes from the common duct, the darker B bile from the gall bladder and the lighter C bile from the liver. If that were absolutely true, our solutions of many of the problems affecting these respective portions of the bile tract would be readily realized, but a great question arises as to the validity of such an assumption. It can readily be appreciated how upon Meltzer's theory of contrary innervation and from the result of his studies with magnesium sulphate solution upon the duodenal mucosa of the dog, Lyon came to the conclusions that he did and his connection of thought in this direction seemed logical but that does not prove that conditions are really as he concluded.

The fact that magnesium sulphate solution when applied to the duodenal mucosa results in the creation of an emission of biliary material into the duodenum is not doubted but rather proved in practically all cases. That the papillary sphincter is more or less relaxed is also admitted because, if it were not so, how then could bile have been ejected into the duodenum. That the gall bladder contracts simultaneously with the relaxation of Oddi's sphincter or that it distinctly contracts at any time during the course of the magnesium sulphate treatment is open to question.

The only evidence thus far indicating possible contractile effort on the part of the gall bladder is experimental in nature. Through the work of Doyon,[2] who made a study of the innervation of the gall bladder and ducts, it was found that stimulation of the peripheral end of the splanchnics caused a contraction of the gall bladder. It was also found that stimulation of the central end of the vagus caused a contraction of the gall bladder. Later Bainbridge and Dale[3] made studies of the nerve supply of these organs and from the results of their experiments and those of Doyon it would seem that the gall bladder receives both motor and inhibitory fibres through the splanchnic nerves. The influence of the vagus is also rather prominent, and Howell[4] states that we may assume that in the normal reflex emptying of the gall bladder the afferent path for the reflex is formed by the vagus fibres while the efferent path is through the splanchnic nerves. According to Bruns[5] no bile appears in the duodenum as long as the stomach is empty but when a meal is taken the ejection of chyme into the duodenum is followed by an ejection of bile.

Shall we account for the ejection of bile into the duodenum after chyme had previously entered it upon the principle of reflex activity? And is this reflex characterized by a contraction of the gall bladder and a simultaneous relaxation of the sphincter of the papilla of Vater? Does the ejection of bile into the duodenum necessarily bespeak a contraction of the gall bladder, or is it possible that this bile flow may have its origin from some other source particularly the liver.

Records made of the contractions of the gall bladder musculature show that the force exerted is quite small. Freese,[6] according to his observations, discovered that the maximal contraction did not exceed 220 mm. of water, a force about equivalent to the secretion pressure of bile as determined by Heidenhain.[7] From this, would it not seem just as logical for us to assume that the ejection of bile during a magnesium sulphate treatment owes its origin as much or even more to the liver than to the gall bladder. This view is strengthened by the fact

that up to the present time no real practical demonstration of the Meltzer theory as applied to the biliary tract has taken place.

Furthermore, in a recent paper read by Crohn,[8] he stated that in experiments performed upon narcotized dogs, he found an almost continuous flow of bile into the duodenum following the administration of food but that this bile was liver and not gall bladder bile. By having previously injected some methylene blue solution into the fundus of the gall bladder so as to distinguish gall bladder bile, he was unable to demonstrate a flow of this bile into the duodenum except upon manual expression. Just how much untoward influence the narcosis had upon any possible contractile effort of the gall bladder should not be overlooked. It is also believed that the metabolic processes in the liver cells which produce the bile secretion probably go on at all times but they are increased when the blood flow is increased.

Now, what conditions may so affect the blood flow as to cause an increased secretion of bile? Is it not likely that magnesium sulphate solution creates a condition which so affects the blood quality or blood flow in the liver as to favor an increased secretion of bile? Before we dare lay any stress upon the nature and significance of B bile, some definite conclusions regarding its origin should be reached.

From the foregoing, it is very evident that difficulty arises when we try to definitely associate A bile with the common bile duct, B bile with the gall bladder and C bile with the liver. We must admit that if the common duct contains bile to any extent, the first bile eliminated or socalled A bile must necessarily have included it, but the question arises, how long was this bile a resident of the common duct and how much of it existed in the common duct long enough to deserve the identification given to it? As already stated Bruns contends that no bile appears in the duodenum so long as the stomach is empty, yet the first thing most of us hope to find after passing our duodenal tube through a fasting stomach into the duodenum is bile or, at least, bile-stained material. That is the usual manner whereby most of us realize that the tube has entered the duodenum. If, as often happens, we find a fairly large biliary content within the duodenum, how long a time has elapsed since the ejection of bile into the duodenum and how long has the present common duct bile resided there? Are we privileged to definitely associate the A bile with the common duct and does this lighter A bile come almost entirely from this region? As for B bile, are we correct in assuming that it comes almost entirely from the gall bladder simply because of its darker color?

Of course it seems logical to associate a dark bile with the principle of concentration and the idea of concentration with the gall bladder, but that does not give us absolute proof nor overwhelm the objections raised. Einhorn[9] and many others feel that this change in color does not necessarily imply an emptying of the gall bladder but that it results rather from the action of magnesium sulphate upon the liver and its secretion, the bile.

I have also observed in a patient upon whom a cholecystectomy had previously been performed (4 years ago) that after a magnesium sulphate treatment a rather dark bile was ejected on a few occasions. Many of us will also recall the fact that in cases following cholecystectomy the biliary fistula for days emits, in many instances, large quantities of dark bile.

From what has been said, it is very evident that dark bile does not of necessity originate only in the gall bladder. That some of the B bile may come from the gall bladder after a magnesium sulphate treatment, cannot be absolutely denied but to contend that it comes principally from the gall bladder raises criticism. That C bile comes from the liver and smaller hepatic ducts is not a poor supposition; the greater part of it very likely does, but to lay no emphasis upon the association with it of bile from the gall bladder or cystic duct, let alone pancreatic fluid during its passage toward the duodenum, seems rather unreasonable. In fact, the presence of pancreatic fluid throughout the entire biliary outflow should not be overlooked.

Bile Flow.—We should not assume that the gall bladder and its duct empty themselves at one stage before the hepatic bile comes down from the liver for it may develop that these organs never entirely empty themselves or if they should, may do so in a rather sluggish manner.

Where then, does the bile flow initiated by the magnesium sulphate solution or other substances originally begin and of what bile does it in the main consist? Does the bile flow forth in the orderly sequence suggested by Lyon from the common duct, gall bladder and liver or does it all come directly from the liver, in spite of the variation in colors, or is it a mixture of all three biles in varying proportion throughout its transmission?

To my mind it seems that the greatest quantity comes directly from the liver itself and as it flows toward its outlet becomes admixed with the bile of the ducts and gall bladder in the proportion that these biles are present in the pathway of travel or as they are disposed to enter this pathway. To associate the bile with the different portions of the bile tract as Lyon has done is a beautiful way of trying to view the situation but requires further proof to justify the idea.

No doubt many of us are inclined toward the belief that the magnesium sulphate solution acts either as a hormone, reflexly or through osmotic influence, and we can hardly be discredited for such an opinion. May we not properly presuppose that the magnesium sulphate solution stimulates liver secretion just as bile salts are claimed to stimulate liver secretion, or just as food stimulates the secretion of gastric juice, except that in addition we have the hypertonic influence of the salt solution? In other words, as we may have a digestive hypersecretion so may we have a liver hypersecretion or pancreatic hypersecretion if the proper stimulus is applied, and it is not unlikely that the outpouring of bile after the magnesium sulphate treatment is due to liver hypersecretion principally rather than to a simple evacuation of the contents of the gall bladder and ducts.

Quantity of Bile.—The question of the quantity of bile is another interesting point for consideration. The amount of bile secreted during a day in the average individual varies, according to Copeman and Winston,[10] between 500 and 800 c.c. This

was an estimation made through the medium of a biliary fistula. The rate of the secretion varies considerably during the different hours of the day. It is greatest following a meal and least during the period in which the stomach is empty.

It is taken for granted by most physiologists that the secretion of the liver is a continuous procedure but that its rate of secretion can be either reduced or increased. Starvation reduces it, whereas the administration of food increases it. According to the above estimate the average amount of bile secreted is from approximately 20 c.c. to 35 c.c. per hour except during those days when great quantities of food are eaten when the quantity of bile is considerably increased.

The magnesium sulphate treatment for administration and response on the part of the patient varies as a rule anywhere from 10 or 15 minutes to an hour for completion, with probably 30 minutes as the average. During this time according to Lyon, the A bile in the normal individual amounts from 10 c.c. to 20 c.c. in quantity and the B bile no greater than 75 c.c. in quantity. From this would it not seem logical for us to conclude that the magnesium sulphate solution stimulates an increased liver flow similar to the effect produced by foods? Are we not impelled to lean toward the principle of biliary secretion coming from increased hepatic activity rather than a mere emptying of the gall bladder and ducts?

I have also noted that in a patient who had her gall bladder removed about four years ago, the amount of bile thrown out after treatment with magnesium sulphate varied upon different occasions, but at all times large quantities were obtained. During the period of drainage which took up anywhere from 20 minutes to an hour or more, from 75 c.c. to as much as 200 c.c. of biliary material was eliminated. Usually, it was found that from 60 c.c. to 100 c.c. wandered forth within the first half hour. This large amount of socalled bile, of course, did not come from a gall bladder and therefore must have come from some other source and that source very likely is the liver except for whatever quantity may have arisen from the pancreas.

From the observations made, I am not inclined to look with great favor upon the presumption that large amounts of dark bile bespeak a gall-bladder atony but would rather lean toward a diagnosis of liver hypersecretion, by which is meant an increased flow of bile established through the principle of nervous, hormonic, or osmotic influence. However, in spite of my opinion in this matter, it is not to be absolutely denied that such rare conditions as hydrops of the gall bladder or gall-bladder atony, if such latter condition exists, may have some bearing upon the emission into the duodenum of large amounts of dark bile. How much bile during a treatment passes through the intestinal tract by evading our duodenal tube? If this amount of bile should prove considerable, we may feel urged to discount the assumption that the bile eliminated following a treatment is mainly from the gall bladder and ducts but rather from a secretory source such as the liver and possibly to a certain extent the pancreas.

Recently in private and clinic work a series of cases were studied and it was discovered that the quantity of biliary material ejected varied with different people as well as with the same individual on different examinations. It was observed that by simply passing the duodenal tube through the fasting stomach into the duodenum, without the administration of magnesium sulphate solution, a flow of biliary material was established and this flow would continue more or less constantly for hours. Quantities varying anywhere from 20 to 300 c.c. were obtained and took from 20 minutes to 2 hours or more for accumulation. Generally, the longer the tube remained *in situ*, the greater the accumulation. This material was distinctly viscid biliary fluid and varied in color from a pale lemon yellow of thinner consistence to a deeper dark yellow or brownish yellow of thicker, more viscid consistence. Upon two occasions there was noted very dark brown bile and a heavy gritty, dark brown or black sediment. Of course, some of this total emission probably contained duodenal secretion and gastric secretion but the distinct biliary quality predominated from a physical point of view.

These findings were all made without the introduction of magnesium sulphate and after the stomach had fasted a number of hours. They seem to be at variance with the statement of Bruns' "that no bile appears in the duodenum as long as the stomach is empty." Just what influence the presence of the olive tip within the duodenum or the body of the tube within the stomach has upon the secretion of bile or the relaxation of the papillary sphincter is for us to determine. Later in all of these cases the magnesium sulphate treatment was given and then usually there occurred after ten to fifteen minutes the flow of lighter bile, to be followed afterward by a darker bile and then later the light yellow bile again.

From observations upon these cases I have been led to conclude that what the duodenal tube gives us without magnesium sulphate in a longer period of time, the injection of magnesium sulphate gives us in much shorter time. It seems to me that the tube alone within the duodenum collects a bile slowly being secreted from the liver in addition to whatever other biliary material may ooze forth from other portions of the tract. After magnesium sulphate, a liver that has been actively stimulated gives expression to larger quantities of bile and this outpouring we gather up within a comparatively short period.

Color of the Bile.—The color of the bile will also vary at different studies upon the same individual. It will not always show precisely the same conditions, although as a rule following magnesium sulphate a darker bile followed a preliminary lighter outflow. How shall we account for this? Is it possible that at first, the initial flow assumes a thinner consistence therefore a lighter color and later a concentrated character, therefore, a darker color? Has the magnesium sulphate solution through its hypertonic nature osmotically solicited a watery outflow at first and later before the osmotic relations are normally reestablished caused a concentrated biliary outflow? After all, are we correct when we attempt to lay important significance upon varying biliary colors?

Force of Bile Flow.—Though there may possibly

be moments when the gall bladder contracts or when, through an increase of muscle tension, it tends to urge its contents forward, it does not seem necessary for this organ to be concerned in arousing or maintaining a bile flow. It appears that when bile flows into the duodenum the force of the flow has its inception in the activity of the liver. As it is secreted, it continues to flow onward and the simultaneous relaxation of the papillary sphincter encourages the flow by removing a natural obstruction. As the flow continues it is very likely that from time to time portions of bile that had accumulated in the gall bladder and cystic duct, as a result of back pressure due to a former closure of the papillary sphincter, may join the main flow of bile and continue on its way. Therefore, it seems that the impetus for the flow primarily originates in liver secretory activity and either through a transference or transmutation of force continues to urge the accumulating bile along the path of least resistance. Relaxation of the sphincter papilla removes an obstruction and thus augments the rate of flow.

Another principle which may enter into the facilitation of the flow is the aspiration influence on the part of the active bowel below the level of the sphincter opening. It can readily be appreciated how a peristaltically active bowel with a movement of air and intestinal contents analward may through the medium of aspiration and an open Oddi's sphincter continue to aid in the elimination of bile from the bile tract.

In a recent paper by Aaron,[1] mention was made of the fact that the coloring agent phenoltetrachlorphthalein—which was given intravenously to normal patients—was shown to have been eliminated by the liver through the medium of the bile and appeared at the external end of the duodenal tube within fifteen minutes after the injection had been made. This alone, indicates that the liver is a very active organ and fosters an energetic bile flow.

Bile Constituents.—Since it appears that the so-called bile which enters the duodenum, with or without magnesium sulphate treatment, may come from a number of sources as the liver, hepatic ducts, cystic duct, gall bladder, pancreas and pancreatic ducts, it also seems impossible to definitely and correctly associate any of the finer findings of this bile with distinct portions of the tract. Very often the constituents of the bile present ill-defined characteristics which can have no significance. Neither should such recognizable elements as erythrocytes, leucocytes, mucus, bile salt deposits, etc., be definitely ascribed to certain portions of the tract. One may assume that some of these elements, because of their association with quantities of formed elements (epithelium), indicate disease at the site which corresponds to this epithelium but the possibility of error is always attached to such an assumption. Exfoliated epithelium is a common accompaniment of all excretory material and it is not unlikely that any of the constituents may have either gravitated or been wafted down from above prior to the magnesium sulphate treatment. Consideration of the bacterial content or bacterial potentiality of the bile is purposely avoided because of the great doubt expressed by most students of this subject regarding the significance of its application to diagnosis of disease of this tract.

Therapeusis of Magnesium Sulphate—In a recent interview with Lyon the fact was ascertained that *cholecystectomized* patients to whom he had given the magnesium sulphate treatment evidenced greater and more marked improvement than the *cholecystotomized* patients. Would this result not be accounted for simply upon the basis that the cholecystectomized patients were receiving a more thorough biliary cleansing from above down than the cholecystotomized cases? In the latter type of case a diseased gall bladder, like a diseased diverticulum, was too far removed from the avenue of cleansing, the common duct and since the gall bladder was unable to adequately express or rid itself of its diseased contents, the patient continued to suffer manifestly.

One thing, however, is certain and stands out most prominently and that is the fact that subjective improvement following magnesium sulphate treatment is a reality. This alone will, for some time to come, give the duodenal tube and magnesium sulphate solution a place in the treatment of biliary disease. Just how to account for this decided improvement in the subjective condition of the patient is for us to determine, but it seems that the biliary "housecleaning" instituted by the magnesium sulphate is responsible for it. This biliary cleansing that follows the intraduodenal application of magnesium sulphate solution seems to correspond very much to the Carlsbad cleansing that patients experience at the Carlsbad springs or at other springs where similar water is imbibed. Constantly drinking this spring water throughout the day results in the probable stimulation of liver and bowel glandular activity as well as an outpouring of fluids because of osmotic variations and in consequence the patient feels subjectively improved. We are all well aware of the great improvement that many socalled indigestion cases, liver and gall bladder patients, and constipated individuals experienced after taking the Kur at Carlsbad. When we give patients the intraduodenal magnesium sulphate treatment, are we not simply applying the Carlsbad or French Lick Springs treatment in a different manner?

Conclusion.—In conclusion, the following points must be borne in mind:

1. That studies of the biliary tract through the medium of expression of biliary material into the duodenum open up a new field of investigation for which Lyon is responsible and deserving of great credit, although the principles upon which his studies are advised are open to attack.

2. That to recognize by this method the existence simply of disease within the biliary tract, without specifically confining the diagnosis to any special part, is warranted.

3. That to diagnosis the existence of disease in the gall bladder alone, to the exclusion of disease in other portions of the tract, through studies of the quantity, color, consistence and constituents of the biliary outflow does seem somewhat unjustifiable. It is not unlikely that in those cases, where disease existed within the gall bladder, it also in most instances existed within other portions of the tract.

4. That the performance of cholecystectomy in the past most likely resulted in failure from the standpoint of subjective improvement because of the fact that disease which usually coexisted within other portions of the tract was not removed but remained to continue its ravages upon the remainder of the tract. It is not improbable that the disease very often profoundly established itself within the smaller hepatic ducts.

5. That conservatism must be practiced not only regarding the performance of surgery in biliary tract diseases but also regarding the continuation of the use of this latest biliary drainage method. No doubt that biliary drainage will benefit us a great deal but like every new idea is very often enthusiastically misapplied. In spite of the progress made surgery of this tract will for some time to come receive the indorsement which indications shall warrant. Medical cases will be favorably influenced by drainage but we can hardly look to drainage for the cure of a surgical condition.

REFERENCES.

1. Lyon, B. B. V.: Diagnosis and Treatment of Diseases of the Gall Bladder and Biliary Ducts, *J. A. M. A.*, 73, 980, September 27, 1919.
2. Doyon: *Archives de Physiologie*, p. 19, 1894.
3. Bainbridge and Dale: *Jour. of Physiology*, 33, 138, 1905.
4. Howell, William H.: Text-book of Physiology, 6th Edition, p. 821.
5. Bruns: *Archives des sciences biologiques*, 7:87, 1899.
6. Freese: *Johns Hopkins Hospital Bulletin*, June, 1905.
7. Haidenhain: Cited in Howell's Text-book of Physiology, p. 821.
8. Crohn, B. B.: Paper read before Harlem Medical Society, March, 1921.
9. Einhorn, M.: Studies on the Action of Various Salts on the Liver After Their Introduction Into the Duodenum, *N. Y. Med Jour.*, March 2, 1921.
10. Copeman and Winston: *Jour. of Physiology*, 10, 213, 1889.
11. Aaron, Abraham H.: The Phenoltetrachlorphthalein Test of Liver Functions, read at Boston Session of A. M. A., June 9, 1921.

427 PARK AVENUE.

VITAMINES IN INFANT FEEDING.

BY F. TWEDDELL, M.D.,
GREAT NECK, N. Y.

WE have been hearing a great deal about vitamines during the last few years, but I have noticed that not much use has been made of these most necessary and vital food ingredients in infant feeding. In the early months of life, the proper feeding of infants, even of healthy ones, at times taxes all our resources. In difficult feeding cases we are up against it, and often we do not know what the outcome will be; it is in fact a matter of life or death for the baby.

Any method of feeding or any food ingredient which helps towards overcoming stationary weight or loss of weight in infants, should be most welcome to those of us who take care of these helpless mites. For this reason I wish to report a new method of treating these cases. Some six years ago I attended a baby seven weeks old with bronchopneumonia. The mother had pulmonary tuberculosis and the father was not quite right mentally, for he attempted suicide the year before and succeeded a year later. The family history was therefore bad. When nine weeks old the baby was convalescing but not gaining in weight, which was seven pounds. Just about that time I had heard a good deal about vitamines and decided to try them in the shape of the yolk of a raw fresh egg, beaten up in the milk mixture. The baby gained steadily in weight and at six months of age was a normal healthy child. I lost track of it then. I gave no further thought to this matter until the fall of 1919 when two feeding cases came under my care. Both were eight weeks old and weighed eight pounds apiece. One of these was nursed for only two weeks and then its food was changed and modified every few days because it would not gain and vomited once or twice a day. On inquiry I found that the vomiting was projectile in character and had no reference to the food. There was constipation but it was not very marked. Here then was a case of pylorospasm, which had been overlooked. I put the child at once on appropriate doses of atrophine sulphate and noticing marked improvement after three days, I began feeding it on the yolk of a raw fresh egg beaten up in the milk mixture. This child gained in weight by leaps and bounds, never less than 12 ounces a week, often 14 ounces and once 16 ounces in a week. At four months of age it weighed 15¼ pounds, gaining 7¼ pounds in less than two months. As the egg agreed it was given every day so that at nine months the baby weighed 20 pounds and at 12 months, 24 pounds. A big baby, perfectly well, with firm flesh—nothing flabby like one gets with proprietary foods. Now at 22½ months, weight 31 pounds, height 36¼ inches, head 19 inches, chest 20¾ inches.

The other infant weighed at birth 9¼ pounds and was nursed until eight weeks old, but was not doing well and weighed then only eight pounds. The mother was a nervous woman, very much under weight. I put this infant on the yolk of a raw fresh egg and at four months it weighed 14¾ pounds. A few days later I noticed that the baby had lost his appetite, was cranky, and that the stools were gray, almost white. I concluded that this was fat indigestion, both from the milk and the egg. The parents kept Jersey cows and the milk was exceedingly rich. The baby was put on skimmed milk alone for a while and the yolk of an egg given only occasionally. When 12 months old he weighed 25 pounds and now at the age of 21 months, weighs 29 pounds, half a pound more than his sister, who is 13 months older. This sister was fed according to the usual method. This baby, now 2 years old, weighs 32 pounds.

There is no need to cite other cases, they are very similar. Vitamines alone are responsible for this amazing gain and improvement, for nothing else could have brought this about. Then why not give eggs? Most pediatricians do not give eggs until babies are about 12 months of age, as Holt and Howland,[1] some not till 18 months of age, as Morse and Talbot.[2] When I reported these cases at a medical meeting, it was remarked that this was a very risky thing to do. This is not a matter of daring, it is a matter of common sense.

The reason why I did not give a coddled egg or a soft boiled egg, as is the custom, was very plain. I consulted a gentleman farmer in my neigh-

borhood, a graduate of Harvard, who informed me that when eggs in incubators are heated over 108° F., or 110° F., for a few minutes, they are spoiled. A chemical change has taken place. Why should I change the chemical nature of a raw egg? I consider a coddled or soft boiled egg not as digestible as a raw egg, and a hard boiled egg would be out of the question altogether; this is self-evident. The yolk of a raw egg contains all the mineral matter necessary to form a chick: the bones, muscles, nerves, etc., and all these minerals, such as iron, sodium, potassium and what not, are in colloidal combination with ample vitamines, both fat soluble and water soluble. I never thought it necessary to give the white of the egg, as this is only a protein and of this we have plenty in the milk. Besides it is very difficult to mix the white with the milk.

The food is prepared as follows: Make up the milk mixture for the whole day, say 40 ounces of a 7 in 20 mixture, *i.e.* 14 ounces of milk to 26 ounces of water or barley water, and the necessary amount of sugar. Pour 8 or 10 ounces into a bowl, drop the yolk of a raw fresh egg into it and beat it up with an egg beater. Then add this to the rest of the milk mixture in a pitcher and stir thoroughly and place this in the ice box. At no time must the yolk be put into the milk when it is over 100° F., nor should the egg and milk mixture ever be heated above this temperature.

Of course before feeding a baby on this egg mixture, it is well to test the baby and find out if the egg will agree. A few infants cannot take eggs. The test is made as follows: Half an hour before the next feeding when the stomach is likely to be nearly empty, give the baby half a teaspoonful of the white of a raw fresh egg. If it agrees, nothing will happen. If it disagrees, the baby will vomit, or it may have sudden diarrhea and feel sick for a few minutes, and a rash may appear all over its body resembling "Liberty" measles (rubella). These apparently alarming symptoms disappear in a few minutes. A better and more satisfactory test is to inject the albumin intradermally similar to the tuberculin or Schick tests. If there is no reaction, eggs can be safely given.

As the yolk contains 25 per cent. fat it is advisable to watch the stools for fat indigestion as shown in one of the cases cited above. The eggs shou'd be fresh, not more than a few days old, preferably obtained from a neighbor or a farmer. Don't take chances.

What are we to give to the few babies who cannot take eggs? I had often thought of this and would have given yeast a trial on account of the water soluble vitamines which it possesses. But yeast contains ferments and other undesirable ingredients which could not be suitable for an infant a few weeks old. Fortunately I have discovered that various manufacturers are now making vitamines which can be used in those feeding cases when eggs do not agree, and I shall take the earlist opportunity to test these vitamines.

The ordinary milk mixture for infants is so much diluted, pasteurized and boiled, that it cannot contain much in the way of vitamines, and one wonders how infants gain at all. I hope therefore that this new method of feeding will help towards solving this difficult problem.

REFERENCES.

1. Holt and Howland: Diseases of Infancy and Childhood.
2. Morse and Talbot: Diseases of Nutrition and Infant Feeding.

THE DIAGNOSIS OF VARIOLA BY INOCULATION OF THE CORNEA OF THE RABBIT.*

By W. H. HOFFMANN, M.D.,
HAVANA, CUBA.

For many years a great number of investigators have been spending much time and labor to find the cause of smallpox; but up to the present date this question cannot be considered as settled, although many organisms have been described as the causal agent. Among these assumed organisms special attention must be awarded to the so-called Guarnieri bodies. As far back as 1892 Guarnieri used the cornea of the rabbit for inoculation with variola virus, and found this to be a suitable means for studying the changes produced by that virus in the infected epithelial cells on the surface of the cornea.

If we produce small superficial lesions on the cornea of the rabbit and infect them with the virus from cases of variola or vaccine, there will appear from 24 to 36 hours later a proliferation of the epithelium at the site of the inoculation. This proliferation progresses rapidly, extends to the surrounding tissues and is followed by an epithelial desquamation in the central parts.

In microscopical sections through the altered tissues there will appear in many of these proliferated epithelial cells, and included in their protoplasm, small, round bodies, which are generally situated on or near the nucleus. These bodies stain intensely by the ordinary stains used for nucleus staining, such as hemotoxylin, and are often surrounded by a plasmatic zone, which appears in sections as a bright, transparent halo. Guarnieri considered these bodies, at first, to be the microorganism of variola, and so called them *Cytorrhyctes variolæ-vaccinæ*. These organisms which are found in the infected cornea of the rabbit in great numbers are of the same type as the organisms located, but not abundantly, in the epithelial layers of the skin of men suffering from variola.

Later investigations proved Guarnieri's theories to be only partially correct. Other investigators considered these bodies, or organisms, to be, not the causal agents of variola, but simply products of degeneration of the disease, including the cellular reaction on corpuscular elements, which may be specific for the variola-vaccine process. Recent researches tend to corroborate this last theory according to which these bodies are the product of a pathological increase and changed function of the formative cells. The *epitheliosis variolosa* produced in the inoculated rabbit cornea may be considered as a specific process of proliferative and degenerative reaction to the toxin of the virus of variola.

Paschen was the first to describe the minute,

*From the Research Laboratory, Las Animas Hospital, Habana, Cuba.

ultramicroscopical, filterable elementary bodies, which may be considered as the probable causal agent of variola. It is known that the pathogenic effect of the secretion from variola vesicles is not altered, is not changed in character, when passed through bacteria-proof filters.

Dr. Paul, employing these histopathological facts just described, succeeded in working out a simple, practical test for the diagnosis of variola.

The populations of Polonia, Russia, and Asia Minor have long been victimized by epidemics of variola for which no preventive or prophylactic vaccination has ever been used. On this rich field German scientists, skilled in both preventive and hygienic medicine, have tried the test of Paul for its diagnostic value. The additional advantage of the value of this test was worked out at the same time in the Robert Koch Institute in Berlin under exact laboratory observations.

During the past year variola of a very mild type has been brought into Cuba from Haiti and Jamaica. It is also frequently found in the United States, but it is of such a mild character as to create much difference of opinion among the medical profession as to the degree of virulency or the relation of this form of variola to smallpox. Diagnosis in these cases has often been extremely difficult, or overlooked, especially where single cases of the abortive type occur in areas hitherto free from the disease. From the sanitary standpoint these types of cases are of the greatest medical importance since the difficulty of diagnosis favors the propagation of the disease and interferes with the proper and necessary sanitary measures to be employed by the health authorities.

Dr. Guiteras, one time director, now secretary of health, Cuba, has shown great interest from the beginning in the application of this diagnostic test of Paul's, as a preventive measure against the spread of variola in Cuba, the danger of which seemed imminent for some time.

In the research laboratory in Havana this diagnostic method has been employed in a great number of such suspicious cases which, through their mild and uncertain symptoms, offered the greatest difficulties for diagnosis. The diagnosis in these cases has been supported almost regularly by the results of the inoculation of the cornea of the rabbit followed by histological examination of the same. Included in these mild cases were several which had recently arrived by steamer from the neighboring islands and which might possibly belong to that group of diseases often designated by the name of alastrim.

So from the sanitary and preventive standpoint just these mild cases are of the greatest scientific and practical interest, for they present the greatest danger and offer an avenue for the spread of the disease and the increase of its virulence if they are overlooked or improperly diagnosed. Therefore, medical practitioners, who, in the country, are most apt to meet the initial cases of mild variola, should fully realize their responsibility and should take immediately all prophylactic measures to prevent the development of small endemic foci. It is in such doubtful cases that the test of Paul can be so aptly applied and with the best results.

In the following account I shall give briefly a description of the method, or test, of Paul for the diagnosis of variola. It is so simple that it can be universally used since little more is required than a rabbit for inoculation and a few instruments usually possessed by every medical practitioner.

The positive reaction obtained through this test is diagnostic of variola infection, and the variola virus gives a positive reaction in 90 to 95 per cent. of suspected cases. Varicella does not give a similar reaction, as we found in Havana. The reaction of vaccine virus is also somewhat similar, but usually shows more diffuse and confluent proliferation. A negative result of the inoculation, however, does not change a diagnosis of variola if it has been based on sound clinical observations; nor should it contraindicate variola in a suspicious case.

This test of Paul brings out one essentially new point, namely, that for the practical purpose of determining the diagnosis of a suspicious case the Guarnieri bodies need not be demonstrated under the microscope. Macroscopical methods are sufficient to establish a diagnosis. Infected foci in the rabbit cornea inoculated with variola virus are not very marked. However, if the eye be enucleated and placed in a solution composed of 4 gm. of sublimate, 30 c.c. of 98 per cent. alcohol and 60 c.c. of distilled water, the infected foci will stand out completely transparent, clear and plastic.

The practical procedure used in a suspicious case is as follows:

A small quantity of the secretion from a suspicious pustule is removed by a small knife or needle, previously sterilized in the flame, and placed on a sterilized slide, cleansed by alcohol. The slide is put in a Petri dish and allowed to remain for some time. The dried secretion may be used for the test, as it has only to be moistened at the moment of inoculation of the animal, and for which either Ringer's solution or a few drops of a 50 per cent. glycerine solution in water may be used. Because of the employment of the dried secretion for this experiment the slide holding the material may be sent to a laboratory for further investigation if necessary or more convenient.

The rabbit to be used may be of any kind or size. The cornea may be anesthetized by a cocaine solution, but it is not absolutely necessary. The animal may be wrapped in a towel, all but the head, to insure greater ease in technique, and then held down on the table by two of the operators.

With a small, sharp steel needle, previously sterilized by flame, there are made from 3 to 5 superficial horizontal incisions across the epithelium of the cornea of the eye, and as many in a vertical direction, crossing the first group of lines. It is not difficult to hold the eye open and fixed with the left hand, while with the right hand the above-described operation can be performed in a few seconds. Following this, a quantity of the secretion to be tested is then placed on the surface of the cornea with a small, blunt, properly sterilized instrument, and thoroughly distributed by a closing movement of the eyelid. The inoculated animal is then placed in a cage and treated as a highly contagious case.

If no specific, variolic infection of the cornea has taken place, the small traumatic lesions will be healed in twenty-four hours; and after forty-eight hours the cornea will appear absolutely clear and without

irritation. If, however, the eye has become infected with variola virus, there will appear on the cornea, from thirty-six to forty-eight hours after injection, certain lesions which may be visible to the naked eye, but are much more clear under a low power lens. A definite irritation of the eye and some slight grayish epithelial prominences will be seen on the surface of the cornea.

Forty-eight hours after inoculation the rabbit is killed by a blow in the neck in all cases, irrespective of reaction. The eye which has been used for the experiment is enucleated with great care by the method used in ophthalmological work, cutting through the external muscles and the optic nerve. The bulb is immediately placed in the alcoholic sublimate solution already detailed, and fixed for from one to two minutes. Then the cornea is separated from the eye in a line near the limbus with a small Graefe knife or fine, sharp, irridectomy scissors. Any pressure on or lesions to the corneal tissue should be avoided.

The cornea, lying in the solution, may then be inspected with a lens. If infection has taken place there will appear along the criss-cross lines previously made small, isolated circumspect prominences of a porcelain-white color, and which contrast sharply with the rest of the cornea which presents a diffuse grayish opacity. The prominences may be confluent when a secretion of great virulency has been used for inoculation.

The virus of varicella does not produce such an infection of the epithelium. Similar lesions can be produced only when vaccine virus has been used; but the vaccine virus produces a broader, more extensive and more confluent proliferation of the epithelium, which presents a different aspect.

Forty-eight hours after infection has taken place, there will be found in the center of the variolic proliferation, which is still progressive in the peripheral parts, a desquamation of the epithelial cells; and after ninety-six hours there will be developed a round crateriform depression with a very sharply-defined rim. This type of proliferation is pathognomonic of variola. These macroscopical lesions are so characteristic of variola that they allow of an undisputed diagnosis of this condition. For scientific purposes, however, the diagnosis can be confirmed by the histological examination.

In sections there is to be seen a proliferation of the epithelium of characteristic form, beginning from the rim and slowly and regularly increasing to the center. This proliferation is caused by an increase in number, and a swelling of the infected epithelial cells. The hydropic degeneration of these cells appears at first, and most marked, in the cells of the basal parts near the Bowman membrane. Here the cells appear larger and broader and by their irregular shape are more or less separated from each other and do not keep their regular conformation. Later a similar hydropic inflation and dislocation is seen in the upper layers of cells. The degenerated and proliferating epithelial cells also penetrate into the small lesions which have been made by the needle in the connective tissue of the cornea, and fill them completely. The swelling of the epithelia gradually passes into a complete hydropsy of the cells.

In the central parts of the proliferation are to be found the oldest epithelial cells, and therefore the most advanced and marked. It is in these older cells that the Guarnieri bodies are first seen and in the greatest numbers.

Though the histological examination is not absolutely necessary for diagnosis of variola, this method tends to confirm and to increase the confidence of the scientific worker in Paul's proceeding for diagnosis of this disease.

I obtained satisfactory results through the use of preparations made after the following method:

The cornea of the enucleated eye of the rabbit showing the typical macroscopical lesions of variola infection is fixed in the alcoholic sublimate solution for 10 minutes. Thereupon the cornea is placed for several minutes in 98 per cent. alcohol to which have been added one or two drops of tincture of iodine, making the solution the brownish color of cognac. The iodine removes the mercury from the preparation. Then a five minutes' bath of alcohol solution, 98 per cent., and changed several times. With necessary caution in order to avoid all pressure and production of lesions, small pieces of tissue, 3 to 5 mm., containing the foci of the proliferation, are cut out of the cornea for histological study. These pieces of tissue are passed for five minutes in absolute alcohol, changed several times; five minutes in aniline oil, changed twice; five minutes in xylol, changed several times to wash off all of the remains of the aniline oil; five minutes in xylol paraffin, then five minutes in paraffin of 56° to 60° melting point. Place in paraffin, mount the pieces on blocks and make thin sections with the microtome.

The sections are fixed on the slide by removing them from the surface of warm water and drying them in the incubator for some hours, after the well known laboratory method.

Pass them through xylol and alcohol of decreased strength, then into water. Stain for five minutes with a regular hemotoxylin solution. For differentiation use a one per cent. solution of hydrochloric acid in alcohol, 90 per cent., until the sections show a red color. Wash in water made slightly alkaline by the addition of a very small portion of sodium carbonate until the sections have obtained a pure blue color. This usually requires about a half-hour, perhaps a little longer. The sections may be left in this water over night.

Then counterstain with an alcoholic solution of eosine; one minute in absolute alcohol, changed several times; one minute in a mixture of xylol and crystalline phenic acid; one minute in xylol, cover specimen with Canada balsam and apply coverglass. The histological details can be distinctly studied by lower power lens. To demonstrate the Guarnieri bodies, the objectives Nr. 6 and 7 b, of the Leitz microscope are used. It will not be necessary to use the oil immersion.

I have made some microphotographs of my sections. The first shows at low power the characteristic histological lesions of epitheliosis variolica of the cornea of the rabbit. The other microphotograph shows at high power, Nr 7 b, a number of Guarnieri bodies in the swollen epithelial cells of the cornea of the rabbit forty-eight hours after inoculation with the contents of a pustule from a case of variola.

THE THERAPEUTIC VALUE OF THE TRAINING CENTER AT ST. ELIZABETH'S HOSPITAL, WASHINGTON, D. C.*

By WILLIAM M. KENNA,

WASHINGTON, D. C.

P. A. SURGEON (R.), UNITED STATES PUBLIC HEALTH SERVICE.

As the writer, in the capacity of medical advisor, has been assigned to take an especial interest in the Vocational Training Center of this hospital; and as vocational advisement is frequently asked of the conference when patients are presented before its members, it occurred to him that a few remarks concerning this project might be acceptable, since they relate more or less to the question of the therapeutic value of the center in the treatment of its members. Although the plan of this feature of the Federal Board for Vocational Training is both prevocational and vocational in type, yet it would appear that it has demonstrated itself to be a valuable therapeutic measure as well.

The idea is founded on the conception that patients during their stay in the hospital may be properly surveyed and, in a preliminary way, trained along lines of future economic helpfulness subsequent to their discharge from the hospital.

That a certain material percentage of the war risk beneficiaries will eventually be discharged as recovered, as social recoveries, or at least as much improved, is to be taken for granted and, generally speaking, these patients of necessity will have to make their own living without supervision in the future. It was with these conditions in mind that the idea was conceived of instituting training centers in the field so that constructive work in the proper teaching and placing of these men might be accomplished; that round pegs in square holes might be avoided; that patients might be helped to rehabilitate themselves and also to readjust in a suitable environment; and, finally, that time might be saved during the period of rehabilitation for at least a certain percentage of War Risk beneficiaries.

The selection of a right vocation in any sphere of life is a highly important matter, and its importance is being more and more recognized by educational and industrial leaders throughout the country. If this be true of normal individuals, how much more so must it be of psychotics with their unstable constitutions and weak resistive powers. Dr. Treadway of the Public Health Service in a recent paper on mental hygiene gave a happy example of this in relating an instance of readjustment. He referred to a corner newsman of his acquaintance who, though paranoidal in his makeup and positively anti-social in his views and expressions, was coordinating sufficiently well to make a livelihood in spite of his conflicts. This same man placed in a highly organized industrial relationship, for instance, would indubitably have succumbed to the stress of his surroundings.

The aftercare of patients who have been discharged after being hospitalized for phychoses, has long been an acute problem for those who are engaged in psychiatry. As a rule, when a patient leaves the hospital, he goes into an atmosphere of fairly consistent disinterest and enters a social environment where a process of economic attrition is again resumed. Here and there some effort at post-hospital assistance is made; but it is mostly of an advisory nature; and mere advice in this world of constant financial strife is not accepted as a substitute, or as collateral, for that mystifyingly evasive substance termed "coin of the realm."

Congress in its liberality passed the law under which the Vocational Board is active; and its provisions were made in appreciation of the important part our men played in winning the war and in making our country safe for democracy. It showed its willingness to give financial assistance to those who needed and deserved it during their term of rehabilitation. It evidenced its desire not only to furnish adequate hospitalization as long as necessary, but to render financial aid to those who were eligible for training after their release from hospital supervision. And as a further measure of interest and help came the institution of the training centers in the various hospitals.

It may be pertinent to recall here that post-hospital eligibility for training comes under two heads: Class 2 and Class 3.

Class 2 training includes maintenance and support for the man and his dependents, the allowance ranging from $80 to $150 per month according to the number of dependents.

Class 3 training allows no maintenance or support but provides for instruction, books and supplies without cost. So-called "placement training" comes under Class 2 and in this phase, the man is given employment in his chosen sphere, meantime remaining under the supervision of the board. It is the present policy of the board to encourage patients not only to take training while in hospitals but to continue it after their discharge.

The personnel of the training center of this hospital now consists of the director, the assistant director and sixteen instructors. More recently a purely occupational unit devoted to war risk beneficiaries has been instituted and from the above staff five members have been assigned to duty in this section. Dr. Noyes is quoted as expressing the opinion that probably three hundred of the present war risk patients not now enrolled in the vocational center will be available for enrollment in this occupational class. It is hoped that in the occupational section there will be developed a sufficient number who will take up the vocational work later on. By this means it has been planned to have points of contact from the purely occupational work, through the prevocational center to the subsequent training after discharge from the hospital, in order to stabilize the later attempt at social adjustment.

This program may seem too ambitious and idealistic. The question is: Is it of practical therapeutic value? And if it is a beneficial asset in the treatment of the psychoses is it sufficiently valuable to justify the expenditure involved, from an economic and from a financial aspect? Taking also into consideration the future welfare of the patient, is it worth while?

The training center was instituted about July 1, 1920, and has been in operation nearly ten months. It would seem that an opinion as to its

*Read before the Clinical Pathological Society, April 12, 1921.

therapeutic value from an observation of its workings might well be expressed.

Personally, the writer considers the plan a valuable therapeutic agent; that in reality it is an economic measure. It appears to be not only of benefit in helping a certain number of patients to readjust themselves, but, in so far as it relates to the subsequent health of the patients after their discharge from the hospital, it must accomplish much in fortifying them against another mental collapse, since it endeavors to develop them along lines of work for which they show natural aptitude, in which they evince an interest, and, finally, in placing them in vocations where the stress will not be too great.

The teaching staff of the training center can be said to be of the highest type. It is marked by the pleasing personality of its members who have shown an enthusiastic interest in the welfare of the patients and in their progress. Likewise they have demonstrated tact in the handling of the patients; they have shown unswerving loyalty to the hospital and its officers; and they have uniformly recognized the necessity for medical guidance in the performance of their tasks.

Medical advice with reference to a patient's possibilities and to the pitfalls against which he very properly should be guarded forms a part of the procedure. There is always the danger that the program outlined may be too ambitious in scope and that misguided enthusiasm may stimulate him to efforts which in themselves might act as causative factors in a return of his psychosis.

For example, a patient who was recently discharged by the conference had, of his own initiative, formulated the idea that he must have a career, must "amount to something," to use his own expression—and glibly announced to the conference that after leaving the hospital he desired to continue vocational training and aspired to become a lawyer or a physician. Here was an individual of quite limited education and of unstable makeup who was shooting above the mark. The matter was afterwards carefully gone over with him, his limitations were pointed out, and an attempt was made to show him where his best possibilities lay. He was lithe and slender, naturally alert and quickly absorptive, of agreeable personality and rather scrupulous in the care of his dress and person. Moreover, he had flexible hands, had shown decided manual dexterity and had evidenced a decided interest and a definite ability in typewriting and kindred subjects. So the inadvisability of trying to carry out the plans he had formulated was pointed out to him and the incongruity of such a procedure as he had outlined was dilated upon. Emphasis was placed on the handicap for academic work which he must necessarily have because of his limited and meagre education, should he make attempt to obtain a professional degree. He was therefore advised that the safer plan, both from the standpoint of his health and from that of a successful economic adjustment, would be for him to engage, if possible, in some form of office work which was really to his liking and in which there would be not too much mental stress.

An opposite type was that of another patient who upon entering the center was tried out in school work. He had been improving slowly but at the time was rather too indifferent to express a desire for any special kind of work. After a short period it was observed that he was obviously disinterested in the class-room details and apparently chafed under them. Later, as he became more accessible and communicative, it was learned that he possessed a strong mechanical bent; that, as a boy, he enjoyed tinkering with such things as a bicycle, frequently taking it apart and reassembling it. He was of the robust, muscular type with large, squarely-shaped, strong hands. He was relieved from class-room work and was sent to the blacksmith shop where he plunged with energy and enthusiasm into the work and simultaneously began to show mental improvement by leaps and bounds. He now plans to take a course in automechanics, an occupation which will not only be lucrative but which will, no doubt, afford him happiness and contentment because he will be in an environment which he enjoys and for which he is naturally adapted.

In enrolling candidates for the training center a survey of patients is made with certain well-defined features in mind. These may be classified under five heads:

1. Interest. Is the patient interested in taking up training of any kind?
2. Health. Is his condition such that the proposed training will be beneficial or harmful?
3. The utilization of his past experience as a basis.
4. Building on his previous education.
5. The selection of a vocation financially attractive. All these features should be considered before the enrollment of the patient in the training unit is made.

From July 1, 1920, until April 1, 1921, the training center has had a total enrollment of two hundred and ninety four patients, all undergoing instruction. Of these fifty-six have been discharged, six of this number having been transferred to other hospitals. A critical and unprejudiced analysis of the fifty patients who were discharged to their homes classifies them as follows: Twenty-five were considered as fairly good material for subsequent training and would probably be highly benefited. Nine were thought to be doubtful. Four were absolutely not available for training of any type. Twelve were intermediate; that is, they were thought to be in a class between the accepted doubtful ones and those who were fairly sure of taking the advantage of training.

The attendance has varied in percentage during the different months from 5 per cent. of the total number of war risk beneficiaries last July to 17 per cent., which was the percentage enrolled in February, 1921. The percentage of the available patients enrolled from the number assigned for training has varied from a low of 67 per cent. to 100 per cent. in different months. The writer feels that the percentage of enrollment of the total war risk population should be and can be increased materially in the near future.

Briefly, the courses offered are as follows:

1. Prevocational training which includes arithmetic and English.
2. Trade and industrial training, comprising cement work, drafting, carpentry, etc.

3. Agricultural training, including farm crops, animal and poultry husbandry.

4. Business and commercial training, which includes typewriting, stenography, salesmanship, etc.

5. Occupational crafts of a miscellaneous kind.

Unfortunately, owing to the congestion which exists in the hospital and the resultant lack of space, it has been necessary to group with the enrolled members many patients of a semi-disturbed type who, in their restless condition, are not available for training. It is felt that their presence has a more or less deterrent effect upon the more comfortable patients, some of whom have expressed their dissatisfaction with this situation at different times. To be consistent it would seem that a training center of this nature should certainly have an atmosphere of calm and repose. The influence of idlers and of objectors to training upon those who have become interested in the work should also be neutralized to the greatest possible extent in order that the necessary morale may be preserved.

It would appear that more benefit is to be gained from the industrial, mechanical and agricultural courses of training than from the purely class-room or intellectual types. When we take into consideration that the ex-service men have had, as a rule, very meager educations, this is quite readily understood. They have failed to go through school originally because of backwardness, lack of interest, or financial stress or illness. Now that they have matured, it is not surprising that many of them revolt at the idea of taking up school work again. The suggestion is repellent to many patients and the benefits to be derived are either ignored or refused because of this repugnance to the atmosphere of a schoolroom. On the other hand, class work associated with the industrial and agricultural courses is more gracefully accepted because, apparently, of the appeal which the practical application of their studies makes to these men.

The industrial branch of the training center has done some very capable constructive work. With the aid of the enrolled patients it has erected the new dental clinic which is practically completed. There has also been constructed a frame chicken house 16 ft. x 36 ft., and a concrete incubator cellar. The drawings for these latter were prepared by some of the men in the school drafting class.

Another project well under way is a trades shop consisting of a main portion with two wings. When completed, this building will have the machinery and equipment of a modern wood-working, machine, and automechanic shop, as well as a drawing room. The program embodies a course in which it is hoped to carry a man from the drawing room through the various processes of shop work to the completion of articles. He will be started on the drawings, taught the method of calculating costs as to material, labor and overhead, and then brought to the practical construction of the work at the bench and machine. In the automechanics branch an effort will be made to turn out men who will not only have learned the art of driving a car but, also, *mirabile dictu!* men who will be able to repair one as well.

After a patient has been discharged from the hospital the physicians of the Federal Board have the obligation of deciding definitely and finally whether he is entitled to training and whether such training is feasible. If no history is known of the patient's illness, the decision must rest upon a short examination or upon observation of the patient in another hospital for a period of time. Thus matters are delayed and the patient may suffer a hardship in the interim. To obviate this difficulty and to lessen the period of delay, brief reports concerning the patients are made by the writer to the educational director from time to time. Again, when a patient is discharged, the opinion of the conference, if expressed, is embodied in a letter to the director. Through this procedure immediate contact in a medical way is established and it redounds to the patient's advantage.

Up to the present time we have no definite data as to the progress of discharged patients in so far as it relates to vocational training. However, a followup system has recently been initiated and it will no doubt be fruitful and interesting to learn to what extent the prevocational training has been helpful to these men in their efforts at adjustment.

As stated before, the whole plan—the basis idea—is prevocational and vocational in scope. It is occupational, to be sure, but it is more than that. Its design is to give preliminary training to patients along vocational lines so that upon their discharge from the hospital they may, under the supervision of the Federal Board or "on their own," pursue a gainful occupation to which they are adapted and fitted and in which there will be sufficient freedom from stress to allow them to make a contented, peaceful and successful social adjustment. Contrary opinions to those expressed by the writer as to the therapeutic value of this unit may very likely be held. His own opinion has been formed with a total lack of prejudice and with an unbiased feeling of detachment. Moreover, it is based upon the results of work already done and is formulated with the possibilities of the future firmly fixed in mind.

STAMMERING AND LEFT-HANDEDNESS.

By ERNEST TOMPKINS, M.E.

PASADENA, CAL.

A MUCH discussed feature of stammering is its alleged connection—in one way or another—with left-handedness. One authority says that stammering is prevalent among left-handed children; another says that to make the normally left-handed child use the right hand makes him stammer; another says that stammering being prevalent among the normally left-handed children and feeble-mindedness also being frequent among them, therefore, the stammerer is presumably feeble-minded. This alleged feeble-mindedness is an attenuated form of the ancient superstition that the stammerer was insane, a revival of which we find in the occasional statement that he is psychopathic. But the object of this discussion is not to consider ancient superstitions, but one which is largely due to a misconception arising from the discovery of Broca's center.

The physician is apt to have put to him the question: "Will my left-handed child stammer if we require him to write with his right hand?" Or, "Is my left-handed child more likely to develop

stammering than if he were normally right handed?" Will the answers be reliable? Or will they support popular misconceptions? This article is designed to enable the physician to do himself credit by his answers.

What is handedness? The reader of discussions which involve it would get the impression that a right-handed child either has no left hand or that its left hand is paralyzed. But any person who has two healthy hands uses one to an extent quite comparable to the use of the other, the difference being that one hand is used preferentially for certain performances. It is beyond the scope of this article to consider whether a preference is inherited. But social competition impells desistance from equal training of both hands, and convention dictates the training of the right hand for writing and other uses involving more or less skill. Indeed, custom keeps the right hand in advance. It is extended for greetings, because the proffer of the left hand is considered a slight; it is extended at entrance and exit because door handles are placed conveniently for the right hand; the scissors are made so that use by the left hand is extremely inconvenient; and the list might be lengthened to a tiresome extent. In short, whatever the inherent tendency, if any, necessity dictates the preferential use of one hand, and custom dictates that use for the right hand. But it is obviously erroneous to think that the nonpreferential hand is not used or is not skillful. For instance, an expert carpenter holds the nails in his left hand, "fingering" them—to use the trade term —so that a new nail is, head up, in position for driving as soon as the last blow has been struck on the preceding nail. In this case the dexterity required of the left hand far exceeds that of the right; but the man is called right-handed. In other similar cases the left hand is deprived of credit which is due it. We may liken the relation of the two hands to that of two partners in business for mutual benefit. For the sake of efficiency they divide the labor, one taking the shop management and the other the office management. The latter gets the credit for being the head of the concern because his labor is generally regarded as more intricate and he is more in evidence; but the preference which he enjoys is not proof that his partner could not perform the office duties provided he had the training for them. So it is with the hands. The left hand in a normally right-handed person does much skillful work, and my own experience in educating my left hand indicates that it is capable of just as much dexterity as the right hand. It is safe to say that the alleged intrinsic superiority of one hand over the other is largely or entirely mythical and that the difference observed is due to the difference in training given them.

Now there would be much more stammering than there is and much more left-handedness, if both habits were not checked by parental care. What more hackneyed instructions are there than "Stop talking that way or you will never get over it," and "Hold your pencil in your right hand"? Some authorities—and they are evidently well sustained —state that practically every child goes through a stage of stammering; and anyone who has grown up in a large family knows how incessant was the correction of incipient left-handedness. But not all parents are careful, so it necessarily follows that, purely as a matter of neglect, both stammering and left-handedness will remain as collateral characteristics of some individuals.

Before we leave the above explanation of the occasional coincidence of stammering and left-handedness, let us consider it. Suppose we submitted it to the editor of a popular journal as a scientific deduction. He would turn up his nose—rather turn down the manuscript. His idea is that nothing is scientific if it is not mysterious or involved and he wants his scientific material to smell of test tubes and other laboratory apparatus. He is not alone in his beliefs and predilections: these misconceptions of science are general. So in order to obtain consideration for our observation it is necessary to explain that science is a method of procedure designed to enable us to understand natural phenomena, and one of the rules of that procedure is that between two descriptions of a phenomenon, the complicated description is to be rejected and the simple one retained. Therefore, the description already given of the coincidence of stammering and left-handedness is to be retained until a simpler or more accurate description is presented.

We have to consider two propositions. The first one is that there is a cerebral connection between stammering and left-handedness. What does it rest on? On two sets of observations. One set is the occasional coincidence of stammering and left-handedness. The other set is the frequent coincidence of aphasia and paralysis of the right hand subsequent to injury or lesion of the left side of the brain; the reasoning being, since a cerebral injury is manifested coincidently by a speech defect and disability of one hand, then there must be a connection between stammering and "handedness." That sounds reasonable. But consideration shows it to be not only unreasonable but untenable. Aphasia is not stammering. Except that both are disorders of speech they are entirely different. Aphasia is a central deficiency; stammering is peripheral obstruction. Aphasia is not intermittent; stammering is. Aphasia is due to a lesion; none has ever been demonstrated for stammering and all reason is against one. Aphasia is almost never free from complication with other affections; stammering (except for some inducing causes) is free from complications. Aphasia is not subject to quick changes; the changes is stammering are as quick as thought. Aphasia appears most—except by accidental causes—in advanced age; stammering originates in childhood and never in advanced age. One might continue giving the antithical characteristics of the two disorders; but enough have been given to convince any fair-minded person that the two affections are totally dissimilar. From this it follows that, although under some circumstances a central connection between the use of the hand and aphasia has been established, this connection is not an acceptable indication of any such connection between stammering and the use of the hand, because stammering is totally different from aphasia.

This alleged central connection of stammering and handedness is negatived by other considerations, among them the only valid theory of stammering, the speech-interference theory. Most of us

remember that during the war the government was pestered to accept motors alleged to develop more energy than they consumed, and a portion of the popular press denounced Congress for not recognizing these wonderful inventions. But all the people who understood physics said to themselves at once: these schemes are contrary to the law of the conservation of energy, and wasted no further thought on them, except possibly to notice with an "I-told-you-so" air that when Congress finally did investigate the schemes it had to reject them. Just so, we have a general law of stammering which bars out the alleged connection of stammering and handedness. This law says that stammering is panicky, conscious interference with normal speech; that the stammerer has perfect speech ability; that his central organs and his vocal organs are all right. But an accident or incident induces him to begin the conscious efforts after his speech is newly acquired, and the ridicule visited on the failure of these original misdirected efforts prompts him to continue making more of them. It is demonstrable in numerous ways that if he desists from his impeding efforts his speech comes fluently, but after years of indulgence in this most tenacious habit it is difficult for him to desist. From this speech-interference law it follows that the only elements involved in stammering are the inducing accident or incident, normal speech, the fear of speech disability, and impeding conscious effort. Handedness does not enter in, so it is forever cast out. In short, there is no valid reason for believing in a central connection between stammering and handedness, and there are many reasons why we should not believe in it. The view, in the present state of knowledge, is a superstition.

The remaining view to be considered is the very popular one, unfortunately frequently advanced in our medical press, that discouragement of the preferential use of the left hand causes stammering, and the still more ridiculous view that return to the use of the left hand cures the stammering alleged to have been caused when that use was abandoned. The argument is that a cause operative at the left hand is transmitted inward via one neural path, centrally to another neural path, and then outwardly to the vocal organs where its effect is stammering. Now consider this argument. Take the cause, which is so inocuous as slighting the left hand by giving preference to the right. The left is not injured—it is merely neglected. Next consider the allegation that this mere slight to the left hand is transmitted inward with damaging effect. What evidence have we that any treatment of the hand is so transmitted inward? None whatever. Only a few days ago I was in the company of a man who had had part of his hand burned away by contact with an electric wire. No damaging effect had been transmitted inward to deteriorate his brain, much less to be transferred to another neural path and then outwardly to affect his speech. If this burn had no such effect, how could a mere slight to the left hand have such direful effect as to cause stammering by the devious route described? Finally consider the alleged connection of the inward and outward neural paths. There is an old saying that a chain is no stronger than its weakest link. Then this chain of transmission has no strength, for the connecting link is missing altogether. It has already been shown that there is no central connection. But, if the hand were injured (but it is not) and if the injury were transmitted inward (but it is not), and if there were a central connection (but there is none), then the effect would be aphasia, *and not stammering!*

If we need more proof of the falsity of this dextro-sinistrality cause of stammering, it is readily supplied. J. E. Wallace Wallin in his "Report on Speech Defectives in the St. Louis Public Schools," shows the view not to be sustained by the facts, and Ballard himself, after disseminating the superstition, says now, "I regard my investigation as more or less preliminary and suggestive rather than conclusive. . . . I only examined left-handed children and did not in any way test the right-handed children. It is probable that if I had done so and had tested their speech I should have rated the percentage of stammerers higher than the casual observers did, and thus reduce the difference between dextrals and sinistrals. At any rate, I now feel that the subject demands a much more careful and detailed investigation before any very definite conclusions can be arrived at." (Quoted by Wallin in the above report.) Ballard is mistaken in the last sentence; no investigation is needed. The view is so contrary to experience that an investigation is a waste of time.

Conclusion. There is no connection between stammering and the use of the hands.

174 South Bonnie Avenue.

PERITONITIS ACUTA CIRCUMSCRIPTA CATARRHALIS.

A NEW DISEASE.

By E. Palier, M.D.,

New York.

Under this heading I desire briefly to describe an affection that I have met with within the last two years, which greatly puzzled at first, and I am unaware that it has ever been described before. I will relate facts, and they will speak for themselves. The first case occurred in myself.

One morning nearly two years ago, in the late fall, I began to feel an uneasy sensation in the left iliac region. There was a sensation of fullness, discomfort, and pain on deep pressure. The bowels were costive, and there was slight nausea. Thinking it to be a case of intestinal indigestion I paid little attention to it. A few days passed without improvement setting in. The bowels remained costive in spite of an anticonstipation diet and the taking of laxatives, which ordinarily would be more than enough in my case to cause copious movements of the bowels, as I seldom resort to laxatives, getting good results from an anticonstipation diet alone. The pain became more localized and defined. It was in an area of about two to three inches in diameter, just above Poupart's ligament, between the anterior border of the ilium and the rectus muscle—rather nearer to the former. It was a slight, dull pain, aggravated on deep pressure, on walking or exercise, and relieved on lying in a horizontal position. About eight days thus passed, and in spite of careful attention to the bowels, there was no improvement. An examination of the stools did not show anything to incriminate the intestines. Had the affection occurred on the right side it would have worried me greatly for fear of appendicitis.

Then I felt some itching in the throat, some pain on

swallowing, and there was slight elevation of temperature. I took salicylates for this trouble. To my great surprise after two days of the exhibition of the salicylates the abdominal affection greatly improved, and a few days later entirely disappeared, the bowels becoming again normal, not requiring any laxatives.

I dismissed the disappearance of the abdominal affection as a mere coincidence, and did not consider it of any significance.

A few days later a little school girl, aged 11 years, was brought to me by her mother. The little patient complained of pain in the left iliac region, her bowels, which had previously been normal, became costive. The patient claimed that she was too sick to go to school and stayed at home.

On examination, I found a small, sensitive area near the anterior left iliac border near the anterior inferior spine of the ilium. I took it for a localized colitis. Indeed, I have often elicited pain in this region, and in some cases I could feel a small, soft, sausage-like tumor, which disappeared after appropriate treatment.

My treatment of the little patient in question was directed to her bowels. But the patient was under treatment for about twelve days without any improvement. The mother, who was an intelligent woman, remarked that if the trouble had been situated on the right side she would have feared for appendicitis.

On examining the patient again, I found the sensitive area increased, and corresponding nearly to the area in my own case as described above. This patient's stools did not reveal anything either to incriminate the intestines. There was also a slight elevation of temperature and a small increase in pulse. Then I thought of my own case and put the patient on salicylates. In a few days the child completely recovered.

The third case is of still greater interest; as the trouble occurred on the right side in the area corresponding to the McBurney point.

Patient, male, 35 years old, came to me complaining of pain in the right side of abdomen, from which he had suffered for about eight weeks, and had been treated at a clinic without any benefit. The history showed that the ailment began with a "cold." On examination, there was tenderness with increased pain on pressure in the area corresponding to the McBurney point, the pain radiating upward towards the ribs. The diagnosis of appendicitis, of course, suggested itself. The bowels were costive. An examination of the chest, however, revealed fine râles in its lowest portion on the right, in the area between a line drawn from the nipple and the axillary line. The chest affection, which I will omit discussing here, as it does not enter within the scope of this article, suggested to me the nature of the abdominal malady. The latter I considered as a complication of the former, and the patient was treated accordingly. In about three weeks the patient recovered.

I will now describe a fourth case where the affection occurred again in another spot, thus illustrating how it can occur in various localities and under various conditions.

This patient, male, age fifty, was suffering from pulmonary tuberculosis. The physical signs in the lungs and the subjective symptoms were slight, but the sputum was positive. He came to me complaining of pain in the left side. The pain and tenderness on pressure were located in the left side of the abdomen, just below the ribs, between the nipple and the axillary lines. On questioning the patient, I again elicited the fact that he had had a "cold" a few days previously, and since then the trouble had commenced. The administration of salicylates gave good results. This case was seen by me with Dr. Jos. S. Glickman, of New York City.

I have seen some other cases coming under this heading, but I think the four cases described sufficiently illustrate the malady in question.

Now, gastrointestinal disturbances in grippal affections or in "colds" are common. Some years ago, in a grip epidemic, I had under treatment a case which simulated diffuse general peritonitis, with hardly any lung trouble, but with congestion of the upper air passages. As the case occurred during an epidemic of grip, I treated it as such, and the patient made an uneventful recovery.

But localized pain in the abdomen is quite another matter, something I had not met with till about two years ago, or if I had met with, I had been unable to diagnose it.

I have named this affection acute circumscribed catarrhal peritonitis. The word catarrhal is, of course, very vague. But any other definition would be as vague, and still more hazardous, such, for instance, as grippal or rheumatic. As none of the cases, fortunately for me not my own case either, came to the operating or to the autopsy table, their exact pathology and etiology cannot be known. I have described the cases as I saw them clinically. Now that attention has been called to them, the opportunities for their further study by others may present themselves.

As to the treatment of these cases, I found the salicylates—I prefer strontium salicylate—acting almost as a specific. I will not enter into a discussion why this is so, and as to whether the salicylates act something like a specific in grip and in colds generally. This does not enter within the scope of the article. Here I simply report clinical facts the way I observed them.

There is no need to emphasize the interest of such cases, particularly with reference to the right side of the abdomen.

151 East Eighty-ninth Street.

CONCERNING THE THERAPEUTIC VALUE OF SILVER ARSPHENAMINE.

By OSCAR BERGHAUSEN, B.A., M.D.,

CINCINNATI, OHIO.

THE clinician is still confronted with the probability of reactions following the intravenous administration of arsphenamine and neoarsphenamine. The immediate and slight reactions which follow are common experiences; the later but more severe reactions are much less common but numerous enough to demand our attention. Many more fatalities have occurred than are reported in the medical literature. The writer knows of two which have not been reported: the last one following the intravenous administration of 0.6 g. neoarsphenamine, supposedly a conservative dose.

We are in need of a preparation possessing the highest chemotherapeutic index, by which is meant the ratio of the maximum amount of the drug tolerated to the curative dose; one with which subsequent reactions are slight, never serious, but yielding superior clinical results. The latest modification which has been placed upon the market is silver salvarsan, the sodium salt of silver-diaminodihydroxyarsenobenzene, in which the silver is in non-ionizable form. By recording our experiences it will be possible to determine its therapeutic value. Already the idea has been expressed that the clinical results are not equal to those obtained

with the older products, chiefly because of the fact that reactions do not occur. It may be desirable to obtain reactions in certain chronic latent syphilitics, but this should never be desired unless the clinical condition of the patient has been thoroughly investigated and unless the patient's tolerance for smaller doses has been previously determined.

Diagnosis	Number of Cases	Number of Injections	Number of Reactions	Result	
				Imp.	Same
Congenital Lues	2	9	1	2	..
Lues	13	53	0	13	..
Cerebrospinal Lues	14	44	1	11	3
Tabes dorsalis	8	24	0	4	4
Paresis	2	3	1		2
Total	39	133	3	30	9

In the above table the results obtained in treating advanced patients are listed. In this type of case severe reactions should be avoided because of the mental as well as deleterious effects which may be produced. In my own experience it has been found more advisable to repeat small doses than to risk the marked reactions which may follow the administration of larger doses, unless the tolerance of the individual has previously been determined. In the 133 injections, mostly containing 0.2 gm. and 0.3 gm. each, only three reactions were obtained, two of them were slight, and the other accompanied by loose bowels in a paretic who was unable to tolerate the older arsenic preparations as well as mercury. The initial dose was usually 0.1 gm., followed by 0.2 gm. injection in 4 or 5 days, and then by 0.3 gm. in case no reaction occurred. Improvement occurred very readily in those suffering from lues, congenital lues, and cerebrospinal types of lues; some improvement was noticed in 50 per cent. of the tabetics. In two cases the intravenous injections were followed by intraspinous injections according to the Swift-Ellis technique, with no reactions.

The patients all express a willingness to take another injection because no severe headaches nor gastrointestinal disturbances follow. Those who previously had been unable to take arsphenamine or neoarsphenamine without the production of symptoms, could readily take this newer preparation and suffer no ill effects. Improvement in the clinical condition was as marked as when the older preparations had been used.

The Wassermann reaction, using both cholesterinized and plain alcoholic antigens and the method of icebox fixation, thus far has been determined in only twelve cases before and after the treatments. These results show that in 3 of the 12 it was possible to change the reaction from distinctly positive to negative, in 2 it was made less intense, and in 7 of the 12, or 58 per cent., it remained unchanged.

19 West Seventh Street.

Protein Therapy in Malta Fever.—Ferro recently treated three patients with this disease, using intramuscular injections of sterilized cow's milk. In each case there was a severe general reaction, demanding the use of adrenalin and cardiac tonics. Two patients appeared to recover at once following this reaction, but the third showed a relapse on the sixth day.—*La Presse Médicale.*

Medicolegal Notes.

Medical Opinion That Accident Could Have Caused Injury.—The rule in the Missouri courts in personal injury cases is that expert testimony that the injury "might, could, or would" result from the supposed occurrence is equivalent to testimony that such occurrence was sufficient to cause the injury, and the quoted words are the proper ones to be used by counsel and physicians in asking and answering hypothetical questions.—Keith v. Kansas City Rys. Co. (Mo. App.), 231 S. W., 1046.

Ohio Limited Practice Act Held Valid and Constitutional.—The Ohio Supreme Court holds that the measure of the police power of the State is the measure of the public need, limited only by the State and Federal constitutions. Public health is one of the most vital subjects for the exercise of that power. In the conservation of the public health the legislature may require all those who may desire to practice the art of healing to furnish some substantial evidence, by public examination or otherwise, of qualifications to practice such art as a whole or in any of its branches. The statutory qualifications defined by section 1270, Ohio General Code, as preliminary to taking an examination of persons desiring to secure a license to practice the art of healing in Ohio, are reasonable and valid statutory provisions, and are in full force and effect in the Limited Practice Act until lowered by any rule or regulation of the Ohio State Medical Board, pursuant to the statute. Sections 1274-1 to 1274-7, General Code, further regulating the practice of medicine and surgery by authorizing the examination and registration of practitioners in the limited branches thereof, is a constitutional and valid exercise of legislative power. The court said: "If it be constitutional for the General Assembly to generally regulate the practice of medicine and surgery in this State, it would seem to follow that it had the same right to regulate any part and to provide in that regulation for a limited practice act. That is to say, that inasmuch as the whole includes all its necessary parts, what is constitutional as to the whole would have to be constitutional upon the same ground as to any one of the parts, unless such limited part for other reasons violated some constitutional provision."—Williams v. Scudder (Ohio), 131 N. E., 481.

Inference That Fall Resulted in Accident Cannot Be Built on Inference of the Fall.—In an action on an accident insurance policy, where the deceased was found at the foot of a stairway with a bruised forehead, it was held that a fall down the stairway was not a necessary conclusion. And with the positive and uncontradicted evidence of a diseased condition of the insured, and that an actual cerebral hemorrhage took place, it was held not proper to build upon the inference of a fall from the fact of a bruise the further inference that such fall was the result of accident rather than disease. There was evidence that a fall might have caused a rupture of an artery of the brain and brought about the cerebral hemorrhage. None of the physicians undertook to testify as a fact that the hemorrhage was produced by the fall. They simply said that it might have been so produced. No evidence of injury to the outer covering of the skull or to the skull itself, or to the dura mater or to the membranes covering the brain, or to the brain itself was found by the physicians. It was in evidence that a jar, not sufficient to injure these parts, could still be heavy enough to rupture a blood vessel in the brain of one in the condition of the insured, or that the effort expended by him in attempting to avert a fall might produce the same result. But a finding that a fall caused the death was, after all, an inference. And inference cannot be built upon inference to establish a fact necessary to be proved.

The advanced stage of the sclerotic condition of the insured's arteries, the undisputed evidence of cerebral hemorrhage causing death, the positive proof that there was not the slightest evidence of external violence causing any injury to skull or brain covering were held to argue just as strongly that the insured's fall, if he did fall, was caused by disease, as that it was caused by accident. That the fall was caused by accident was speculation. It certainly was nothing more than mere inference. The defendant's demurrer to the evidence should have been sustained.—Phillips v. Travelers' Insurance Co., Missouri Supreme Court, 231 S. W., 947.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Susbcribers.

New York, November 26, 1921.

IMMEDIATE DEATH OF HEREDITARY SYPHILITIC INFANTS.

HEREDITARY syphilitic infants may die immediately after birth, and this *immediate* death does not belong exclusively to debilitated premature infants, as it may occur in well developed babies born at term. The frequency of immediate death in syphilitic infants cannot be exactly given, as precise statistical figures are not at present attainable. The mothers in these cases rarely present manifest syphilitic lesions at the time of the birth. On the other hand, the history of the mother will not always give a clue to the diagnosis, but in many instances the young age of the mothers, who are usually primiparæ, will be noted. Other than hydramnios, there is nothing in the ovum that could possibly indicate the lesions offered by the infant. During the entire pregnancy the fetal heart-sounds and beats remain normal so that they do not offer any prognostic indications as to the precocity and rapidity of the death which will follow the infant's birth. Examination of the placenta almost always shows a considerable hypertrophy, it being about one-third of the weight of the fetus of six to eight months and one-fourth that of the infant at term.

By the term "immediate death" is meant death occurring two to three minutes after birth, the infant dying after having cried and taken several spontaneous inspirations. In some cases the infant may struggle for life a little longer. Among the organs involved the brain, heart, kidneys, and thymus are those less usually the seat of morbid changes. The lungs are frequently the seat of inflammatory changes, while the liver and spleen are rarely intact. Ascites is generally present. There are some cases in which the most careful necropsy has failed to reveal any determining cause for the sudden death.

The theory of "inaptitude for life" maintained by Fournier can be applied only to those infants in which autopsy has failed to reveal any organic lesion, but the discovery of the *Spirocheta pallida* has made these cases very exceptional. The theory of "occlusion of the portal vein," put forward by Gaston, which is based on clinical and experimental data, and which he regards as capable of explaining sudden death in hereditary syphilis, does not seem to be applicable to infants who die immediately after birth. Bonnet believes that the real cause of this immediate death is the impossibility of the lungs to expand, on account of the hypertrophy of the abdominal viscera, and so to dilate sufficiently for the entrance of air, and he concludes that these subjects die because the respiratory functions cannot become established. All his autopsies showed that the lungs were in a state of atelectasis. He also points out that the specific lesions in the infants examined postmortem by him were sufficiently apparent to eliminate any accusation of criminal attempt on the infant's life. Although absolutely negative findings have resulted in other reported cases, from the viewpoint of the cause of this sudden death, it is none the less true that nearly always a careful examination of the patients will reveal evidences of syphilis, no matter how hidden they may be.

CONSTITUTIONAL SYMPTOMS OF PROSTATIC HYPERTROPHY.

UNTIL quite recently the generally accepted view of hypertrophy of the prostate has been that formulated by Guyon long ago, namely, that enlarged prostate is a phenomenon of senility of which arteriosclerosis is the dominant condition. At the present day this view is held with considerable reserve or regarded as wholly erroneous. In an article appearing in *Le Bulletin Médical* for July 20-23, xxxv, 20, Pousson endeavors to introduce quite a different conception of the disease founded on endocrinopathic developments. The enlarged prostate, like the enlarged thyroid, he says, pours into the blood an excess of its proper internal secretion and sets up a status that could be designated "hyperprostatism," after the analogy of hyperthyroidism. This picture must be kept quite distinct from another with which it may coexist, to wit, chronic infection from a prostatic focus. Both pictures in turn may be confused with the results of back pressure due to prostatic obstruction, so that the conquences of enlarged prostate may be very complicated. The author gives an outline of the results of back pressure which are of course well understood and which coincide in part with those of chronic nephritis when the kidneys are compromised. Is the hypertrophy of the heart with heightened blood pressure, which is so common in the prostatic subject, always or usually motivated by secondary nephritis? This conclusion would be absurd, for some elevation of blood pressure—which subsides after prostatectomy—is almost always present.

Along with the circulatory anomalies we see peculiar digestive and nervous symptoms, which do not at all agree with those of minimal uremia. Among the former are habitual thirst due to lack of saliva, betrayed also by difficult mastication and swallowing and even articulation. Similar troubles of the other digestive fluids may be established clinically. Under nervous symptoms should be mentioned nervous depression. Animal experiments with prostatic

extract show that the latter has both a physiological and toxic action. In the clinic it is not always or often possible to obtain a clearly defined picture of hyperprostatism because of the coincidence of back pressure symptoms. In addition to hyperprostatism we have to bear in mind the possibility of a "dysprostatism." The consequences of prostatectomy cannot be made to throw light on the individual case, for it often happens that well-marked nephritis with its secondary symptoms will apparently recede after excision of the gland. If we grant that most of the severe symptoms are due to back pressure, there is a residue which cannot be thus explained and which can hardly be due to any cause other than a toxin of a neurotropic character. There is a large and increasing list of cases of mental disturbance which have improved strikingly after prostatectomy. Ordinarily these would be set down to senescence—naturally, of course, if no operation were performed, but the surprising mental recovery after prostatectomy shows that there could have been no primary mental failure.

THE MIRAGE OF URINARY ANTISEPSIS.

FROM the days when Lister filled his operating room with carbolic acid spray down through the long succeeding line of experiments with all varieties of antiseptics, physicians have had ever before them the ideal of perfect asepsis, or, failing that, of complete antisepsis. Enthusiastic physicians have seen just ahead of them the abolition of nearly all disease by the application or administration of appropriate germicides.

One of the primary obstacles in the road toward such a goal, however, was the fact that the usual antiseptics, in strength sufficient to be germicidal, were altogether too irritating to be applied to such areas as mucous membranes or the interior of viscera. In the face of this undoubted fact, compromises were made. Thus we had substances which would gradually liberate antiseptics which, mingling with the natural fluids of the part in question, would be mildly antiseptic. Of this nature were the various intestinal antiseptics which began to flood the market, lozenges which, dissolving slowly on the tongue, were presumed to inhibit the growth of oral bacteria, and so on.

The advent into therapy of hexamethylenamine was naturally the occasion for rejoicing among the devotees of this doctrine. Here was a substance which when taken internally resulted in formaldehyde being excreted in the urine, the bile, cerebrospinal fluid, middle ear, and possibly other places. This at once gave rise to many schemes of therapy, as, for example, the treatment of general paresis by sterilizing the spinal fluid. Many English psychiatrists seriously recommended the drug in this disease, published case reports showing apparent improvement in patients treated with it, and even put the method into textbooks.

The most obvious use for the new drug, however, was as a urinary antiseptic. But as the years go on, it becomes increasingly evident that it must be relegated to a position but little, if any, higher than salol, boric acid, and ammonium benzoate. The mirage of a perfect urinary antisepsis still lures us on, but fades on our approach. Aside from the difficulties necessarily involved in finding a chemically stable substance which will pass through the kidneys in sufficient quantities, which will be nontoxic, and which will be sufficiently antiseptic in large quantities of urine of any reaction, we have the frequent presence of a chronic source of reinfection with which to contend. In the presence of such things as retention, a stone, or a neoplasm such a drug as hexamethylenamine is by no means specific, in fact, we are coming more and more to believe that its chief value is as a prophylactic. The ideal urinary antiseptic is then still to seek, and we must regard it as one of those problems such as the search for a specific for tuberculosis and a treatment for paresis, which continue to fascinate investigators.

SKIN CHANGES IN CHRONIC INTESTINAL STASIS.

THERE is no doubt that there is a distinct relationship between certain skin affections and gastrointestinal disorders, probably a more intimate relationship than is commonly imagined. In a way this connection is more or less easy of explanation. If the gastrointestinal tract is in a disordered condition, toxins are apt to invade the circulation when certain skin complaints may follow.

Of all the disorders to which the alimentary tract is subject, none is perhaps more frequent and none is more liable to bring about intestinal autointoxication than intestinal stasis. Moreover, intestinal autointoxication means that the entire system may and often does become infected, with the result that one of the symptoms is the supervention of certain skin affections. Sir Arbuthnot Lane has been for long the chief apostle of the doctrine that a large number of the ills to which human flesh is heir are due to an accumulation of the contents of the large intestine, which after a time produces injurious effects on the alimentary tract and a general infection. In the endeavor to adapt itself to the circumstances changes take place in the gastrointestinal tract, of which one result is the formation of evolutionary bands, which secure the intestine in its normal position, but which later tend to constrict the lumen of the bowel and increase the stasis. In a paper contributed to the *Medical Press and Circular*, October 26, 1921, Sir Arbuthnot Lane points out that the above is an illustration of a law that he formulated, namely, that every change that arises during the lifetime of the individual to enable him to accommodate himself more efficiently to his surroundings tends to shorten his life.

So far as the effect of chronic intestinal stasis on the skin is concerned, it is noted that pigmentation is the most marked change. This change is said to be owing to degenerative changes in the

adrenals consequent on the excessive strain experienced by these organs because of the presence of the toxins in the blood. Profuse and offensive sweating is another skin symptom, and abnormal growth of hair and premature appearance of wrinkles are others. Again, the temperature and color of the skin afford evidence that the toxins in the circulation are giving warning that something is decidedly wrong with the state of the blood. The temperature is subnormal and the skin is a bluish livid color or bloodless and pallid.

While the writer does not tabulate the various affections of the skin which in his opinion arise from intestinal stasis indirectly, he draws attention to the fact that owing to the lowered vitality and resisting power of the several structures composing the skin, due directly to autointoxication or to changes in the ductless glands produced by it, the skin is liable to be invaded by organisms which are able to secure a foothold in it and to form inflammatory changes constituting disease. He ends by saying that the dermatologist is no longer satisfied to treat these skin conditions empirically by external applications, supplemented by drugs by the mouth, but first investigates the condition of the gastrointestinal tract, studies the several factors which prejudice the health of the tissues generally, as well as of the skin, and endeavors to deal with them, while at the same time he attacks the disease directly with suitable germicidal agents.

While many do not go so far as the British surgeon in attributing to intestinal stasis the disastrous sequelæ which he enumerates, there are few now who do not indict the gastrointestinal tract as a factor in the causation of several diseases and minor maladies directly or indirectly. To what extent the skin is prejudicially affected by chronic intestinal stasis is a question. It certainly is true that if the gastrointestinal tract is not in proper working order, it puts the entire system out of gear, and if long continued, as in the case of chronic intestinal stasis, may lead to very serious conditions. The moral is to prevent it from becoming chronic by treating any slight digestive troubles by dieting, exercise, and so on, but never by the use of strong cathartics.

More Vicious Legislation

The so-called Sheppard-Towner maternity bill, which passed the Senate last July, was passed in amended form by the House of Representatives on Saturday of last week, and is now in reference committee. That the measure will finally become a law, unless the President in his superior wisdom disapproves of it, is practically certain, for the vote in the House was 279 to 39, showing that the vociferous lobbying of the women advocates and the chronic congressional itch for squandering the people's hard earned money have together been too much for the practically unanimous opposition of the medical profession and that of those old-fashioned folk who still have a liking for the doctrine of States' rights. The bill provides for the spending of a million and a quarter dollars of government funds annually for the alleged "public protection of maternity and infancy," whatever that may mean. This public protection is to be effected by the Children's Bureau of the Department of Labor, with an advisory board consisting of the chief of the Children's Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education. The money is to be spent in the employment of "assistants, clerks, and other persons in the city of Washington and elsewhere," in the purchase of "such supplies, material, equipment, office fixtures, and apparatus" and in the payment of such travel and other expenses as the Children's Bureau may deem necessary for carrying out the purpose of the act, and to pay for instruction to the residents of the various States in the hygiene of infancy and maternity. Any State that wants this federal gift must match it with an equal sum, which means that its helpless citizens will be doubly taxed to pay for "instruction in the hygiene of maternity and infancy through public health nurses, consultation centers, and other suitable measures" approved by the chief of the Children's Bureau. As Senator Reed of Missouri pointed out in a speech last summer opposing the bill, the chief of the Children's Bureau and all her subordinates, with one exception, are maiden ladies whose knowledge of maternity and infancy is purely theoretical.

Sudden Death in the Puerperium from Acute Hepatic Insufficiency.

Accoucheurs are familiar with certain aspects of the toxemia of pregnancy which terminate fatally, including pernicious vomiting, eclampsia, and acute yellow atrophy in some of their more atypical forms. The so-called hepatic form of eclampsia in which the kidneys are intact and the so-called eclampsia sine eclampsia are among the rarer forms of acute toxemia of pregnancy and may destroy life rapidly. A case reported by Couvelaire and Aubertin in *Le Bulletin Médical* for September 7-10, 1921, xxxv, 37, is a good example of very rare and atypical toxemia which did not supervene until after delivery. The patient had gone through four gestations without any disorder and the fifth was also normal until after labor. There was a mere trace of albumin a few days before term. The vascular tension had been normal. Labor was normal and the puerperium banal for a time, but in two hours after expulsion the woman was dead. The earliest symptom was cyanosis followed by profuse sweating and rapid pulse. The suspicion was of concealed hemorrhage, but autopsy showed that none had occurred. The liver was found to be profoundly altered to the microscope. The diagnosis was dissociating hepatitis with atrophy and fatty infiltration of the cells, especially in the center of the lobules. In discussion various opinions were expressed. Potocki was certain that the lesion of the liver was of long standing. Several spoke of obstetrical shock as the determining cause of death, but it was objected that the labor was mild and relatively short. Sudden deaths of similar type have occurred not so very infrequently in women who appeared to be in every respect normal.

News of the Week.

The American Public Health Association held perhaps the most notable meeting in its history in New York City during the week of Nov. 14, under the presidency of Dr. Mazyck Ravenel. The activities of this, the semi-centennial meeting of the organization, were ushered in by sermons on health subjects from many pulpits in the Greater City. Grand Central Palace housed the largest health exposition ever held, from which no educational feature in the drive for better health was omitted. In connection with the exposition there was a baby contest, a search for the most perfect foot among women and for the most perfect set of teeth among children, and there were obesity reduction contests for both men and women. In the background and overshadowing all other features of the celebration was the figure of Dr. Stephen Smith, founder of the association and father of public health propaganda, who is ninety-nine years young and still actively engaged in public health work. A banquet in his honor was given in the grand ballroom of the Hotel Astor, at which he addressed the audience with the vigor of a man of sixty. He made several other addresses during the week, in which he delivered the message that there is no reason why man should not extend the span of life by thirty years, and demonstrating on biological grounds that the natural span of human life is one hundred years. One of his outstanding declarations was that "Few, if any, persons die of too much work, while thousands lose health and life by the slowly disintegrating process of idleness." President Harding sent a message to Dr. Smith congratulating him upon his health and his splendid work and adding good wishes for the testimonial banquet.

During the conference the American Public Health Association adopted the report of a committee, composed of representatives of the Foods and Drugs, Public Health Administration, and Laboratory Sections, recommending that the group of drug addicts spoken of as "criminals, degenerates, and feeble minded" be kept under official control and declaring that the control of this group is a police problem. The group of addicts who suffer from physical conditions necessitating an indefinite continuance of their use of drugs constitutes a medical problem, in the opinion of the committee. The committee's report said that so far as prevention of new cases of drug addiction may be considered a public health problem there are two points that the committee would urge — first, that international measures leading to the reduction of uncontrolled supply of drugs be taken; second, that the importance of the education of the physician as to the dangers of inducing addiction through medical practice and as to the best methods of avoiding such dangers be emphasized. The committee also recommended the appointment of a research committee of clinicians, biochemists and psychiatrists with official sanction to investigate all phases of the narcotic drug question and to make an authoritative pronouncement on the medical problem involved, and that this committee be authorized to cooperate with other official bodies. The Association also endorsed the movement to establish the Gorgas Memorial Institute of Tropical and Preventive Medicine in Panama City, in memory of the late Surgeon General William Crawford Gorgas. A committee was appointed to represent the Association in furthering the memorial.

The following officers were elected to serve for the ensuing year: *President*, Dr. Allan J. McLaughlin, Assistant Surgeon General, United States Public Health Service; *Vice-Presidents*, Dr. Haven Emerson, formerly Health Commissioner of New York City; Dr. Alfonso Pruneda, head of the National Department of Health of Mexico, and Royal S. Copeland, City Health Commissioner; *Executive Secretary*, A. W. Hedrich; *Treasurer*, Dr. Roger I. Lee, Harvard University.

Doctors' Fees and the Workmen's Compensation Laws.—The Committee on Medical Questions of the New York State Department of Labor, appointed to study the questions of medical care of injured employees, medical evidence and the manner of presenting it, method of selecting physicians and payment of medical expenses, hospital service and costs, has been holding hearings on these subjects. Thus far several hearings have been held in New York City, Buffalo, Rochester and Syracuse. Industrial Commissioner Henry D. Sayer states that the Department of Labor has had more difficulty over the medical situation than over any other question under the Compensation Law. At the conclusion of these hearings the Committee on Medical Questions will attempt to frame rules and regulations governing the medical practice and attendant problems.

County Medical Society Election.—The annual election of the Medical Society of the County of New York will be held on November 28. The only contest is for chairman of the Legislative Committee, Dr. Jacob Diner having been nominated in opposition to Dr. A. C. Prentice. Dr. Diner is the candidate of those who are in accord with the State Society in legislative policies.

Misinterpretation of the Harrison Law.—At a meeting of the Council of the Chicago Medical Society on November 8, the following resolution was adopted: *Whereas* Congress has passed a law to deal with the abuse of narcotics, called the Harrison Anti-Narcotic Act, and *whereas* reports are coming from various sections of the country which make it appear that the Bureau having to do with the administration of this act has apparently gone far beyond the intents and purposes of the act in its enforcement through arbitrary rules and unjustified interpretation, and *whereas* it appears that the rulings and acts of this Bureau are causing much intense suffering to many unfortunate addicts and are hampering physicians in their honest endeavor to properly assist these victims, and *whereas* it appears that many purely scientific and medical questions bound up in this Harrison Act are being interpreted and decided by people of no medical training; *Therefore Be It Resolved* that the Chicago Medical Society appoint a special committee to look into the workings of the Harrison Act from every standpoint and to make such recommendations to the Society as will in its opinion secure due recognition of the medical side of the narcotic problem and lead to governing rules that will have the sanction of the organized medical profession.

Pasteur's Centenary Observed.—In connection with the centennial celebration of the birth of Louis Pasteur in France during the week of Nov. 21, it has been revealed that John D. Rockefeller recently provided funds for the purchase of the great scientist's birthplace at Dole in the Jura. It will be transformed into a museum in which will probably be housed an extensive medical aad surgical library, with all the authentic documents of the French savant.

Druggists May Sell Medicinal Beer.—Telegrams were sent on Nov. 17 by Commissioner Blair to all prohibition directors authorizing them to amend the permits of retail druggists to allow them to sell beer for medicinal purposes. Telegrams were sent to retail druggists who have made inquiries regarding permits, advising them that the proper procedure in order to enable them to sell beer for medicinal purposes was to apply to the State Director.

Annual Report of United Hospital Fund.—This report shows that of the money contributed to New York hospitals belonging to the United Hospital Fund, ninety-three cents out of every dollar contributed to the United Hospital Fund last year was spent on patients in the fifty-seven non-municipal hospitals. The operating costs of the fifty-seven united hospitals, exclusive of new construction and improvements, were $14,836,466 last year, caring for 188,532 hospital patients for an average of sixteen days each, and also for the treatment of 628,732 out-patient cases. The average daily number of employees was 10,363, of whom 4,018 were nurses. Visiting and attending staffs of doctors, who care for ward patients and dispensary cases practically without charge, numbered 3,457. From nineteen hospitals in 1879 the organization has grown to include the present fifty-seven. The number of persons cared for has increased from 8,688 in 1879 to 188,532 in the last year, the number of hospital days from 177,692 to 3,010,699, and the receipts from $26,455.07 to $710,773.04.

Unique Volume for Medical Society.—A single volume giving the records of the Hennepin County (Minn.) Medical Society, the preparation of which has taken four years and cost nearly $800, was presented to the society at its meeting on Nov. 8. Dr. A. E. Benjamin, who headed the committee of nine who prepared the book, made the presentation. The volume is bound in morocco and printed on Japanese parchment in its original color, and is designed to withstand the wear and tear of a hundred years.

Seven Counties Favor Tuberculosis Hospitals.—All of the seven Pennsylvania counties that held referendums on Nov. 8 on the question of establishing tuberculosis hospitals voted in favor of the project. The vote was favorable in spite of the fact that loans in several of the counties were defeated. The counties voting for tuberculosis hospitals are Delaware, Montgomery, Berks, Luzerne, Lackawanna, Cambria and Beaver.

Hospital Notes.—The Norwegian Deaconesses Home and Hospital, Brooklyn, N. Y., will conduct a campaign during the week of Nov. 27 to raise a fund of $75,000.

A special tax has been levied to raise funds for a tuberculosis hospital to be erected in Des Moines, Ia., at a cost of $100,000.

The Brooklyn Hebrew Maternity Hospital, at Lincoln Place and Eastern Parkway, opened its doors on Nov. 12. The hospital has a capacity of 200 beds.

A new hospital to be known as the Broadview Healthatorium is to be erected at Wichita, Kan., at a cost of $100,000. The new institution will be built of the cottage plan and will be prepared to care for expectant mothers and patients on diets, rest cures, etc.

Ground was broken for the new Baptist Hospital to be erected at Little Rock, Ark., at a cost of $300,000, on Nov. 7. The hospital will have a capacity of 300 beds. Only the central wing of the hospital, costing $100,000, is to be erected at the present time.

The Thompson Memorial of the Riverside Infirmary, Charleston, S. C., which is to be operated under the direction of the Medical Society of the State of South Carolina, was formally opened on Nov. 10.

"Prevent Disease" Drive.—Resolutions have been adopted by the Medical Society of the County of Kings inaugurating a campaign in preventive medicine. The medical societies of the other boroughs of Greater New York have been invited to join the Brooklyn physicians in their movement to inform the public on "Social Diseases and Degeneration and Waste of the Money and Man-Power of the State." A committee of five has been appointed to confer with similar committees from other medical societies on the preparation of a plan for lectures to be given with this end in mind. The public is to be warned against the "nature and probable effect of threatening or pending vicious public health legislation." The resolution was introduced by Dr. John J. A. O'Reilly.

Dr. Adolf Lorenz of Vienna, Austria, reached New York on the French liner *Paris* on Nov. 19. He will work for a time at the Post-Graduate Hospital.

Dr. Kennon Dunham has been appointed head of the Department of Tuberculosis of the Medical College of the University of Cincinnati and director of the tuberculosis service of the general hospital.

Dr. James S. Danceker has been elected president of the Providence Floating Hospital Association for two years.

Dr. Mendonca and Dr. de Lima, who came to this country to attend the meeting of the American Congress of Surgeons, were the guests of honor at a dinner recently given by the Rockefeller Foundation at the Hotel Commodore, New York.

Charitable Bequests.—Under the will of Ernest Ryle of Paterson, N. J., the Paterson General Hospital receives a bequest of $5,000; the Paterson Eye and Ear Infirmary and the Children's Day Nursery each receive bequests of $2,500.

Drive to Raise Funds for a Medical College.—A campaign has been planned by the trustees of the University of Cincinnati to raise $400,000, the amount still necessary if the gift of $700,000 to the medical college from the Rockefeller Foundation is to be assured.

The New York Academy of Medicine will hold a stated meeting on Dec. 1, under the auspices of its Public Health Committee. A summary of the

committee's findings in a year's study of the hospital situation in New York City will be presented by Dr. E. H. Lewinski-Corwin, Executive Secretary. Dr. George B. Wallace will discuss "The Recording of Hospital Case Histories"; Dr. S. S. Goldwater will discuss "The Private Room and the Ward," and Dr. Gilman Thompson "The Function and Need of a Central Hospital Bureau."

Vacancies for Bacteriologists.—A vacancy is announced for a bacteriologist at the State Hospital for Incipient Tuberculosis, Ray Brook. The duties of the position include experimental studies in tuberculosis, routine laboratory work, and directing activities of technicians. Candidates must have had thorough training in bacteriology and at least three years' experience on problems in tuberculosis. The salary is $2,000 and maintenance. A vacancy is also announced in the position of Laboratory Assistant in Bacteriology, Division of Laboratories and Research, New York State Department of Health, at a salary of $1,500. Candidates must have had a college education or equivalent training in chemistry, physics and bacteriology and have had one year's experience in laboratory work. Application forms may be had by addressing the State Civil Service Commission, Albany, N. Y. Forms may not be sent out after Nov. 28 and may not be accepted after November 30.

Medical Society Elections. — THE SOUTHERN CALIFORNIA MEDICAL SOCIETY, at its sixty-fifth semi-annual session held in Los Angeles, Nov. 4, 1921, elected the following officers for the ensuing year: *President*, Dr. William Duffield, Los Angeles; *First Vice-President*, Dr. Robert Pollock, San Diego; *Second Vice-President*, Dr. H. A. Johnston, Anaheim; *Secretary-Treasurer*, Dr. Egerton Crispin, Los Angeles.

Obituary Notes. — Dr. JOHN J. ROBINSON of Plattsburg, N. Y., a graduate of the University of Vermont Medical College in 1885, died suddenly of heart disease in Albany, N. Y., on Nov. 2, at the age of sixty-five years.

Dr. PHILIP RANKIN KOONS of Mechanicsburg, Pa., a graduate of Jefferson Medical College, Philadelphia, died of heart disease on Oct. 31, at the age of seventy years.

Dr. D. WEBSTER B. KUPP of Reading, Pa., a graduate of the University of Pennsylvania School of Medicine, in 1882, died from cerebral hemorrhage on Oct. 30, at the age of sixty-four years. He was formerly secretary of the Board of Pensions Examining Surgeons.

Dr. CHARLES A. LONG of Muhlenberg, Pa., a graduate of the College of Physicians and Surgeons, Columbia University, in 1887, died after a prolonged illness on Oct. 31, at the age of sixty-one years.

Dr. VILMAS CONDORY, regimental surgeon of Roosevelt's Rough Riders during the Spanish-American War, retired from active practice, died suddenly in San Francisco on Oct. 28, at the age of eighty-four years. He held medical degrees from several European universities.

Dr. CAREY BRECKINRIDGE GAMBLE, the oldest alumna of the University of Maryland, died at his home near Elkridge, Md., at the age of ninety-seven years. He served in the Confederate Army as post surgeon under General Braxton Bragg.

Dr. FREDERICK EDWARD EASTON of Syracuse, N. Y., a graduate of the Long Island College Hospital, Brooklyn, N. Y., in 1884, died suddenly of apoplexy on Nov. 12, at the age of sixty years.

Dr. ROY L. BARR of Gowanda, N. Y., a graduate of Hahnemann Medical College and Hospital, Chicago, in 1908, died suddenly following a surgical operation in Rochester, N. Y., on Nov. 6, at the age of thirty-seven years.

Dr. RUPERT A. FOLGER of Whitestone, Long Island, N. Y., died from pneumonia on Nov. 13, at the age of forty-six years. He was graduated from the Long Island College Hospital in 1898. He was visiting physician to the Flushing Hospital.

Dr. JACOB NEHRBAS of Brooklyn, N. Y., died of heart disease on Nov. 14 at the age of sixty-six years. He was graduated from the College of Physicians and Surgeons, New York, in 1880.

Dr. THOMAS MILLMAN of Toronto died suddenly on Nov. 15 at the age of seventy-three years. He was a graduate of Trinity Medical College, Toronto, in 1873; the Royal College of Surgeons, England, in 1876, and the Royal College of Physicians, Edinburgh, in 1876. He was supreme physician of the Independent Order of Foresters.

Dr. JOHN J. NEWPHER, a graduate of Bellevue Hospital Medical College in 1881, died at his home in Lancaster, Pa., on Nov. 9, at the age of sixty-seven years. He was consulting physician to the Lancaster County Hospital and Deputy Coroner for many years.

Correspondence.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, Nov. 1, 1921.

Encephalitis Epidemica.—I am able to give authentic data received from an absolutely reliable source concerning encephalitis lethargica as it has so far appeared in Switzerland. The first case of encephalitis was observed at Bâle in 1917 and no other case was reported until the end of 1919, when some isolated cases developed in Geneva and Neuchâtel. But during January, February, and March, 1920, there was a rather severe epidemic which began to subside after the middle of March so that by the end of June it had disappeared. The epidemic of 1920 amounted to 984 cases, 850 of them having been reported in January, February, and March, showing the predilection of this disease for cold weather.

The following table shows the absolute proportion of encephalitis per 10,000 persons in relation to sex and age:

Age	Males	Females
Under one year	0	0
1–4 years	0.6	0.9
5–14 years	2.2	1.7
15–19 years	4.2	3.6
20–29 years	3.5	3.5
30–39 years	3.5	3.1
50–59 years	3.6	2.0
60 and over	2.9	1.8
Totals	2.8	2.5

The age at which one is most prone to contract the disease ranges from 15 to 49 years and in this respect is similar to influenza.

The number of deaths positively known to be

due to the disease was 290 out of a total of 984, making a mortality of 29.4 per cent., there being 162 males and 128 females. Contrary to what was noted in other countries the death rate of males was higher than that of females. During January, February, and March, 1921, 28, 49, and 36 cases respectively were reported, with 9 in April, 8 in May, 2 in June, 5 in July, and 2 in August, thus making a total of 139, and as compared with the epidemic of 1920, that of this year appears to have assumed a less serious type.

The contagiousness of the disease in Switzerland was not at all evident; nearly everywhere the cases developed sporadically, but some familial epidemics were noted which would seem to leave no doubt as to the contagious nature of encephalitis lethargica. The virus of this disease, like that of epidemic cerebrospinal meningitis and acute anterior poliomyelitis, so far appears to possess only a very slight power of propagation. But this does not mean that this factor should be regarded as negligible because, as in cerebrospinal meningitis, the virus of encephalitis may become suddenly intensified from unknown causes, so that a real epidemic explosion may ensue.

In Switzerland, as elsewhere, encephalitis has presented an accentuated polymorphism. Its proteiform aspects have notably differed from what was observed in former epidemics and the clinical triad—ophthalmoplegia, somnolence, and meningism—described by Economo for making a sure diagnosis, has been partially destroyed. In not a few cases there was restlessness instead of somnolence and the disease was one of insomnia. Delirium, similar in type to delirium tremens, has been noted.

Ophthalmoplegia has often been absent and when it did exist it was sometimes incomplete, fleeting, and alternating, the paralysis passing from a muscle to its homonym on the opposite side. As compensation, algias, often of a very obstinate kind, have been observed along with myoclonus and the myoclonic synchrome of the limbs and abdomen has sometimes assumed such intensity as to resemble electric chorea. The syndrome of paralysis agitans has likewise been encountered, as it has been in England and elsewhere. Nystagmus is also frequent. In some cases a true infectious exanthema has been noted, and the rise in temperature is constant.

At first it was stated that encephalitis lethargica was characterized by the absence of meningeal reaction, but the work carried out in Swiss clinics during the epidemic of 1919-20 by Turrettini, Bauer, and Stähelin has shown that this opinion should be revised. An early lymphocytosis has been found, especially marked in the oculolethargic forms of the process, moderate or even nil in the myoclonic or nervous types, and rapidly diminishing with the retrogression of the symptoms. Whether or not the tension of the cerebrospinal fluid remains normal is yet a moot subject. While Turrettini maintains that it is normal, Bauer noted a moderate increase in most of his cases. A partial or total hemorrhagic state of the cerebrospinal fluid has occasionally been found whose content of glucose is likewise increased (hyperglycorrhachis).

Briefly, it would seem as if the clinical picture of encephalitis at first was limited to a localization of the virus in the mesocephalon and then as the epidemic continued the virus, for unknown reasons, progressively invaded other portions of the cerebrospinal axis. As to the gravity of the various forms of the process, Cramer of Geneva has remarked that the types with insomnia have a much more serious prognosis than the lethargic forms, and death occurred in his cases only in the former. From a study, especially on his own cases, Bauer has attempted a classification which is interesting to refer to because in a way it is a summary of the cases as they occurred in Switzerland. He distinguishes four types of encephalitis: (1) The cortical type, with acute delirium simulating delirium tremens, general paralysis, and other psychoses and typical Jacksonian epilepsy or aphasia of Broca's type. (2) The classic mesocephalic, myoclonic, and lethargic types as well as alternating paralysis in which the Parkinsonian type may perhaps be included. (3) The meningeal type, very difficult to distinguish from the tuberculous variety. (4) Forms with an unrecognized localization, simulating hysteria and other neuroses. There is, of course, the entire scale of fleeting, abortive, and aberrant types, which is not included under the headings of the above classification.

For reasons too numerous to discuss, the opinion of the Swiss profession becomes more and more inclined to regard influenza and encephalitis lethargica as two distinct morbid processes. Their coincidence may be explained by the interference of certain factors whose action has as an effect to activate their respective viruses simultaneously. It is evident that this explanation is very hypothetical, so that the question is still moot.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 10, 1921. clxxxv.

1. Surgical Aspects of Intraabdominal Tuberculosis in Infancy and Childhood. Charles G. Mixter.
2. Intussusception—The Clinical Manifestations. James S. Stone.
3. Acute Intussusception. Surgical Treatment and Report of Cases. F. V. Hussey.
4. Diphtheria of Larynx, Trachea and Bronchi Association with Papilloma of the Larynx. Edwin A. Meserve.
5. Squamous Cell Carcinoma of the Antrum. Report of a Case Treated with Radium Alone That Is Free from Recurrence Twenty-two Months After Last Application. J. Harper Blaisdell.
6. Monitor Ventilation. Walter A. Griffin.
7. Pessary Worn Without Removal for Twelve Years. Charles J. Kickham.

1. Surgical Aspects of Intraabdominal Tuberculosis in Infancy and Childhood.—Charles G. Mixter bases this paper on a study of 120 cases of tuberculous peritonitis, chiefly from the surgical service of the Children's Hospital. He groups tuberculous peritonitis into three types, namely, the miliary type, the ascitic type, and the adhesive or plastic type. He believes these various types to be different stages of the same process. A family history of tuberculosis or known exposure was elicited in only 12 of the 120 cases. This point is suggestive evidence that tuberculous peritonitis is one of the most frequent varieties dependent on the bovine bacillus, as is also the fact that the relative number of such cases has apparently decreased during the last decade, coincident with more adequate supervision of the milk supply. The *x*-ray is of no value in clearing up an obscure diagnosis in cases of abdominal tuberculosis, except in demonstrating calcareous glands, or

revealing a spasm of the ileocecal valve. As to the treatment, where practicable in cases of mesenteric adenitis, excision of the tuberculous focus and correction of the cause of ileal stasis is indicated. Operation should be advised in any case of the ascitic type, where improvement does not take place after a fair trial of medical treatment. Laparotomy has frequently marked the turning point toward convalescence in a patient who has been progressing unfavorably under hygienic measures. The causative factor has never been proved, though it is generally considered that the hyperemia produced by the withdrawal of the fluid and the entrance of air into the peritoneal cavity is responsible. Working on this supposition, seven years ago, the writer began the introduction of nitrogen into the peritoneal cavity after the evacuation of the fluid. Later air was used in place of nitrogen. The results thus far obtained suggest that air injection may give more beneficial results than simple laparotomy. In the plastic type of the disease, operation is of no value except in meeting complications of the disease. The hygienic treatment is of paramount importance. Surgery should only aid and never supplant it.

5. Squamous Cell Carcinoma of the Antrum. Report of a Case, Treated with Radium Alone, That Is Free from Recurrence Twenty-two Months After the Last Application.—J. Harper Blaisdell describes the operative procedures that have been employed in the removal of squamos celled carcinoma of the antrum and the method of combining the actual cautery and radium, employed by New at the Mayo Clinic in eight cases, of which only three were alive and without recurrence at periods ranging from thirteen to seventeen months. The case reported by Blaisdell was a man 63 years of age who developed cancer following chronic tooth disease. At the time he came under observation the mass in his cheek was large enough to push the nose well over to one side; there was obstruction and discharge from the affected nostril. No glands were palpable. Under ether anesthesia an incision was made into the antrum through the canine fossa and the radium introduced. This consisted of 50 milligrams of radium element, screened with 0.5 millimeters of silver and 1.0 millimeters of brass. It was left in place twenty-four hours, giving a dosage of 1200 milligram hours. The immediate effect was excellent. About a month later a second application of radium was made, using double the dosage above mentioned. Three weeks after the last treatment three months of extreme suffering began. The few remaining teeth on that side came out; the hard palate up to the median line and the alveolar processes sloughed away. The constitutional reaction was most striking. There was a mental dulling and complete physical failing. Pain was so extreme as to demand morphine over several weeks. The man's weight fell from 180 to 130 pounds, and a fatal termination seemed the only possible outcome. Finally a very large mass of sequestrum came away, and from that time the patient improved rapidly. Within a few weeks he was back at work and felt as vigorous as he had been all his life. His weight returned to 185 pounds. The final result was complete removal of the antrum and its surrounding structures from the mouth to the orbit. No recurrence has appeared in the twenty-two months that has elapsed since the second radium treatment.

6. Monitor Ventilation.—Walter A. Griffin points to the failure of the usual methods of ventilation now in use and describes the monitor system which has been in use for two years at the Sharon Sanatorium and has proved so highly satisfactory that they would not construct a building ventilated in any other way. The principle of the monitor system is exemplified in the Indian wigwam, built in the shape of a cone with an opening at the apex. In order to remove the vitiated air from a room most thoroughly there should be not only an opening in the ceiling but the ceiling should be raised at its center to a peak like the attic of a house. With this system the air inside the buildings is seemingly as pure as out-of-door air. When used in schools the results are practically as good as in an open-air school, and far less rigorous for the pupils. With it there are no perceptible drafts. Its disadvantages are that it presents some architectural problems where a more than one story building is to be erected, but these are not insurmountable. It might also be objectionable in certain noisy or dirty places in the city. A school in Canton, Mass., is ventilated in this way, and all of the teachers are exceedingly enthusiastic. They state as their impression, though no data have been collected, that the incidence of respiratory disease among the pupils is much less than in an ordinary school room.

Journal of the American Medical Association.

November 12, 1921, lxxvii, 20.

1. Protein Hypersensitiveness and Its Importance in the Etiology of Disease. Warfield T. Longcope.
2. The Pirquet System of Nutrition and Its Applicability to American Conditions. William E. Carter.
3. Multiple Myeloma: Report of a Case. Sverre Oftedal.
4. Bronchoscopic Studies of Pulmonary Abscess. Henry Lowndes Lynah.
5. Tumors of the Pancreas. Charles D. Lockwood.
6. Xanthoma Tuberosum Multiplex in Childhood, with Visceral and Tendon Sheath Involvement. Frank Cregor Knowles and Henry N. Fisher.
7. The Therapeutic Aspect of Irradiation in Superficial Malignancy. Albert Solland.
8. A Clinical Study of Carcinoma of the Nose. Richard L. Sutton.
9. Primary Sarcoma of the Upper Lip: Report of a Case. S. E. Sweitzer and H. E. Michelson.
10. An Analysis of Gastroenterostomy and Its Failures. C. A. Roeder.
11. An Operation for Valgus Feet. Percy Willard Roberts.

1. Protein Hypersensitiveness and Its Importance in the Etiology of Disease.—Warfield T. Longcope reviews the history of the subject of hypersensitiveness in man, and adds certain new observations. He states that a certain proportion of individuals possess a peculiar idiosyncrasy to some substance or substances that usually are proteins, or contain proteins, but that may be of a non-protein nature, such as certain metals and drugs. Contact with these substances under certain conditions may cause hay fever, asthma, gastrointestinal disturbances, eczema, urticaria, or other cutaneous manifestations. As a rule the symptoms of these diseases appear early in life and may be observed the first time the patient comes in contact with the substance to which he is hypersensitive. There is undoubtedly a definite tendency toward the inheritance, not of a specific hypersensitiveness, but of a quality of tissues that allows of the development of idiosyncrasies; and this may be dependent on a condition of the body fluids or of the cells which permits of a ready union of foreign protein with them. The peculiarity of the patients is that the skin reacts by the formation of an urticarial wheal to the application of the substance or substances to which they are hypersensitive. Though these reactions are highly specific, they may be multiple and produced by a large variety of proteins. Normal individuals who have had subcutaneous or intravenous injections of horse serum show a measurable difference in their susceptibility to serum disease. This does not depend upon the amount of serum, but on the condition of the tissue cells and fluids of the body which, in susceptible individuals, allows of rapid union of the foreign serum with the cells of the body. The writer's observations suggest very strongly that the susceptibility of certain individuals to serum disease depends upon the readiness with which the cells of the body unite with the circulating horse serum to form antibodies. Should this preliminary union be interfered with, the subsequent reaction is very slight, and if the union of the circulating horse serum and the cells of the body is by any means completely prevented, there will be no formation of antibodies, and no manifestation of serum disease. It is impossible to say at present whether this protection against the foreign protein is due to some quality of the serum which stands as a barrier, so to speak, between the cells of the body and the foreign protein, or whether the protective mechanism resides in the cell itself, which for some reason is impermeable to horse serum. It seems possible that sensitization of the human being may well depend upon two factors: (1) The permeability of the tissue cell to the foreign protein, and (2) the formation of antibodies within the cell. That many of the characteristics of the symptoms and reactions that occur in the hypersensitive patient may be produced in normal individuals by chemical substances is well known. It seems highly probable, from all the evidence that can be col-

lected, that proteoses, or the toxic amines such as histamine, may be absorbed from the intestine and cause disturbances not only of nitrogenous catabolism, but also temporarily of renal functions, but without anatomical lesions in the kidneys that can be demonstrated by our present methods. To explain satisfactorily the clinical manifestations of the idiosyncrasies and allied disturbances, one must, therefore, consider two factors: (1) The possibility of a specific hypersensitiveness toward some protein or chemical substance; and (2) the possibility of a direct intoxication by some poisonous derivative of the protein molecule. How nearly related these are and what part the second plays in causing symptoms in the hypersensitive individual, it is impossible to state at the present time.

2. The Pirquet System of Nutrition and Its Applicability to American Conditions.—William E. Carter describes the Pirquet system for determining the nutritional index of a given subject, based on the belief that the sitting height furnishes a more accurate basis for estimation of the nutritional state than the standing height. It was demonstrated that the cube of the sitting height in centimeters is approximately ten times the weight in grams of the normal person. When the sitting height and the weight are known the formula is simply ten times the weight divided by the cube of the sitting height equals 100 per cent. To designate this percentage of nutrition, Pirquet coined the word "pelidisi" (*p*ondus, *e*decies, *l*inear, *d*ivided by *s*itting height). In actual practice, the pelidisi of a well-nourished normal child is close to 100 per cent; an obese child may go up to 110, while thin children will run between 88 and 94 per cent. Instead of the calory, Pirquet prefers a nutritional unit based on the food value of 1 c.c. of milk. This unit he calls a "nem" (*n*utritional-*e*lement-*m*ilk). The physician and dietitian have to deal with a populace to whom milk is familiar and who can readily visualize a unit of food measured in terms of this common article of diet, while the calory suggests nothing concrete to one unaccustomed to thinking in terms of physics. The fact that there are about 667 calories in 1000 c.c. of milk further complicates the system. With Pirquet's method 1000 c.c. of milk equals 1000 nem. The nutritive value of any other food can be readily expressed in nem simply by comparing its food value with that of milk. Pirquet also estimated the needs of the individual for basal metabolism and for varying degrees of activity. The writer believes the Pirquet system is applicable to American conditions, especially those under which it may be desirable to feed children in considerable numbers. It provides a simple, accurate, and rapid method of estimating the nutritional status easily grasped by workers even without medical training; it reduces the prescribing of the requisite food intake to a simple formula; it makes it possible to use a single word to make a record of the child's nutritional state which may serve for comparison with the results of future examinations; it eliminates waste and at the same time supplies the child with an adequate amount of food and by its very operation it secures the actual ingestion of the food; it serves as a selective agent, at once segregating children into various groups —those with a moderate need, those with urgent need, and those without need of additional food. The Pirquet system has been applied in the children's wards and in the out-patient department of the University of California Hospital, and has been found applicable, easy of accomplishment, and extremely popular among all who work with it. It has been applied to the examination of children in several schools and brings out the fact that many of our own children, judged by the same standard employed by the American Relief Administration, are in need of supplemental food.

5. Tumors of the Pancreas.—Charles D. Lockwood discusses the diagnosis of pancreatic tumors and reports a case of sarcoma of the tail of the pancreas, a condition which is exceedingly rare. He says the diagnosis of pancreatic tumors is exceedingly difficult; there are, however, certain symptoms common to all tumors of the pancreas. These are: (1) Pressure symptoms exerted by the tumor upon surrounding structures. Tumors of the head of the pancreas by pressure on the large vessels or the common duct may produce edema, ascites, or persistent jaundice. Pressure on the renal veins has produced marked hematuria as reported by Ransohoff. Pressure on the stomach and duodenum causes distention and apparent filling defects simulating tumor of the stomach on the roentgenogram, as was shown in the writer's case. Pressure on the solar plexus produces epigastric pain. Tumors of the tail of the pancreas give rise to fewer pressure symptoms, owing to the large space offered for growth in this location and the freer mobility of the tail. Tumors of the tail, however, closely simulate those of the kidney and spleen. In addition to pressure symptoms there are: (2) Fatty stools due to closure of the pancreatic duct. The failure of the pancreatic juice to enter the duodenum may be determined by the administration of salol, the so-called "Signe de Sahli." Undigested muscle fiber in abnormal quantities has also been reported by a number of observers. (3) Sugar in the urine has been reported infrequently. (4) One of the most characteristics symptoms is rapid emaciation with cachexia and weakness. Dr. Joseph Bloodgood, after examining a section of the tumor from the case reported, stated that it was a sarcoma. Dr. E. R. LeConte of Chicago questions the possibility of this being a primary sarcoma of the pancreas; he thinks it may be a lymphosarcoma originating in the retroperitoneal tissues.

The Lancet

October 22, 1921, cci, 5121.

1. Harveian Oration on William Harvey, Obstetric Physician and Gynecologist. Herbert R. Spencer.
2. Hunger-Osteomalacia in Vienna, 1920. I. Its Relation to Diet. Elsie J. Dalyell and Harriette Chick. II. Comparative Treatment of Out-Patients with Cod Liver Oil and Plant Oil. E. Margaret Hume and Edmund Nirenstein.
3. Practical Points in the Treatment of Plague. Wu Lien Teh (G. L. Tuck).
4. The Reaction of the Blood: The Mechanism of Its Regulation. C. A. Lovatt Evans.

2. Hunger-Osteomalacia in Vienna, 1920. I. Its Relation to Diet.—Elsie Dalyell and Harriette Chick have made this report to the Accessory Food Factors Committee appointed jointly by the Lister Institute and the Medical Research Council. Briefly, they find that the occurrence of "hunger-osteomalacia" in Vienna during the period of greatest food deprivation, its incidence among the poorest inhabitants, and the beneficial effect of improved diet without any other form of treatment, suggest that the disease is of dietetic origin. The disorder affects chiefly middle-aged and old people of both sexes. The characteristic symptoms of the condition are pain on body movement, difficulty in mounting stairs, severe pain in the sacral region on pressure or movement, a waddling gait, and pain in the ribs on compression of the thorax. Tetany may occur in association with the disease. Forty-eight cases were treated by making additions to the patients' diets in the form of carbohydrates, cereals, and fats of various kinds. Little improvement could be demonstrated after the addition to the diet of sugar or cereals (*i.e.* extra calories without fat), although in many instances the previous diet had been very scanty. Recovery followed the addition of either cod-liver oil, butter, oleomargarine containing 80 per cent. of animal fat, or olive oil. The beneficial influence was in the order named above, cod-liver oil being by far the most effective. Some of the severer cases did not improve until cod-liver oil was given. The relative therapeutic value of the fats used corresponds roughly to their content in fat-soluble A vitamine. This is regarded as significant. It is also possible to interpret the remission of symptoms of "hunger-osteomalacia" in summer and their relapse in winter as due to varying supplies of vitamine A in the diets, for, during summer, inclusion of green vegetables in the diet provides a valuable source of this vitamine. One attempt, however, to cure a severe case with a fat-free diet, rich in green vegetables, was not successful. More observations are needed on this point. The increase in Vienna of rickets in children and of late rickets in young adults, simultaneously with the occurrence of "hunger-osteomalacia" suggests that the three disorders may be due to the same cause.

2. II. Comparative Treatment of Cases of "Hunger Osteomalacia" in Vienna, 1920, as Out-Patients with Cod-Liver Oil and Plant Oil.—E. Margaret Hume and Edmund Nirenstein, out of 177 cases of hunger-osteo-

malacia treated as out-patients in Vienna, selected 130 as suitable for this experiment. About one-third of the number was treated with a plant oil (subsequently identified as belonging to the rape oil group) containing phosporus, the other two-thirds with cod-liver oil. Most of the patients made progress, but some of the patients on plant oil had to be transferred to cod-liver oil, and some of those on cod-liver oil had to have the dose increased before good progress could be made. The results fall into a series; doses of about 100 c.c., 150 c.c. and 200 c.c. of each of the two kinds of oil were given. The smallest dose of plant oil gave the worst result and the largest dose of cod-liver oil the best; the smallest dose of cod-liver oil was better than the largest dose of plant oil. Once a good improvement was set on foot it could not be detected that the rate of progress on the different doses varied much. It is provisionally concluded that cure of the disease was due to addition of vitamine A rather than of fat as fat to the diet. The relation of hunger-osteomalacia to the osteomalacia of pregnancy is regarded as quite uncertain.

3. Practical Points in the Treatment of Plague.—Wu Lien Teh (G. L. Tuck) traces the beginning of the bubonic plague of 1920-21 in the Transbaikal district of Siberia toward the end of the summer. During a stay at Hailar he was able to follow it through its evolution from bubonic, through the septicemic into the pneumonic form, after which it became most infectious and dangerous. Fortunately, owing to the early preparations made by the Manchurian Plague Prevention Service and the splendid co-operation by the authorities of the Chinese Eastern, South Manchurian, and Chinese Government Railways, as well as by most classes of people, the epidemic did not reach the colossal dimensions of that of 1910-11. For instance, the whole of the Changchun district only claimed 77 deaths from plague, and Mukden only four deaths, as compared with 5000 deaths in each city during the epidemic of ten years ago. Whereas at least 50,000 plague deaths were recorded in 1910-1911, only 8500 persons died in the epidemic of 1920-21. The Plague Prevention Service made and distributed 60,000 anti-plague gauze masks and 8000 doses of anti-plague vaccine from their laboratory. In addition to their routine work, the staff took advantage of the occurrence of this rare epidemic to perform a series of important bacteriological investigations. Experiments performed ten years ago at Mukden, and repeated this time at Harbin, show that the infection is transmitted in droplet form, and that the droplets seldom travel more than three feet. If a way can be found to allow persons to sleep as well as work out in the open air, however cold, infection will not take place and pneumonic plague will lose its dreadful character. The cotton and gauze mask is apparently efficacious against the plague, though it was considered best for those in immediate contact with patients to wear, in addition to the mask, a head covering made of cloth with an extra piece of silk before the nose and mouth. Experiments indicated that air of the sick room was not nearly as dangerous as might have been expected. It was found that the clothing from plague victims was highly dangerous and should be burned with the dead bodies. Over 400 experiments were carried out with the best known antiseptics, and it was found that the plague bacilli were extremely resistant to their action, and more concentrated solutions for longer periods than usually recommended are necessary to destroy the bacilli.

British Medical Journal.

October 22, 1921, No. 3173.

1. The Harveian Oration on William Harvey, Obstetric Physician and Gynecologist. Herbert R. Spencer.
2. The Physiological Cost of Muscular Work: A Reply to Objections. A. D. Waller and G. DeDecker.
3. Glycosuria of Malarial Origin. G. A. Harrison.
4. Over Five Hundred Gallons of Fluid from an Ovarian Tumor. John D. Malcolm and G. A. Gibb.
5. A Method of Skin-grafting. Samuel Samuel.

3. Glycosuria of Malarial Origin.—G. A. Harrison notes that in referring to several textbooks on medicine no mention of glycosuria of malarial origin could be found. Castronuovo, however, regards malaria as important in the etiology of some cases of diabetes mellitus. (*Medical Science*, iv, 6, 497, September, 1921.) The case reported is that of a Jewish merchant, 32 years of age, who went to Bombay in 1919; in 1920 was in bed three weeks with dysentery and colitis, and a little later developed malaria. Parasites were found in the blood. During the following six months he had a number of relapses, and in March, 1921, sugar was found in his urine, and a diagnosis of diabetes mellitus was made. Carbohydrates were reduced; the glycosuria decreased considerably, but was present in May, 1921, when the man left India. In June sugar was again discovered, but in July Sir Charlton Briscoe found no trace. There was a family history of diabetes which should make it instructive to keep in touch with the case for several years. The writer speculates as to the site of action of the malarial toxins—whether the glycosuria may have been due to diminished glycogenic function of the liver and other tissues. Presumably the urobilinuria resulted from the destruction of red blood corpuscles by the malarial parasites, but, in part, at any rate, may have been due to the effect of their toxins on the liver. The islands of Langerhans may have suffered from the toxic action, so that the supply of internal secretion was insufficient to prevent glycosuria on a full diet. Against this is the fact that all the pancreatic tests performed in this case were negative. Owing to toxic action of the kidneys their "leak point" temporarily may have been lowered. The type of blood sugar curve gives some slight support to this hypothesis, since four days after evident glycosuria the curve should have revealed some degree of hyperglycemia unless the glycosuria was of the renal type. Lastly one may picture a toxic influence on several of the ductless glands, so that the balance between their secretions was upset in such a direction as to cause glycosuria. There is always the possibility of two or more of the above causes being at work. Such theorizing suggests possible lines of research in malarial patients that might be of interest if not of real value; for instance, (1) examination for glycosuria before treatment, and (2) blood-sugar curves to decide, among other things, if the glycosuria is renal in origin. As in two cases previously published, so in this instance the glycosuria cleared up with quinine in the absence of dietetic treatment; in fact, sugar was deliberately included in the diet throughout the patient's stay in the hospital.

4. Over Five Hundred Gallons of Fluid from an Ovarian Tumor.—John D. Malcolm and G. A. Gibb state that the cyst from which this fluid came was noticed in 1893, and the abdomen was tapped the first time in the autumn of that year. In 1899, after about six years' tappings, the late John Langdon tried, and failed, to remove the tumor. On July 20, 1906, John D. Malcolm tried again, with the same result. Almost to the last the condition of the patient was fairly good. She was up and about and ate enormous quantities of food, except just before tappings, when she suffered from nausea and vomiting. On June 30, 1921, when a tapping was about due, the patient was seized with pain and vomiting, and was tapped without relief. She died on July 6, at the age of 67. There were some 368 tappings in all, by which 506 gallons of fluid, which would weigh two tons, were removed.

5. A Method of Skin Grafting.—Samuel Samuel describes a method of skin grafting by which the grafts and area to be covered are prepared in the ordinary way, and the grafts are applied to the skin-free area in the usual manner. Silk threads are then carried from one side of the surrounding healthy skin over and through the graft and into the underlying granulation tissue and then through the healthy skin on the opposite side. The grafted area is then covered with perforated protective, preferably the transparent variety. On top of the protective is placed a thick layer of sterile gauze damp with the physiological saline or artificial serum, and a final over-all dressing, consisting usually of a thin layer of dry sterile gauze. The silk threads are then utilized for anchoring all the dressings, the silk being finally threaded through thin rubber tubing and then knotted on the tubing to prevent cutting. By this method the grafts can be easily and frequently fed. The threads not only carry the feed, but drain away the discharge which forms around the granulations. By this method it is not necessary to

disturb the grafts and the dressing affords means of applying firm gauze pressure, which is so essential for insuring success and for keeping grafts and dressings in position in cavities and hollow surfaces and in convex areas. The use of splints, strapping and the application of collodion is thus done away with. The only disadvantage is the little extra time required in doing the operation.

American Journal of the Medical Sciences.

September, 1921, clxii, 3.

1. Diagnosis and Clinical Manifestations of Cardiospasm Associated with Diffuse Dilatation of the Esophagus.—Frank Smithies during the past seven years has observed 76 cases of cardiospasm associated with diffuse dilatation of the esophagus. The tabulated records of 47 of these cases were available for study. Of the 47 cases there were 25 females and 22 males. This equality in the sex ratio is rather striking in view of the prevalent opinion that females are more likely to be affected than males. The average age of the series was 39.2 years, the majority of instances occurring between 25 and 35 years. Occupation seems to play a very small part as an etiological factor, but the ailment seems to be relatively common in those individuals who are very active physically and mentally. Temperament, it would seem, has been rather unduly emphasized in its relation to the initiation of cardiospasm. Ailments previous to the onset of the cardiospasm, with a few exceptions, appear to have little bearing with regard to causing the affection. Excessive smoking, particularly of cigarettes, was noted in five cases, and offers an interesting etiological suggestion to those who attribute cardiospasm to vagus malfunction. In but 17 instances the affection with the associated dysphagia was acute in its inception. The average duration of symptoms in this series was 5.6 years, and ranged from three months to twenty years. Dysphagia was not commonly painful. It is of diagnostic significance to know that liquid foods are more prone immediately to bring about distress than are solids. In this way the type of dysphagia differs strikingly from that common to various forms of anatomical stenosis. A fairly characteristic and differential feature of the vomiting is that it is usually sudden, frequently explosive, and very often occurs shortly after the ingestion of food. Regurgitation, without actual vomiting, was especially annoying in 15 of these patients. Other symptoms are loss of weight, poor appetite, anorexia, and constipation, largely due to insufficient amounts of food. Roentgen examination is of great aid in diagnosis, but the evidence which it supplies is not infallible. Roentgenograms should be made with the patient in the semilateral or "quartering" position as well as in the anteroposterior. Inasmuch as in certain cases of cardiospasm the initiating fault lies in an esophageal lesion it would appear to be a proper procedure to examine by sight the entire esophageal mucosa from pharynx to cardia, provided one is familiar with esophagoscopes and knows the significance of what he sees. If the affection is properly managed, there is clinical and functional recovery in about 70 per cent. of even well established instances of cardiospasm; improvement occurs in about 20 per cent., and about 10 per cent. of the patients are not permanently benefited by any form of treatment at the most expert hands. In these unfortunates gastrostomy may be required to save or prolong life.

2. The Spleen and Digestion.—William DeP. Inlow reviews the literature and various theories that have been advanced in regard to the function of the spleen, and presents an experimental study of the effects of splenectomy on dogs, which he summarizes as follows: (1) Removal of the spleen causes a diminution of the proteolytic power of the gastric juice (Tarulli and Pascucci, Gallenga, Betti, Gross, Rusca, Soler, and Madero). (2) Injection of splenic extracts (Tarulli and Pascucci, Soler and Madero) and of leucocytes and of extracts of lymph glands (Soler and Madero) increases the proteolytic power of the gastric juice of splenectomized animals. (3) Removal of the spleen causes an augmentation of the proteolytic power of the gastric juice (Silvestri, Tini). (4) Removal of the spleen has no effect whatever on the gastric secretion (Trampedach). The chief theory put forward by the first group of investigators has been that the spleen gives the blood stream during digestion a substance which activates or leads to the further elaboration of the gastric enzymes, especially pepsin. In the writer's experiments on three dogs with accessory stomach pouches (secretory meal of meat), and on two similar dogs serving as controls, removal of the spleen caused no noteworthy changes in gastric secretion except a slight diminution of the gastric juice obtained. From these experimental inquiries and a critical review of the literature Inlow is led to the conclusion that a definite pepsinogenic function of the spleen has not been demonstrated and that the relation of the spleen to gastric secretion is probably merely vascular, the diminution in the amount of juice secreted after splenectomy being attributable to decreased gastric blood supply from injury to the gastrosplenic circulation.

4. The Relative Value of Laboratory and Clinical Methods of Study in the Diagnosis of Tuberculosis.—F. M. Pottenger shows how advantageous it would have been had clinical observation kept pace with laboratory research during the period of development of our knowledge of tuberculosis; and that with our knowledge brought up to its present state, the one outstanding cry is for more thorough clinical study. It now offers the greater and apparently more fruitful field. Starting with the conception that tuberculosis is an infectious inflammation, chronic in nature, which (1) disturbs the nerve and endocrine balance of the patient, and particularly produces sympathetic effects by toxins which are liberated from the diseased areas, and in this manner produces general symptoms, and (2) irritates nerve endings in the lungs and thus produces reflex symptoms, we have a basis for explaining two groups of common symptoms found in this disease, the toxic and the reflex. To these one more is added in early tuberculosis, in which those symptoms are placed which are incident to the disease itself; and still another in advanced tuberculosis in which are placed symptoms and syndromes which result from the disease. After discussing these four groups of symptoms, attention is called to a tendency in examining chests to direct attention too much to the changes in the lung. While these are what we wish to determine, we must not consider that we can auscultate and percuss the lung alone. Percussion examines the skin, subcutaneous tissues, muscles, bony thorax, lung and all adjacent structures which modify the impulse. The tension of the soft tissues as revealed, especially in the degeneration of the subcutaneous tissue and muscles and the increased muscle tone, often make up most of the departure from normal in the percussion note. This is particularly true in percussion over the apices from the second rib upward in early tuberculosis. When active tuberculosis is present the scaleni, the sternocleidomastoideus and the pectoralis all show increased tension, and so produce a fixing of the upper portion of the chest wall. Percussion through this fixed area and through the tense muscles must of necessity produce greater changes in the percussion note and percussion resistance than can possibly be produced by the few tubercles in the lung. This the writer believes causes the major portion of the percussion changes that we have been ascribing to the infiltration in the lung in early tuberculosis. He goes on to show that increased muscle tonus, particularly as detected on

palpation, and the lessened respiratory movement, are just as much symptoms of physiological disturbance as are the symptoms which he details under clinical history. They are the most evident and therefore the most dependable symptoms indicative of active inflammation in the lung; and because of their localization in definite groups of muscles their presence suggests pulmonary disease.

6. Classification of Râles: A Plea for Simplification.—J. Birnie Guthrie, after discussing the various classifications of râles, suggests the simple heads: (1) Crepitant or vesicular; (2) mucous or tube; and (3) cavernous. Under these he says we shall be able to place every râle we hear except pleuritic friction sounds, which are perhaps best excluded from this category. He argues that he is not perverting the meaning of the word mucous, since, whether fluid or tenacious, the basis of the mechanism which produces them is mucous. The classical terms subcrepitant, sonorous, and sibilant may be used as subdivisions of the mucous. Nearly all of the half a hundred of varieties described by various authors would be subvarieties of the mucous râle. *Cavernous* might also be included within the category of mucous râle, which would be a further and desirable simplification.

7. Diagnosis of Lung Tumors.—A. S. Blumgarten confines his remarks to the medical diseases of the lungs which are amenable to surgical treatment. He states that primary lung tumor is one of the most difficult pulmonary lesions to recognize early. This can only be done with a fair degree of certainty. If we wait until we can do so positively the patient is beyond our therapeutic reach. Consequently, when the condition cannot be recognized definitely an exploratory thoracotomy should be performed whenever there is a reasonable suspicion of a primary tumor of the lung. If such a lesion is present it can be removed at the time when the operative risk is at a minimum and the chances of recovery are at their height. Clinically two types of primary lung tumor may be recognized, the pleural and the hilus type. The pleural type is most amenable to surgical treatment. A reasonable suspicion of the presence of the pleural type of primary lung tumor is based upon the occurrence of a one-sided pleural effusion, with or without bloody fluid, in the absence of definite signs of tuberculosis. The roentgenograms of the chest taken when the pleural cavity is inflated after removing the fluid is one of the best methods to demonstrate the mass in the lungs. The most important indications of the presence of the hilus type are the persistence of chronic bronchitis in the absence of tuberculosis, with evidence of blood-tinged sputum and the subsequent evidence of a mediastinal mass with pressure symptoms. In these cases bronchoscopic examination is of the greatest diagnostic value and gives the earliest evidence. The careful study of many cases of recurrent pleurisy and chronic bronchitis will probably reveal that primary lung tumors are much more common than we have heretofore believed.

Schweizerische medizinische Wochenschrift.

October 6, 1921, li, 40.

Diagnosis of Threatened Perforation of Gastric Ulcer.—Ryser wrote a paper on this subject in 1913, and since has had eight additional cases in his practice, with a total of fourteen. In the last series he was able in two cases to make the correct diagnosis of threatened perforation from the telephone summons alone, so typical was the syndrome. Naturally the patients were under his care at the time for ulcer of the pylorus. The author narrates four of his cases to bring out the syndrome in question, which is in part as follows: The patient is seized with severe pain with or without hematemesis. It is likely to occur when the patient is off the ulcer diet and up and about, but when these measures are begun or resumed the pain does not improve as is the case in simple ulcer pain. The anteperforative pain persists for several days before perforation occurs, thereby giving the surgeon an opportunity to operate before this crisis. In the author's experience this latent interval is always present. If operation is not performed after the onset of these symptoms perforation inevitably occurs. The pain is not entirely peritoneal, being associated with simple ulcer pain. In the absence of a correct diagnosis an unnecessary operation may be performed. The fact that the pain is refractory to treatment is of value in diagnosis. The diagnosis of pyloric ulcer is also of value as in this locality perforation is most likely to occur. When the surgeon is summoned for the first time the diagnosis of ulcer must be first made, before the pain can be interpreted correctly. History of stomach troubles with remissions and exacerbations, examination of stomach contents, localization in the pylorus, etc., should enable the surgeon to make this diagnosis in season to avert perforation.

La Riforma Medica.

September 10, 1921, xxxvii, 37.

The "Doll's Eyes" Phenomenon.—Cantelli applies this nickname to a phenomenon which, according to him, has never before been recorded. There is a dissociation between the movements of flexing the head and lowering the gaze, and those of extending the head and raising the eyes: as a result of which flexion and extension of the head are not accompanied as usual by the proper movements of the eyeball. This dissociation he has seen after epidemic encephalitis, and attributes to focal lesions in the mesencephalon which may be unilateral or bilateral. The author mentions but two cases, and gives no detailed account of them. The eye mobility was in all other respects normal. He was struck by the resemblance of the behavior to that of the movable eyes of dolls in which forward inclination of the head is not followed by downward turn of the eyeball. The author goes extensively into the normal and pathological movements of the head and eyeballs in the attempt to account for this behavior of the eyes by the above-mentioned localization of mesencephalic lesions. His article is partly designed to anticipate priority as the discoverer of a new phenomenon.

La Presse Médicale.

September 21, 1921, xxix, 76.

Suppurative Orchitis in Mediterranean Fever.—Lombard and Béguet of Algiers first mention the benign inflammation in the male gonads, seen in a small percentage of victims of this acute affection. Suppuration is a termination wholly exceptional, although there may be atrophy of the testicle or persistent nodules in the epididymitis as sequelæ. The *Micrococcus melitensis* is notoriously nonpyogenic, so that suppuration should in theory denote a mixed infection. The authors can find record of but five cases of testicular abscess, one of which is personal and moreover studied under complete bacteriological control which was evidently absent in two of the others, while in a third results of examining punctate were negative and in a fourth there is no mention of finding the micrococcus in the testicle or punctate—although a histological examination was made of the ablated organ. The authors found the micrococcus in the pus from the testicular abscess, but nothing in sections of the ablated testicle. The absence of any of the pyogenic organisms, banal or rare, appears to show that in very rare cases Bruce's organism can itself be pyogenic. This patient was a man of 56 who had suffered from both malaria and dysentery. His orchitis was a late complication which appeared three months after the onset of Mediterranean fever, but this attack passed off and the suppuration developed during a late relapse which appeared four months after the original lesion. Castration became necessary in another three months, the testicle then being as large as an egg, although with its proper tissue nearly destroyed. There is no mention of orchitis on the opposite side, but there was a resolved epididymitis. The patient was laid up altogether about a year and it was of course necessary to exclude banal affections of the testicle, as syphilis, tuberculosis, and some mycosis.

Surgical Intervention in Status Epilepticus.—Picqué cites a case in an ex-soldier, in which craniectomy was performed on the third day of serial and overlapping attacks. Dural adhesions were freed and patches of leptomeningitis found but the suspected abscess of the brain was not present.—*La Presse Médicale.*

Book Reviews.

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1922. Revised. Price, $2.00. New York: William Wood and Company.

EVERY physican must use a visiting list. The present volume is well known, and has long enjoyed a well deserved popularity among the members of the medical profession. It contains the customary blanks for names of patients with dates for services rendered, and special blanks for consultation practice, obstetric engagements and practice, vaccinations, register of deaths, addresses of patients and of nurses, and cash account. At the beginning of the volume there will be found much miscellaneous information. The paper and binding are all that can be desired; and the book is of convenient size and is handsomely bound.

HUMAN PHYSIOLOGY. By Prof. LUIGI LUCIANI, Director of the Physiological Institute of the Royal University of Rome. With a Preface by J. N. LANGLEY, F.R.S., Professor of Physiology in the University of Cambridge. In Five Volumes. Vol V. Edited by M. S. PEMBREY, M.A., M.D., Professor of Physiology, University of London, and Lecturer in Physiology, Guy's Hospital. Metabolism—Temperature—Reproduction, Etc. Price 30 shillings. London: Macmillan & Co., Ltd., 1921.

THE present volume brings to a close the English edition of Luciani's magnificent work. It includes a chapter on Metabolism, which, though brief, is a useful résumé of what is known on the subject. The bibliography at the end of the chapter is mainly useful for the indications to more complete lists of the literature. The greater part of the volume is taken up with the physiology of the generative system. It comprises three chapters, and is probably the most complete exposition of the subject in any book on physiology in the English language. The volume closes with two important chapters on The Stages of Life and Death and The Human Races. The former of these is most valuable, and discusses (among other things) the theory of growth, the periods of virility and maturity, the critical age in woman and in man, theories of senility and of death. This chapter (with its bibliography) is most interesting, and the reader will find herein a great deal of information which is ordinarily only to be found scattered in various periodicals. This work, now completed, is the standard work on physiology in the English language; it is to the present generation what Foster's great work was some thirty years ago. It is written with the same grasp of material and in the same philosophic spirit as Foster's book, and it is far more readable than Foster's treatise, in spite of the fact that we are reading Luciani in a translation.

TEXTBOOK OF TRACHEO-BRONCHOSCOPY (Technical and practical). By Sanitätsrat Dr. M. MANN, Senior Physician to the Department for Diseases of Ear, Nose and Throat, in the Municipal Hospital, Dresden-Friedrichstadt. Translated by A. R. MOODIE, A.M., M.D., Ch.B. (St. Andr.), F.R.C.S. (Edin.). With 50 Illustrations and 5 Plates in the Text, 10 Colored Plates in the Appendix Price $9.00. New York: William Wood & Co., 1921.

OUR rapidly growing literature on direct examination and treatment of the air passages has been considerably enriched by the appearance of the English version of Mann's well known textbook of Tracheo-Bronchoscopy. This infant specialty, barely a quarter of a century old, is making great strides toward becoming a firmly established method of both diagnosis and treatment in certain conditions of the respiratory tract that were until its advent a veritable noli me tangere on the part of even experienced laryngologists; these are now being attacked with success and life-saving results by skillful operators. And as the scope of its application enlarges its practice will of necessity require a broad knowledge of general medicine and a thorough grasp of various methods of clinical investigation. To be sure it requires a certain dexterity and peculiar inborn skill to become a complete master of laryngo-tracheo-bronchoscopy, and so far there are but a select few who devote themselves to it; it is hoped, however, that in the not distant future the methods and the instruments will be so evolved as to place them within the grasp of every more or less skilled and apt laryngologist. The work before us is surely one of the means to advance knowledge on the subject as much as it is humanly possible to do so in a book.

The subject proper is introduced by a chapter that contains, among others, a short history of the method that is as fascinating as any novel, where the achievements of that master mind Kilian, but recently deceased, are dwelt upon at some length, and where due recognition is accorded to some of the American pioneers in the field. The first part of the work is devoted to the technique of the procedure, including both upper and lower tracheo-bronchoscopy, and everything pertaining to the operation is gone into most minutely and conscientiously. The second part is taken up with (1) The extraction of foreign bodies, of which the clinical histories as culled from the literature of the world, are presented and thoroughly discussed by the author; (2) The diseases of the trachea and the bronchial system, such as bronchiectasis, gangrene of the lungs, and pulmonary abscess, bronchial asthma, tuberculosis and tumors, both benign and malignant; (3) Diseases of the neighboring organs, such as the thyroid, thymus, spinal abscess, tuberculous glands compressing the trachea and bronchi, mediastinal tumors, aneurysms, and so on. All these conditions are illustrated by an array of clinical cases that present a wealth of information and instruction that should be perused with care and attention by every worker in the field. The plates of Part III, presenting pathological conditions and bronchoscopic pictures, serve to illuminate cases in the body of the book. The translation is done creditably, and both the bookmaking and the plates are of good quality.

PATHOLOGISCH-ANATOMISCHES PRATIKUM. Von Prof. Dr. RICHARD OESTREICH. Zweite verbesserte Auflage. Price 54 marks. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THE first edition of this volume appeared in 1913, so that there has been much new matter to incorporate. The number of pages is now 316. A work on this subject, without a single illustration of any kind, suggests a book for the student for quick reference or memorizing, like our quiz-compends. In his first edition the author designates it as a pocket companion. He also regards it as an introduction to the study of the subject, hence the omission of illustrations.

LEHRBUCH DER GESCHLECHTSKRANKHEITEN FÜR AERZTE UND STUDIERENDE. Von Prof. Dr. MAX JOSEPH. Achte Auflage. Price 54 marks. Leipzig: G. Thieme, 1921.

THE seventh edition of this work appeared in 1915 and contained 515 pages, so that the present volume of 217 pages represents a cutting down of nearly 50 per cent. The author's design was to enlarge instead of curtail the work, but the price, it was feared, for such a volume would have been prohibitive. The present is, therefore, rather a guide than a treatise to the subject of diseases of the sexual organs.

AIDS TO ELECTRO-THERAPEUTICS. By J. MAGNUS REDDING, F.R.C.S., Surgical Radiographer, Guy's Hospital; Late Assistant in X-Ray and Electro-Therapeutic Departments, Charing Cross Hospital, etc. Price $1.75. New York: William Wood & Co., 1920.

THIS is the latest addition to the well-known "Students' Aid Series," and it is a useful guide to electrotherapy. The book is not burdened with too much theoretical matter, but it contains a sufficient description of the apparatus used and of the methods of employing the same. A valuable feature is the indication of the various conditions in which electrotherapy is not available or is not likely to be productive of much benefit. The book is well and clearly written; and the student will find in it a useful summary on galvanism, faradism, ionization, sinusoidal currents, high frequency, diathermy, radiant heat, ultraviolet rays, *x*-rays, radium, and electrodiagnosis of nerve lesions and myopathies. The work closes with a brief index of treatment, in which the various pathological conditions are alphabetically arranged with an indication of the various lines of treatment which are available in each case.

Society Reports.

FIRST DISTRICT BRANCH OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Fifteenth Annual Meeting, Held in South Nyack, N. Y., October 19, 1921.

THE PRESIDENT, DR. GEORGE A. LEITNER OF PIERMONT, IN THE CHAIR.

Hay-Fever and Pollen Therapy.—Dr. RALPH OAKLEY CLOCK of Pearl River presented this contribution, in which he asserted that about 1 per cent. of the population of the United States was susceptible to hay-fever. Because of the large number of people affected, hay fever prophylaxis merited the attention and serious consideration of the medical profession. The fact that hay fever was caused by the inhalation of windborne pollens only, eliminated certain insect pollinated plants such as the rose, goldenrod, honeysuckle, chrysanthemum, lily-of-the-valley, and daisy as an important factor in hay-fever. Although hay-fever might be caused by pollens of hundreds of different plants, investigations had shown that most of these might be divided into four biological groups, namely, using the common names, grasses, chenopods, ragweeds, and wormwoods. In addition to these four groups, the pollens of certain trees were a local cause of hay fever in certain parts of the United States. This biological classification was important, because the similarity of the pollens from a biological standpoint made it not only possible but also practical to use desensitizing treatment with pollen extracts. Furthermore the large majority of persons who were sensitive to one pollen were sensitive in varying degrees to other pollens of the same biological group. After discussing the different seasonal types of hay-fever and their causes, Dr. Clock said that practically all observers who had worked with pollen extracts had concluded that there were only two or three pollens which were responsible for the large majority of cases of hay-fever; namely, timothy which was the cause of spring hay-fever in the East; sweet vernal grass and June grass which had been found to be the cause of spring hay-fever in the Middle West; and, finally, ragweed which was the cause of fall hay-fever. For practical purposes, therefore, in the East at least 90 per cent. of the cases might be treated with two extracts alone, namely, timothy for the spring type and ragweed for the fall type. When skin tests showed multiple sensitization, more satisfactory results were usually obtained by treating the patient with extracts of all the pollens that gave a positive reaction. Koessler, who first reported detailed methods of preparing pollen extracts, emphasized the fact that the aqueous pollen extract was not stable and that it rapidly deteriorated in potency after three or four weeks. It appeared, therefore, that extracts of pollen could not be generally used by the practising physician unless some method of extraction could be devised which would insure a uniformly stable product. With this end in view they had extracted pollen by various methods and had succeeded in preparing a stable pollen antigen by extracting the dried pollen in 66 2/3 per cent. glycerol and 33 1/3 per cent. saturated sodium chloride. They had been able to standardize the antigen with accuracy against antipollen serum by means of the complement fixation method, whereby the amount of antigenically active protein in the extract was accurately determined, thus making it possible to establish a uniform and accurate dosage which insured the maximum degree of protection with the minimum of reaction. The glycerolated antigen was prepared in concentrated form so that 0.1 cc. would contain the required number of pollen units for a given dose. This plan permitted of diluting the antigen, just before its injection, to 1 cc. which made the final percentage of glycerol about 6 2/3 per cent., an amount readily absorbable by the tissues. The scheme of dosage which they had adopted for the glycerolated pollen antigen consisted of fifteen doses of a gradually increasing number of pollen units. The dosage began with 2½ pollen units which were contained in 0.1 cc. of a 1-400,000 dilution of a pure soluble pollen protein, and progressively increased up to 1,000 pollen units corresponding to 0.1 cc. of a 1-100 solution of the pollen protein. The antigen was administered subcutaneously, preferably in the arm over the insertion of the deltoid muscle. The interval between doses was usually 48 hours. It thus required about five weeks to compete the preseasonal treatment of 15 doses usually given. Preseasonal pollen treatment yielded by far the most satisfactory results, although treatment with pollen antigen during the pollinating season had often proven beneficial. Desensitization in hay-fever was not permanent or stable. Freedom from symptoms lasted only as long as the antigen remained in combination with the tissue antibodies, probably only a few weeks after the completion of the antigen treatment. The records of 1,578 cases treated by the glycerolated pollen antigen by physicians in various parts of the United States had been collected, and showed a remarkable uniformity of favorable results in each year from every locality. The average protection or relief from symptoms for the 1,578 cases reported during the five years was 84 per cent. By favorable results was meant that the persons taking this treatment at least six weeks before the hay-fever season either did not have hay-fever or if hay-fever did occur, the symptoms persisted for only a few days and were mild in character. Favorable results were also manifested in the possibility of the patient remaining in his home town and at his usual work for the first time in years. Another evidence of favorable results was in the decided relief from asthmatic symptoms which were associated in 50 per cent. of the hay-fever cases. In view of these results it seemed only fair to state that the method of giving prophylactic injections of the glycerolated pollen antigen early in the season offered the best means of any method thus far advanced for the preventive treatment of hay-fever.

Dr. S. W. S. THOMS of Nyack asked Dr. Clock if he had not mentioned hay-fever due to golden rod, which for the past month he had seen a good deal of. The symptoms were a little different from those of hay-fever due to ragweed. There was intense distress, some dyspnea, and the eye symptoms were severe in nearly all cases. He had had some experience with the Lederle vaccines but not as a prophylactic. In every case in which he had used them this summer there was marked relief. The point had been reached where it was realized that hay-fever was more than a neurosis, yet it was difficult to understand why some patients not exposed much to the chance of irritation or infection should have the condition. He had one such patient with an indoor occupation who suffered tremendously. That he had been unable to determine, but treatment with the vaccines had given him marked relief.

Dr. JAMES B. LANSING of Tenafly, N. J., told of one patient in whom he began treatment four weeks before the expected attack. She received the full course of fifteen injections, and during the hay fever season had experienced only about one hour of suffering. Previous to this season her asthmatic symptoms had been very severe. He cited several other cases in which the usual attack of hay-fever was greatly alleviated or the onset postponed.

Dr. GEORGE B. STANWIX of Yonkers asked Dr. Clock the maximum dose that he gave as a prophylactic and also the maximum dose that he gave at the time of the attack. He stated that he had had considerable experience in the treatment of hay fever and had met obstinate cases that did not yield to treatment. In such cases he had found that there was almost always a pathological condition in the sphenoid cavity which produced a vasomotor reflex. When one was able to determine the exact pollen that was causing the hay-fever the patient should be sent to the rhinologist to find if there was deviation of the middle turbinate. Frequently amputation of the anterior turbinate and clearing out of the ethmoid cells would add materially to the comfort and happiness of the patient.

Dr. CLOCK, in closing the discussion, said he was glad Dr. Thoms had brought up the question of golden rod. He was sorry to be compelled to differ with him as to golden rod being a direct cause of hay-fever. With the cooperation of the American Hay-Fever Prevention Association glycerine plates had been exposed in the vicinity of hay fever patients, and they

never were found to contain golden rod. However, if the patient was sensitive to the compositae groups it was possible to have an acute attack after exposure to golden rod used in room decoration, etc. Golden rod was an insect pollinated plant, so it was not the direct cause of hay-fever. The symptoms that were observed from August to October in this part of the country were usually due to ragweed or cockle-burr and in the West to wormwood. As to the dosage, for prophylaxis the maximum dosage was 1,000 units. For an acute attack the dose depended upon how ill the patient was. He usually began with $2\frac{1}{2}$ units of the pollens and gradually increased the dose giving in all up to 1,000 units, though usually 600 or 800 units were sufficient. One of the speakers had cited a case in which the patient was tested with extract of long ragweed and later reacted when the short ragweed was given. He would explain that on the hypothesis that the patient had been sensitized to the protein of ragweed when the first test was made and the injection of the extract of short ragweed had produced anaphylactic reaction.

The Diagnosis of Early Syphilis.—Dr. RAY H. RULISON of New York City presented this paper, in which he stated that from the time of Fournier, who estimated that 13 to 16 per cent. of adults were syphilitic, to the present day syphilographers had been trying to impress the profession with the commonness of this infection. The chairman of the Section on Dermatology and Syphilology of the American Medical Association, in his address at the Boston meeting in June of this year, estimated the *active* syphilis in this country at between 2,000,000 and 3,000,000. This estimate was based on late official reports from all parts of the country. If this disease was to be kept within bounds the general practitioner must apply these figures to his own practice and ask himself whether he was diagnosing his quota of cases and diagnosing them early. He must repeat to himself that 10 per cent. of *his* patients were luetic and that nearly one-third of this 10 per cent. were in the active stage. Speaking of the early diagnosis of syphilis by laboratory methods, the essayist pointed out the fact that we were told that spirochetes might be found in chancres, mucous patches, condylomata, in secondary skin eruption, and in material obtained by gland puncture. But lesions in the mouth and around the anus were almost sure to show benign organisms so closely resembling the pallida that a differential diagnosis was impossible. Their experience at Bellevue as regards gland puncture had not warranted enthusiasm so far and their dark field findings in primary lesions, even after repeated examinations, were only about 66 2/3 per cent. Spirochetes should be found in all chancres during the first ten days by the dark-field method, but at the Bellevue clinic the average duration of the sore at the time of admission was over twenty-four days; and many patients had applied some antiseptic powder or dressing, and often the lesion was a mixed infection. It was apparent that in many cases of primary syphilis the dark field either was not available or its findings were negative and that the Wassermann might remain negative for many trying weeks. It was in such cases that careful and repeated physical examination was most valuable. All chancres should be palpated as well as inspected and the presence of induration outside the limits of the sore was important; the presence of infiltration without acute inflammation in the sore, the efferent lymphatics and the regional glands would strengthen the probability of syphilis. Even more important to remember was the fact that fifty per cent. of soft chancres were really mixed chancres and even if the Ducrey bacillus was demonstrable the possibility of a hard chancre, developing more slowly and masked by the chancroid, must be kept in mind. A general examination of the body for evidence of possible secondary lesions should be made in every case and it was to one phase of this general examination that he wished especially to direct attention. There had been a failure on the part of teachers and writers to emphasize the fact that this disease from its incention to its extinction was essentially an infection of the lymphoid structures. Eighty non-syphilitic cases and 70 cases of primary syphilis were examined at the Bellevue Hospital clinic in syphilis and their superficial gland findings analyzed, as a result of which it seemed allowable to conclude as follows: (1) That an examination of all the superficial glands with a record of their palpability, repeated at frequent intervals during the early stage of syphilis, might give evidence of the presence of generalized infection at a time when neither the dark-field examination nor the Wassermann test were likely to be of assistance. (2) That palpable inguinal and anterior cervical glands had no diagnostic significance, since they were commonly enlarged in non-specific individuals. (It was of course understood that the important regional adenopathy accompanying the primary sore was not under consideration). (3) That enlargement of the epitrochlear gland and probably of other superficial glands occurred very early in the course of the disease. Like all clinical signs this one had its limitations; it would not be of service in every case and at times the findings might be puzzling; nevertheless the importance of an early diagnosis of syphilis to the individual and to society was so great that no means of arriving at it should be neglected, and in the presence of a history of exposure showing reasonable incubation period, followed by a suspicious sore, regional adenopathy and some evidence of generalized infection, such as the adenopathy referred to, one was warranted in making a diagnosis of syphilis and beginning treatment even without the aid of a confirmatory laboratory report.

Dr. JOSEPH B. HULETT of Middletown said he did not feel competent to discuss early syphilis since in recent years he had come more in contact with surgical cases and the treatment of early cases of syphilis was rather out of his line. However, judging from the number of cases of this disease which he saw in the course of his surgical work he thought the doctor was very conservative in his estimate of the number of cases in the United States. He believed it was a very important thing to hunt up cases of syphilis in good season, the earlier they were given treatment the better. He had studied under Dr. Otis who said the best way was to suspect every patient you saw. He believed this was a good plan to follow. He used to try potassium iodide on every suspected case, giving them whatever dose they were able to stand. It was astonishing the number of surgical cases the surgeon saw that would not heal up until put on antisyphilitic treatment. He believed there were more neglected cases of syphilis than we thought.

Dr. BENJAMIN S. BARRINGER of New York City called attention to a lessened incidence of neurosyphilis since the introduction of salvarsan as compared with that before this agent was generally employed. With salvarsan one man could handle a dozen cases in the same time that he could formerly handle perhaps one. Now an injection of salvarsan was given and the patient allowed to go home. Giving the injection was not a complex procedure. He felt that he could carry out the entire procedure in ten minutes if necessary. For the benefit of those comparing the incidence of syphilis in the city and in the country he would say that he was consulting surgeon to the McLillan Hospital at Cambridge, N. Y., and during the entire summer there had been only one positive Wassermann reaction among the patients in that institution. Two interesting points to which Dr. Barringer called attention were: (1) That there were two kinds of masked chancre, one merely within the urethra in which there was no induration, but merely a slight urethral discharge or a history of such discharge. There was a definite percentage of such cases with a history of specific or a non-specific urethritis in whom after a number of months the secondary manifestations of syphilis appeared or after years might become tabetic. (2) There were those cases in which the chancre on the head of the penis was masked by the foreskin. There is a peculiar bronzing of the penis. They usually got the rash about twenty-one days after the appearance of the sore plus a positive Wassermann some days earlier. Dr. Barringer said he was a great believer in the Wassermann test notwithstanding Dr. Symmers report. Dr. Symmers had not gathered all those statistics himself and he was not altogether convinced that they had been gathered accurately. He felt that the Wassermann was one of the most accurate laboratory tests we had.

Dr. RULISON, in closing the discussion, remarked

in connection with what Dr. Hulett had said of the use of potassium iodide, that this agent had fallen into unwarranted disuse. Dr. Wade H. Brown who was doing extensive experimental work in syphilis, had stated in conversation that the medical profession was working with the idea of killing the spirochete, but that until we had also developed some method of increasing the body resistance and body elimination we would not gain satisfactory control of the disease. Gougerot said that potassium iodide should be used in all stages of syphilis. The question of treatment was not taken up because, as Dr. Barringer had said, treatment was not difficult in the average case. Dr. Rulison said he might have given a wrong impression as to the frequency of positive Wassermann tests. Noguchi's figures were no doubt correct, but those were untreated cases. In general practice one did not get cases of the ideal type. He had had no intention of condemning the Wassermann test but was simply trying to bring out a rather neglected clinical point which was available to everyone and which might be an aid where the Wassermann did not become positive in a reasonable time.

The Etiology and Laboratory Diagnosis of Typhus Fever.—Dr. CHARLES E. KRUMWEIDE of the Bureau of Laboratories of the New York Department of Health presented this communication, in which he said that it was always possible that a case of typhus fever might escape into the community as had happened early last spring. That brought up the question of diagnosis. Then it was not only a question of imported typhus but we had Brill's disease which was sporadic in New York City. With reference to the etiology of typhus fever the point to be emphasized was that if one took an experimental animal and injected it with the blood of a patient ill with typhus fever, it would have a rise in temperature simulating that of typhus fever; following this that animal would become immune to injections of typhus virus. Many investigators thought they had succeeded in isolating the pathogenic organism of typhus fever. The question to be asked under such circumstances was whether after injecting an animal with these organisms the animal was immune to injections of typhus virus. If this was not the case the man had not proved that he had discovered the pathogenic organism of typhus fever. As to the pathology of the disease, there was an inflammatory reaction of the blood vessels of the skin and brain. This reaction was primarily a proliferation of endothelial cells which might go on to necrosis. Some of the blood vessels might close while others would rupture, and that was the reason of the petechial rash. In reply to the question as to what the laboratory could offer in the diagnosis of typhus fever, Dr. Krumweide stated that the laboratory took its correct place in that it could offer confirmation of the clinical diagnosis but it was not a substitute for clinical diagnosis. At quarantine they were using the Felix-Weil reaction. It had been found that the blood of typhus fever patients agglutinated quite a number of organisms. The organism best agglutinated was x-19, a strain of proteus. There was, however, not one iota of evidence that *B. proteus* had anything to do with the primary etiology of typhus fever. The Felix-Weil reaction could be carried out easily but had certain drawbacks. In only about 50 per cent. of the cases did a reaction occur which could be considered diagnostic before the fifth day; 90 to 95 per cent. gave the reaction up to the crisis, and the rest during convalescence. In a suspected case of typhus fever the proper course to pursue was to submit specimens of blood from the patient during the course of the illness until assured that the result of the laboratory tests was negative. The susceptible animals were the monkey and the guinea-pig, and further tests might be made by animal inoculation. The possibility of error here was that a temperature reaction might be set up by a simultaneous infection. If, however, the patient had typhus fever, a later injection of the patient's blood would produce no reaction in the animal. In obtaining a specimen for the laboratory, the blood should be kept from clotting by adding it to sodium citrate solution which was warmed to blood heat. The specimen should be kept warm and rushed to the nearest laboratory. The incubation period of typhus fever was from eight to ten days. Post mortem pathological examination was made by excising a specimen of skin or brain tissue, fixing it or delivering it to the laboratory immediately. On sectioning the specimen and examining it microscopically, if it was from a case of typhus fever one would find a peculiar endothelial cell proliferation. According to Wolbach only one other condition gave a similar picture, and that was Rocky Mountain fever, which was not encountered in the East.

The Relationship of the Medical Profession to the General Public.—Dr. JAMES F. ROONEY of Albany, president of the Medical Society of the State of New York, delivered a brief address, in which he said that his friend, Dr. Leitner, said he was going to speak on the relationship of the medical profession to the general public. This was a large subject and it must be understood that one could but imperfectly touch upon the essential points in the time he had allotted himself. The evolution of the practice of medicine in the last forty years had been much greater than in the preceding seven or eight centuries. The evolution of civilization and the complexity of civilization in that period had been correspondingly great. During this period civilized nations had changed from agricultural peoples to urban communities. The last census had shown that there were more people in towns of 10,000 inhabitants and up than in the country. With this change people had become accustomed to luxury, and not only that, but things formerly considered luxuries were now considered necessities. The type of physician and the type of medical service that forty years ago was satisfactory to-day was apparently not satisfactory. During this period, owing to the development of medicine, the field had become so wide that only a synthetic mind like that of Helmholz could compass it. Hence the profession of medicine had split up into a number of more or less (and sometimes one thought less rather than more) correlated groups, denominated specialties. With this there had grown up a demand on the part of the people for service bearing the hallmark "the best medical service." These demands were being made as a matter of right, that was it was being commonly said everywhere and had come to be taken as an aphorism or axiom that every person living in the community had a right to the best medical service. The only question that was left open for discussion was how the best medical service might be made available to all people, meaning this best medical service must be brought within the means of the least affluent of the public. Dr. Rooney declared that he did not believe this statement to be either an aphorism or an axiom. If one considered the corresponding profession of the law, it might be said that every man during his lifetime was only occasionally in contact with the medical profession, but every man and woman was continuously in contact with the law. Why, then, was there not a demand that the best legal service should always be at the command of the whole public? Why was there not a demand that the legal profession as a group should be subsidized by the State in order that we might have "state law" or rather the best legal service at the demand of everyone in the State? The reason, Dr. Rooney said, was quite plain. The medical profession was only a sort of lay priesthood. Primarily all physicians were priests and the priestly idea was still indissolubly an element in the teaching of every physician. The little priestly element that might be present in all of us was the little leaven that leavened the whole lump. The legal profession was originally also a part of the priesthood and early split away. Because the public had always had religion offered freely from the cradle to the grave to all alike and because medicine had always given its services freely, it was now proposed that the profession of medicine should be subsidized to the people and that physicians should become priests of the State and servants of the people. Sir John Moore, when he wrote Utopia, and Plato, when he wrote his Republic, had much this idea in mind and in the ideal state without question this plan would be feasible and proper, but we had just witnessed the failure of the attempt to put such a utopian plan into effect in Russia. When one group was subsidized to others a step had been taken on the way to slavery, and with it one must expect in the subsidized group the slave type of mind. What could be done to prevent the chaining of the chariot of medical progress to

the wagon of slavery. Thoreau said it was much easier to exact respect than it was to solicit it. He feared the medical profession was making the mistake of soliciting respect. There was one thing that must be done, and that was that the medical profession must unify and solidarize and demand from the public the respect that was due it. Unless the medical profession exacted the respect for themselves that the legal profession exacted, unless it developed the type of authority that the legal profession had taken in relation to its State and National bars it was merely a matter of time until it became submerged on the wave of false and untrue demands on the part of the public. He well understood that he might be saying things today that were apparently entirely different from the pronouncements of certain leaders of the medical profession, namely, that what the public demanded must be given them, that the medical profession as a profession had no rights except in so far as they advanced the interests of the community. There had also been false prophets. We had passed through an era of false prophets. It was only four years ago that they said it was useless for the medical profession to oppose a certain scheme which would have taken into the meshes of its net over 80 per cent. of the physicians in this State. Those false prophets had relented temporarily, but there were others. It was a peculiar phenomenon that the rank and file of the profession were directly against this doctrine. It had been given to the rank and file of the profession to see that all these propositions were marble columns erected on bases of sand. The same emergency would have to be met again. There were certain groups that were interested in subjugating the medical profession. He who was not willing to fight continuously for his rights in the end forfeited them. He who would not speak when he might, might not speak when he would. Finally Dr. Rooney urged the medical profession, when these various propositions were brought up for consideration and discussion, not to be overturned by sentiment but to decide for themselves the truth of the statements upon which these various propositions were based.

The Continued Use of Digitalis.—Dr. HAROLD E. B. PARDEE of New York City presented this paper, in which he stated that the two problems that always presented themselves in treating a patient with chronic heart disease were to decide *how long digitalis should be continued* and *what dosage should be used to obtain the best effect*. First and most important of all indications for the use of digitalis was the presence of auricular fibrillation. Patients with this condition must take the drug continually all of their lives. As long as they did this they were usually able to remain in a fair or even very good state of compensation, so that they were able to undertake the ordinary exertions of their lives without discomfort, and sometimes even rather extraordinary ones. Within *ten days or two weeks* of stopping digitalis these patients began to notice shortness of breath or precordial oppression or fluttering, after a smaller amount of exertion than would formerly have caused these symptoms. If digitalis was still withheld their exertions would become more and more restricted and more severe signs of cardiac failure would set in. Digitalis *slowed the rate of these hearts* by increasing the tone of the vagus. This in turn produced a depression of the function of the auriculo-ventricular bundle so that this did not conduct so many impulses from the fibrillating auricles to the ventricles, and the ventricular contractions were fewer—the heart rate slower. Coincident with the slowing the heart became less irregular, not because the fibrillation was in any way improved, but because the impulses from the auricles passed to the ventricles with less irregularity. The object with these patients was to keep the heart rate between 70 and 80 per minute when the patient was at rest. With this degree of digitalization it would be found that the rate did not usually increase inordinately with exercise. Occasionally a patient was found who maintained a heart rate of 70 to 80 per minute without the use of digitalis, in spite of the fact that auricular fibrillation was present. The heart rate of these patients usually could not be quickened by the use of atropine, so one could not consider that the slow rate was due to a vagus hyperactivity. It was felt that here there was disease of the auriculo-ventricular bundle so that its function of conducting impulses from auricles to ventricles was pathologically depressed. Digitalis would cause still further slowing in these patients, and dizzy spells or fainting attacks might result, so that they constituted an exception to the rule that every patient with auricular fibrillation should receive digitalis continually. Dr. Pardee referred to recent investigations showing that quinidine was useful in restoring auricular fibrillation to normal rhythm. It seemed surer in its action when the patients were well compensated, so they should first be given a course of digitalis and then tried with quinidine to see if normal rhythm could be restored. If this was successful the patient passed at once from the category of those who must receive digitalis continually, to that of any patient with cardiac insufficiency. Other forms of irregularity were not benefited by the continued use of digitalis and those with heart block or extrasystoles might even find their discomfort increased by any dosage large enough to produce a therapeutic effect. Such patients would only be harmed by a long course of digitalis, so that it was contraindicated for them. The mere presence of valvular disease, no matter how loud the murmurs, or without valvular disease the find of a rapid heart or an enlarged heart should not be considered to indicate digitalis therapy. The controlling feature was the functional capability of the circulation as a whole. The need for digitalis arose when the cardiac reserve became reduced so that the ordinary exertions of life, which the patient had recently been able to undertake without complaint, became a cause of symptoms. These were the cases whose hearts were in need of treatment and whom digitalis might be expected to benefit, no matter what the pathological condition that caused the failure of the circulation. When patients with regular hearts showed signs of cardiac overstrain on ordinary exertion, they should be treated for the degree of failure that was evident. If, after the patient had recovered his compensation, he again showed signs of losing ground, he should be given a course of digitalis combined with graduated exercises extending over a period of several weeks. Treatment might then be stopped, but if the symptoms reappeared it would be advisable to give the digitalis continually for some months. In discussing the guide to the patient's daily dosage, Dr. Pardee stated that different patients excreted the drug at different daily rates, but the average figure for excretion was about 22 minims per day of a tincture of average potency, or 2 1/5 grains of an average leaf, say 20 minims of the tincture or 2 grains of the leaf. The patient should first be brought to the point of therapeutic saturation, which was very close to the early toxic stage. It made no difference whether the drug was given in divided doses or in a single dose. The writer's preference, however, was for a single dose at night before retiring, because it seemed to be less often forgotten then. Over half of all patients had an exact dosage lying between 15 and 27 minims of the tincture daily; some could take but 10 minims, others as high as 40 minims of the same tincture. By trial one had to find the correct dosage for the individual. By the end of the second month one should have a fairly exact idea of the patient's daily needs. When one had determined the dose it would be possible to continue it indefinitely, but it was rarely necessary or useful to continue it over four or five months in patients with regular hearts. Figures were presented illustrating the varying dosage that could and must be given.

Dr. EDWARD C. RUSHMORE of Tuxedo Park read a humorous letter written by a man who had gone to Baltimore to have his case accurately diagnosed, and who described the way in which he was sent from specialist to specialist, in order to give an idea of the way the modern method of making a diagnosis looked to the average layman. So far as his personal knowledge went he said he could add nothing to what had been said. They all knew that digitalis was one of the most important drugs in the pharmacopeia. During the last few years much more had been learned about digitalis and diseases of the heart with the electrocardiogram than had been known before. It was formerly thought that digitalis was a drug with cumulative action in the body, but we knew now that we only got poisoning when it was given in excessive doses;

with proper dosage it could be given over indefinite perods. He knew of a case in which digitalis had been taken over a period of fifteen years with an occasional interval and with the possibility of the patient being ill if it was discontinued. Many took it for months and even for years, but proper testing was necessary to determine the dosage. One thing one should always be on the look out for in giving digitalis, that was in counting the pulse in patients with auricular fibrillation one must have the patient in a proper state of mind and in a proper degree of rest. If the patient was under excitement one would get pulse conditions that did not furnish proper guidance for treatment, although patients digitalized did not respond to emotional impulses as rapidly as those not so digitalized.

Dr. PARDEE, in closing the discussion, said that Dr. Rushmore's modesty was unnecessary, for he was sure Dr. Rushmore had seen more of the use of digitalis than he had. From the experimental side, it was noteworthy that these figures had been worked out without the use of the electrocardiogram on the patients themselves, and other figures worked out on the patients themselves with the electrocardiogram agreed with these. As to the question of intermission in digitalis treatment, patients with irregular hearts should never have intermissions of more than 48 hours unless they showed symptoms of digitalis poisoning or the heart was too slow. It was better to have daily intermissions twice a week than two days in succession. The tincture he used in these cases was one he had been using for months, and was the same for all the patients. In digitalis therapy two things were important. First, it was important to remember that a drop dose was not a minim dose. He has seen instances in which the drug had been prescribed as so many drops. It required almost two drops to make a minim, and varied with the dropper used and the person who did the dropping. He preferred, with patients outside the hospital, to give tablets. If one gave tablets and had the patient bring the bottle when he came to the office, one could tell just how many tablets he had taken. In the hospital they used the tincture because they had the nurses to administer it. If one gave the tincture to patients outside the hospital he should have them bring the bottle back with them to see how much was left. The second important point was the psychic factor, as true in patients with normal rhythms as in patients with auricular fibrillation. If the patient was under any emotional stress at the time of examination one was liable to reach very erroneous conclusions as to the patient's habitual heart rate.

Demonstration of Nervous Cases.—Dr. EDWARD LIVINGTON HUNT and Dr. ORRIN S. WIGHTMAN, of New York City gave this motion picture demonstration showing the diagnostic symptoms evinced in motion and gait. The pictures were made at the City Hospital. The demonstration included encephalitis, with the tremor, rigidity and Parkinson type of facies; chorea, and here it was mentioned that these patients did better without bromides and without arsenic; hydrocephalus; juvenile paresis; tertiary syphilis, with the ataxic gait, tremors of the tongue and hand; progressive muscular atrophy, locomotor ataxia; Charcot joint; Marie's cerebellar hereditary ataxia, Friedreich's ataxia, multiple sclerosis, etc.

(To be continued.)

The Schick Reaction in Measles.—Lereboullet and others tested 110 cases of measles in both latent and eruptive periods. They agree with previous workers in this field that the reaction is invariably negative, in the sense that the presence of measles has no influence upon it; the percentages of actual positives and negatives being the same as in non-rubeolous controls.—*Le Progrès Médical.*

Diabetes Following Mumps.—It has been surmised that certain cases of severe and fatal diabetes in childhood are due to atrophy of the pancreas following a metastasis to that organ, but as far as known no proof has yet been offered. Labbé and Débre have, like others, seen transitory diabetes after a diagnosticated mumps-pancreatitis, but it yielded promptly to diet.—*Le Bulletin Médical.*

Therapeutic Hints.

The Ether Treatment of Peritonitis.—Lienhardt sums up this treatment in the *Schweizerische medizinische Wochenschrift.* The combination of ether and camphorated oil has not made good in his experience, either in inhibiting infection or preventing adhesions. On the other hand the use of ether alone when poured into the peritoneal cavity exerts a favorable influence on the prognosis. The customary mortality of peritonitis in the clinic has been 27.7 per cent., while under the ether treatment it was reduced to 18 per cent. The action of the ether is chiefly local, since it contributes to the production of a reactive inflammation, exudation, and pouring out of increased immune substance with destruction of germs. The production of cold by the evaporation of the ether exerts a synergistic action by contracting the blood-vessels and inciting peristalsis. The bactericidal action of ether is not a direct one—it does not itself destroy microorganisms—but it is antibacterial because it stimulates the defense. Ether exerts a constitutional action based on its physiological activities when given for narcosis. It relieves pain, lowers temperature,(?) and stimulates general leucocytosis. The drug should not be used in routine, but reserved for severe cases as a special resource. So far from preventing adhesions it probably increases the tendency to adhesion formation. In fact, this property of favoring adhesions is the chief contraindication and only when this becomes relatively unimportant because life is threatened, should ether be used. The quantity of ether poured in at one time should not exceed 100 c.c. Too much will tend to favor paralysis of the intestine and collapse.

Vaccine Therapy for Whooping Cough.—Bloom and De Reyna employ in the St. Vincent's Foundling Orphan Asylum a mixed stock vaccine (recently prepared within one month), in the manufacture of which no preservative is used. Each cubic centimeter of the vaccine contains 5,000,000,000 Bordet-Gengou bacilli and 3,500,000,000 influenza bacilli. For infants under six months of age they use $\frac{1}{4}$ c.c., 3 doses, on alternate days. For infants from six months to one year, $\frac{1}{2}$ c.c., 3 doses, on alternate days. For children from two to six years, $1\frac{1}{4}$ c.c., 3 doses, on alternate days. In previous years not less than 50 per cent. of the entire number of children living in this institution contracted whooping cough. From the first week of May, 1919, to the first of January, 1920, there was not a new case of whooping cough noted in this institution. They consider that the prophylactic use of this vaccine has untold possibilities in the prevention of whooping cough in asylums, schools, and public institutions, and in limiting disastrous epidemics.—*New Orleans Medical and Surgical Journal.*

Nerve Sedative.—Ammonium bromide, 5ii; aromatic spirit of ammonia, 5i; water, q.s. ad 5iv. Two teaspoonfuls to be taken three or four times a day.

For Bleeding from Superficial Cuts.—The local application of dilute acetic acid, it is said, will arrest bleeding from hemorrhoids or superficial wounds.

Medical History.

CRITICAL AND DESULTORY REMARKS IN THE LIGHT OF ANCIENT MEDICINE.

By JONATHAN WRIGHT, M.D.,

PLEASANTVILLE, NEW YORK.

I.

It was said by an eminent histopathologist in the early days of the now rapidly fading optimism in cancer research that we would never know the cause of cancer until we discovered the origin of life itself. In the pessimism which has followed in the wake of the war, but which so far as the cancer problem is concerned had already set in before it,* despite the fact we know more about the mechanism of germ cell division than ever, this view, so far as I have observed, has at least gained no ascendency over many other factors which may enter into its etiology. We have hitched up the chromosomes with some success to the manifestations of the dynamics of heredity. When we were especially interested in the phenomena of mutation in plants and animals it was at the back of many a mind, busy with histological research, that cancer was essentially a mutation of the heredity of the somatic cell.[1] How much of this prepossession persists in the minds of men I do not know, probably not much, assaulted as we have been by the clamor of Mendelism and its relation to the phenomena of germ-cell division.

Still the mystery eludes us and the cure of cancer too is as far off as ever, though, however deep our pessimism it would be foolish to deny we have gained no ground since the cancer campaign opened with all the élan of a decade and more ago. To have become imbued with an appreciation of the size and scope of the problem is something, if only in the way of a chastening of the spirit. In this most modern of all scientific illusory searches, we have left out of account, in fact it has been entirely ignored, that it began almost with the beginnings of medicine. The thing that will impress us the most when we turn to see what Hippocrates says of it, is the pessimistic turn which his thoughts also took. "It is better to give no treatment to persons affected with hidden cancer, for if you treat them they quickly die; if you do not treat them their life is prolonged."[2] Cancer of the breast and of the uterus were well known to the Hippocratic writers. Their course is traced with some accuracy in one of the spurious books,[3] but not with this flash of meaning we recognize in the more genuine discourse of the Aphorisms. It pierces our consciousness across the ages as we think of some of the deep and organic cancers and of the meddlesome rather than of the radical surgery, of the superficial growths, of the dalliance with *x*-ray and radium, escharotics, and local applications. If not early, quick, wide incision—indeed their life is not prolonged and it is better often to give no treatment. This is not far from the state of mind of the majority of modern medical men. Puttering discourse as to etiology as well as the paltering with treatment in some of the Hippocratic writings,[4] is noticeable, but as to the latter chiefly in those books, having an affiliation or rather apparently a direct descent from Egyptian medicine, found in the Kahun and other papyri. As to the etiology it is not at all certain that Galen's idea had a Hippocratic origin, although possibly it was derived from something in the Master we cannot perceive now. I cannot see that Hippocrates flatly asserts as does Galen:[4] "Black bile without ebullition," Kühn renders it in Latin and so the Greek text seems to warrant, but evidently *boiling* is not the meaning, "black bile without ebullition causes cancer," and so it remained for more than 1500 years. Paulus Aegineta, as Adams[5] translates him, says "by overheated black bile"—evidently derived from Galen, but what the text is in Paulus as to the heating, I do not know. We cannot escape the translation of Kühn for Galen if we accept his text, but that is immaterial, black bile alone is sufficiently astonishing. I do not propose here to go in detail into the hints warranted in widely separated phrases we get for the conjecture that the ancient mind was supported in this etiological idea by the dusky hue of subepithelial cancer, especially of the female breast. Bile in the ancient humoral theory was apparently split up into yellow and black to make the trinity of bile, blood, and phlegm into a tetrarchy. Sometimes urine was added to the three in order to conform to the four square cast of the Egyptian mind. At any rate we can easily imagine the vogue the idea had of splitting bile into the yellow and black (bilirubine and biliverdine is the modern bow to color) when it was new. In this state of mind no wonder the dusky hue of the malignant tumor, as contrasted with more benign growths, was sufficient to throw a "flood of light" on the progress in ancient cancer research. Boiling we can let pass. It probably had something to do with the theory of the coction, but so the biliary theory of cancer came down to us through the ages, through the Arabians and van Swieten with the sympathetic comments of Adams even in the 19th century. It probably is responsible for some of the dietary notions as to treatment, ancient and modern.

The dietary cuts a not unimportant part in many ancient authors in the treatment of cancer, vegetable usually; arsenic applications were recommended by Scribonius Largus, the Roman, and Avicenna, the Arab, approved of a vegetable and milk diet. We can find them all, except *x*-ray and radium in ancient literature, but the knife, the last choice of them all when medicine was an Egyptian and Mesopotamian hierarchy, steadily has grown in repute and power. Use it first on a slave, says the Egyptian, before you cut a free man. Use it first in the hospitals and clinics, where you find the modern slaves, as your chief hastens to more lucrative practice, is the modern formula. Cure it with a song or an herb—last of all, says the Zend Avesta, with a knife. We have learned

*As this went down in my pencil notes I cast about for a specific reference to illustrate the general sentiment, but I found none. Now as the essay goes into more permanent form the Proceedings of the New York Pathological Society, New Series, vol. xx, Nos. 6-8, October-December, 1920, comes to hand and I note that Dr. Rhodenburg (p. 144) says "the present outlook is pessimistic in the extreme," and in the discussion which followed, Dr. Wood, always distinguished for his candor, the director of the Cancer Research Laboratory, adds "much discretion should be used in talking about the cure of cancer."

something meanwhile, but atavism has always been a phenomenon of mental evolution as well as of that of animal and plant life. Even Celsus[6] declares: *"tertiam esse partem medicinæ, quæ manu curet, et volgo notum, et a me propositum est."* Third and last he turns to cure by the knife.

II.

This quotation from Celsus may serve to remind us of a question once much discussed in medical history but it has some implications which have not been given the prominence they deserve. Who was Celsus? We are occasionally reminded that the medical profession presents in its annals very few examples of medical men who wrote medicine well. It is less true of other branches of science. For reasons quite sufficient I pass over Greek writers, though even the novice can see in Hippocrates the excellence of the Ancient Medicine. When we begin with the Latin writers, few as they are, we find Celsus writes a prose which is unmistakably Ciceronian, prose that can be scanned.[7] His proemia, especially the one which opens his book, "De Medicina," so far as I know have not been approached either in medical history, or in any other medical essay, as examples of melodious prose. Of course there are a number of good writers in general literature who were doctors, there are men of science who have been great writers, Goethe pre-eminently in science, but Virchow was scarcely less distinguished in medicine by his science than by his mastery of the most barbarous tongue that has ever been used in its service.

Huxley, Tyndall and Darwin for science in English, but we halt when we try to mention men who have written medical science well. Doubtless there are others—Pasteur perhaps. But Celsus the first of the Latins who have come down to us belongs in the ranks of great prose writers. Coelius Aurelianus is tiresome. Pliny's prose is almost as bad as his science, but Celsus is different. Was he perhaps the poet Celsus, it has been asked, the friend of Horace[8] and perhaps Virgil?

It is in the Epistles (I. viii) of Horace, despite the fact that he addresses him as Albinovanus Celsus, that we find reason to suspect he is rebelling against the friendly advice of a physician as to what he should do for his health's sake and that his friend Celsus was a physician; it would lead me too far here and upon ground where I distrust my competency to discuss the matter fully, but I must admit that the reasons for supposing Aulus Cornelius Celsus lived later than Horace are hard to refute. However, it is not impossible that Albinovanus Celsus, a scribe and a knight in attendance on the Nero to whom Horace alludes, may have also been a physician, a knight in reduced circumstances, which will have its interest for us in this connection. The closing line of the epistle reads:

"Ut tu fortunam sic nos te, Celse, feremus."

"As thou hast borne the rebuffs of fortune, so we will bear with thee," it may be rendered. We infer from the other lines that it is Celsus who has ventured to offer medical advice, which Horace sportively rejects. But suffice it to say that by those more competent than I am, it has been entirely discredited that Cornelius Celsus was the Albinovanus Celsus here alluded to, a poet who plumed himself with the feathers of other birds of song, according to the other of Horace's epistles referred to. However, though our Celsus lived perhaps a little later than Horace and Virgil he has the grand manner of a great writer and a great patrician. Quintilian says[9] he wrote a book on Rhetoric, one on Military Science, and one on Agriculture.

The significant thing for us is that his work on medicine with which we are concerned is a part or rather a sequel to the one on agriculture. Of the latter we have nothing, but whatever may have been the quality of his other works which caused Quintilian to speak in a deprecating way of him, his work on medicine surely does not deserve such a tone, and apropos of his work on agriculture, was he a patrician who found enough medical opportunities on his plantations among his slaves to write such a book? Unlike his great forerunner, Hippocrates, and his eminent successor, Galen, he makes no reference at all to his private practice. But if it was limited to a few slaves on his own or the plantations of his friends and neighbors, his work is a miracle and he was a superman, it has been claimed. I doubt if we can go as far as that. Of course we can imagine such a thing possible, however improbable. Pliny says very few Romans took up medicine as a profession and they only who ran away to the Greeks *"quiritum paucissimi attigere, et ipsi statim ad Graecos transfugae."*[10] Yet here is a Roman patrician apparently, at least someone writing classical Latin on the model of Cicero, a man whose work, though of course largely Hippocratic, is stamped with a maturity of judgment and a stability of genius scarcely inferior to the Master and superior to anything found in Galen. At this point it is well to say that the importance of the question as to whether Celsus belonged to the higher classes or even to the patrician class of Ancient Rome is ancillary to our interest as to the social standing of medicine in the late republic and the early empire.

Under the later emperors, even those immediately succeeding Augustus, they had no social standing, but belonged to a class at whom any one, so minded, was privileged to cast a stone. In the earlier days of the republic nothing but hostility met invading Greek culture at Rome on the part of the nobility, and the elder Cato's enmity against physicians is well known. He damned all doctors and ordered his son to have nothing to do with them. Cabbage leaves and stalks were drugs good enough for him. To them and his slave wenches he clung with all the stubborn pride of an old aristocrat, always a little ridiculous in every age and sometimes amusing. Could a slave or a freedman, crouching among the clients of a noble Roman, have written the "De Medicina?" No one who has ever read it in the language that Cicero shaped could believe that for a minute. Could a man at Rome in the time of Augustus have practised medicine and preserved the free air that breathes through it? After the early years of Augustus great social changes become manifest. The middle class rapidly disappears, at least from the pages of history. In the disintegration, was

a man bred in the atmosphere that Virgil and Horace created by chance caught in the necessity of earning his daily bread? This is a conjecture not devoid of possibility. I doubt if Celsus was such a man. Quintilian has not expressed a high opinion of Celsus' abilities. We may utterly reject this so far as they are evidenced in the "De Medicina," but he wrote on agriculture. So did Cato and his discourse on cabbage is a part of it. So did Varro later in the time of Cicero who highly valued him as a litterateur as well as a friend. So did many another patrician of Rome. Noble ladies in England doctored, dosed perhaps it is better to say, their tenantry, quite in line with Cato and his thrifty but misguided endeavors to keep his slaves healthy and serviceable, but the book of Celsus is no receipt book of high born dames and country squires. Ilberg[11] thinks he wrote it for laymen chiefly, because he is shy of using "obscene" words. His works on Agriculture, Military Science, Rhetoric, may indeed not have sufficed to place him high in the esteem of Quintilian, but they were the occupations of gentlemen and the practice of medicine was not, whatever interest they may have had in its theory. There is more than theory and tradition in the work of Celsus.

III

The first writings in science of which we have any knowledge were metrical. Some of it, that of Empedocles pre-eminently, was said by those capable of judging, to have been fine poetry. The translation of its fragments is suggestive of excellence in the original. The last serious effort in that direction was the work of Goethe, but it was quite apparent even before Lucretius that the nature of the matter rendered expression in this form too difficult, the limitations were too many. The demand for emphasis and the bid for close attention, it was found, could best be enforced by rhythmical prose. So science and history abandoned the rhapsodies and followed in the wake of the orator, but on the whole in science it has been in a crude and imperfect way, when compared with his art. For instance, there are oases in the desert, there are stepping stones across the brooks, and in the midst of the orator's efforts to drive his argument home there are pauses to relieve the tension of his hearers and he diverts them by side excursions into jocosity and anecdote. So it is with the best prose writers, but the scientific paper is one long dusty level of tiresome and laborious march from one end to the other. If one arrives, one is exhausted; the majority of readers falter or fall by the roadside and never arrive at all. The arts of the orator are too various and numerous for mention and their subtlety often defies analysis, but it is remarkable that scientific literature is the only province in which they are all flouted. The compelling character of rhythmical cadence produces profound effects on the understanding as well as on the spirit of man. Why sneer at them when you want to drive your facts home? "You should have heard the beast* speak it," said Aeschines.

*I use the paraphrase of somebody else, I forget whom, not exactly warranted by the text to be found in Cicero, de Oratore iii, 56, "Quanto magis miraremini, si audissetis ipsum," but the story may be told differently elsewhere though it does not appear in Plutarch's Lives.

driven into exile by the eloquence of Demosthenes, when the Rhodians praised to the skies the written reports of his great rival's discourse at Athens. The power of the spoken word and the impelling force of personality cannot be enlisted in the service of science, except sparingly, for they do not lend themselves to sober analysis, but that is not so for all the arts of the orator. Not to use those available in the dissemination of scientific truth is stupidity doubly distilled.

The force of prose thrown into the rhythm by Cicero's art halted, in its oratorical form, the downfall of Rome; in its written form scarcely less than that of Plato it has arrested the attention of ages. The point with Cicero is, unlike the great Athenian, he dealt very largely in the commonplaces of the human mind. He draped wisdom already as old as civilization in the magic of his written words and he seems to make it his own. Plato's thought rests on something besides banality, but it would never have survived except for his art. Many of the replies to Cicero are published in his correspondence. Read his letters to his friends and then read their letters to him, read the stumbling phrases and the bad Latin of the clumsy brute, Antony, and one almost wonders whether such gaucheries are not responsible for some of the poor showing he makes in the ethics of history. Should science leave to politics and mysticism the power which is the chief motive force that sways the beliefs of men? It can be made no less powerful, one is almost tempted to exaggerate, in the diffusion of knowledge.

Led to Cicero and the power that made his fame immortal by the excellence of the writings of Cornelius Celsus, we find in the latter an indication that some cultured men in the budding glories of the Roman empire devoted themselves at least to the theory and probably to the practice of medicine. We have naturally, though incidentally, turned to the works of the man who shaped Latin prose into a mighty weapon and whose literary instincts enabled him to open up the avenues of the art of language to the brilliant men, coming after him, who graced the reign of Augustus. They are easily lost in the undergrowth again by the affectations of lesser men who mistake eccentricity for genius and the forest closes over them, but when found again one perceives that certain paths in good literature are indestructible, immortal, and above the shifting vogue of transient generations of men. However, in Cicero's mention of medical matters and medical men, we get, rarely it is true and but faintly, yet some light on the social standing of the latter among his contemporaries. "Salutation to Servius: I am in friendly relations with the physician Asclapo of Patrae. My association with him is as pleasant and as helpful as his art is to me, which I practise in my family; with his science as well as with his faithfulness and his humanity I have reason to be content. I recommend him to thee and ask thee that thou wilt take the trouble to let him know that I have taken pains to write concerning him and that my indorsement has been of service to him. I should be much obliged if thou didst this."[12] Practically the same thing is to be seen in his reference to Asclepiades,[13] so famous in ancient medical annals. Both were men whose

esteem he wished to secure. It is true Cicero was a "new man" and often had to lick the feet of the aristocracy; and of course the real nobles of Rome, no more than the plutocratic nobility of New York, had no cause and took no pains to be attentive to the non-medical influences of the medical profession.

Cicero, struggling like the "new man" in the great metropolis of the western hemisphere, left no stone unturned in his youth to enlist all sympathies for himself and he never lost the tendency though he somewhat neglected, perhaps to his own undoing, the practice of it in his old age, at the height of his fame. So we must not rate the significance of his complaisance too highly. Moreover in a way the form he uses is more or less a stereotyped one in the epistolary literature of ancient Rome, indeed of modern Rome and the modern Italian people, as Sedgwick points out in his "Marcus Aurelius," lately off the press. These faint landmarks we get in the last century before Christ and so far as they go they point to approximately the same social status, relatively, for physicians as exists to-day, but it soon deteriorated very much. Into that I can not here enter. Cicero speaks of the doctor as a friend but hardly as one of equal rank, in about the same tone we would expect from a kindly attorney at law to-day, risen to political prominence from the money bags of his clients, addressing Servius, one of his high placed and high polished friends. We note too Asclapo is a Greek of Patrae as Asclepiades was an Asian Greek from Bithynia, the province that gave birth to Galen. They were none of them, except Celsus, of ancient Roman stock, none of them, unless possibly Celsus, of blue blood. We know what Asclepiades was from Pliny and Galen, a brilliant, vulgar, noisy, loud blowing, wonderfully successful practitioner, courted by the mighty; and it is noteworthy in our present interest that Cicero sought his friendship and influence, but with Asclapo it may have been different. It was not on the cards for Cicero to proclaim him the most skilfull and the most eloquent of all doctors, as he did Asclepiades, and to want him to know he said so; but he esteemed Asclapo all the more genuinely perhaps, and our point is that he sought *his* influence also, even if only in stereotyped form. We shall leave him for a moment to return to Antony.

In the second Phillipic against Antony, he vituperates him with relentless eloquence and unrivaled billingsgate. To this Antony could make no reply but to cut off his head and nail it with the hands that threatened him, one on each side, to a plank in the forum, but this was later, though not much later either. In this and other orations the tongue, which his wife did not forget to pierce when he had stilled it forever, the tongue of Cicero taunted Antony with treachery, treason, cowardice, plunder, slaughter, dicing, whoring. He neglected nothing in the catalogue of all vices. Repeatedly in the senate and in the streets he reviled him with drunkenness; he had vomited in his toga, half drunk as he harangued the mob, after a carouse. *"Ab hora tertia, bibebatur, ludebatur, vomebatur."* Before a Roman audience he thunders against him for alienating the plough land of the Campania and other public holdings to pimps and mimes; in this connection—"to thy doctor three thousand jugera; what if he had cured thee?" Antony could scarcely have made any other reply than he did. Brutus, the philosopher, the orator, the tyrannicide, the haughty patrician, betrays a note to attract our attention: "Glycon, Pansa's physician, I commend to thee. (He takes no trouble to ask his good words may be repeated to Glycon.) We hear he has fallen in suspicion with Torquato for the death of Pansa and is in custody as a parricide"*—unjustly Brutus believes, but for us a hint of the evil repute of the doctors in the earlier civilization, an evil repute which was to grow under the emperors.

IV

There is another mention of Asclapo in the letters of Cicero, which is not entirely devoid of interest for us, all the more that it reveals to us the lovable side of the great orator's character, his tenderness of heart, his sympathy, his generosity, when his ambition was not at stake and his vanity not in play. He writes" to the ailing Tiro, his faithful freedman and factotum, that Asclapo had assured him of his recovery but he had better not go to Lyso's concert lest he should fall a victim of the "quartan crisis." He said that he had ordered an honorarium should be paid to the physician. With all the supple skill of the practical politician Cicero ingratiated himself with the powerful and often, to do it, turned aside from unselfish devotion to his country to ignoble ends. He often pretended affection when quite evidently he felt none, but behind all the insincerity and all the vacillation and fickleness of a vain and wonderfully alert and vigorous intellect there was a fund of warm affection in the man that wins our hearts and often obscures the cowardice and the self-seeking of the politician. His concern for the devoted Tiro, the modest unassuming editor of his letters after his death, secures our sympathy for himself and our esteem, as it doubtless did the affection of his humble follower, his private secretary, often his business agent. Cicero's weaknesses are forgotten as we read him writing to the invalid in his anxiety, putting behind him his desire for the invaluable services of the amanuensis of one of the busiest men the world has ever seen. "Don't trust thyself," he urges Tiro, "to the journey either by sea or land. I will see thee soon enough if only I see thee restored to health. . . . I beseech thee, Tiro, don't spare expense in anything needful to thy health. I have written to Curius; he shall give thee whatever thou say'st. Something should be given to the doctor too that he may be more attentive. Thy services to me are innumerable, domestic, forensic, in city and country, in public and private affairs, in all professional pursuits, in our literary activities. Thou wilt have accomplished all, if, as I hope, I can only see thee well. . . . For thy health think of a trip at sea, Tiro. I wish to hurry thee in no way; my only concern is that thou shalt be well. There is no one that loves me but loves thee too. Both for me and for thee it is all important that thou shouldst

*A parricide was not only one who had killed his father, but one who had killed his benefactor was also so called and so defined in English.—Brutus to Cicero, Ciceronis Epist. ad Brutus I, vi.

recover and it is also of concern to others." He repeatedly urges a sea voyage, one of the things which Celsus valued highly for the restoration of health. "We will be very solicitous for thy health, nor shall we wonder at not receiving letters from thee. . . . But for these winds we would not be sealed up here in Corcyra. Have a care of thyself, grow strong and sail as soon as thy health and navigation permit. Then, only, come to us."

One of his own illnesses he speaks of thus[15] in a letter to Gallo: "I am afraid of all diseases, not only of those which the stoics hold it as a reproach against thy Epicurus that he says dysentery and strangury trouble him, since one is due to gluttony and the other to a more disgraceful vice. I had been much afraid of dysentery and I thought perhaps a change of place or a mental rest, rather perhaps a relief from old age, that disease in itself, might help me." He runs away from sumptuary laws, which seem to have worked badly with him at Rome, but at his villa down in Tusculum they had welcomed him with festivities, given him a dinner, mushrooms, green vegetables and all sorts of herbs to season them, *"nihil possit esse suavius."* And during the augural banquet at the house of Lentulus, "such a diarrhea seized me that only to-day for the first time it seems to moderate. Thus I, who have cheerily abstained from oysters and clams, am betrayed by beets and marshmallows. After this I shall be more careful, but since you have heard from Anicius (he saw me sick at my stomach), you had good reason not only for sending to inquire for me but you ought to have come to see me. . . . I am thinking of staying here until I get better, for I have lost my body and my soul, but if I drive off the disease, I shall easily get those back."

He could joke about his own illnesses, but his nerves were racked at the thought of his wife's maladies and by his worries for his darling Tullia. The tender side of his soul is thus revealed perhaps, but also the temperament liable to nervous diarrheas. "All the cares and worries which I had for thee," he writes[16] Terentia, "were destroying me, and for Tullia, who to us is sweeter than life; all these I have laid aside, cast out. What the cause was of all the suffering I found out yesterday, after I left you. In the night I threw up bitter bile and I am so relieved that some god seems to have doctored me, to which god, as is your wont, you may show your piety and devotion—it is to Apollo or Æsculapius you owe it."

REFERENCES.

1. The Affiliation of Cancer with the Fundamental Theories of Heredity, *New York Medical Journal*, April 3, 1909.
2. Aphorisms, sec. 6, No. 38, Littré, vol. iv, p. 573.
3. Disease of Women and II Epidemics, sec. II, 22, Littré v, p. 137.
4. De methodo medendi, lib. xiv, vii (Kühn, vii, p. 720).
5. The seven books of Paulus Aegineta, translated by Francis Adams, 3 vols.. Sydenham Soc., 1856, vol. ii, p. 79.
6. De Medicina, vii praefatio.
7. Cicero: de oratore Lib. iii, cap. 44 and 47 et passim.
8. Epistles I, iii and viii.
9. Institutiones Oratoriæ, Lib. xii, cap. sec. 24 and Lib. x, cap. i, sec. 124.
10. Plinii Secundi: Naturales Historiæ Lib. xxix, cap. sec. viii-17, Ed. Sillig, vol. iv, p. 339.
11. A. Cornelius Celsus und die Medizin in Rom, Neue Jahrbücher für das Klassische Altherthum, etc., Jahrgang 1907, Bd. 19, p. 377.
12. Epist. ad fam, lib. xiii, 20.
13. De oratore lib. cap. xiv, 62.
14. Epist. ad fam. Liber xvi, 9.
15. Epist. ad fam. Liber vii, 26.
16. Epist. ad fam. xiv, 7.

Biographical Data Concerning Laennec.—According to Letulle in *La Presse Médicale* for June 25, 1921, xxix, 51, the least details in the lives of men of genius should be of interest to the public. Many of these have already been published in articles appearing in the MEDICAL RECORD. The source of the data given by Letulle is evidently the recently issued biography by Rouxeau, which considers the life of the physician from 1806 to the date of his demise. Extracts from this biography as well as from the earlier volume by the same author dealing with the early life of the great man have already appeared in these columns. Laennec began the study of medicine at the age of 14 years. Wonderful as was his career, he was, as so often happens, unusually favored by fortune. His Uncle William was a prominent physician, Dean of the Medical School at Nantes. When Laennec reached Paris he had the good fortune to become the assistant of the great Corvisart, the leader of the profession in France, and physician to Napoleon. He was likewise fortunate in having Bayle for one of his masters. He passed from the guardianship of Bayle to that of Dupuytren. With three such tutors we can understand how he became the founder of modern medicine and a "teacher of teachers." At the age of 21 he published his phenomenal paper on peritonitis, thereby beginning a new chapter in medical evolution. At about the same time he began his treatise on pathological anatomy which was never published, but in which is to be found a wealth of discovery. He had to renounce this and other cherished schemes to get the money to live. A lifelong invalid, he was not like Buckle, Pope and others provided with compensating means.

Laennec's ill health was such that Letulle rates his biography among the martyrologies. He succeeded, fortunately, in publishing his work on mediate auscultation, which made him famous, during his own short life. In addition to his physical sufferings he had to bear calumniation, for he was a journalist addicted to polemics and made enemies, like all prominent men who take sides in politics. He had quarrels and feuds with some of his professional brethren and fought his former master, Dupuytren, and the famous Broussais. From his Breton blood he derived his Celtic fondness for music and poetry. His delicate ear for poetical and musical sounds has been brought in causal relationship with his discovery of lung murmurs. He suffered from asthma, neuralgias, and gout before becoming phthisical. The coldness and hauteur of which he was accused were clearly motivated by physical and mental suffering. He was not liked by his father, who was too egocentric to think much about him; there was no love lost between him and his brother and stepmother. But those who best knew him found him gentle and even timid by nature.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 23.
Whole No. 2665.

NEW YORK, DECEMBER 3, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

A CASE OF PROGRESSIVE MUSCULAR ATROPHY WITH COMPENSATORY MENTAL REACTIONS.

BY NOLAN D. C. LEWIS, M.D.,

WASHINGTON, D. C.

PATHOLOGIST TO THE GOVERNMENT HOSPITAL FOR THE INSANE.

THE following clinical considerations were gleaned from the hospital records:

The patient, L. M., 59 years, single, was admitted to the Government Hospital for the Insane, August 15, 1900, with a history of general muscular weakness and peculiar mental constructions.

The account of his condition he gave as follows: His parents died of "old age," and to his knowledge no one related to him had been affected by this disease. He did not remember childhood diseases, but gave a history of having had syphilis in 1865. His present illness began at 25 years of age with twitching pains, which were relieved by rubbing, and an atrophy in the finger and arm muscles, and with loss of strength and tone. This atrophy he thought to be due to injuries incurred from the frequent clubbings he claimed to have received on the Bowery, where he was often engaged in robbing people in the side streets, for which he served six months in the Tombs and also the same length of time on Blackwell's Island. Since the onset of his disease he had done everything to make a living, worked as a huckster, picked pockets, and also operated as a professional beggar, exhibiting his deformity as a means of support. He thought his actual ill-health began in 1861, at which time he claims a Jew shot him.

He was in Randall's Island Hospital for some time, where he was treated for his muscular disease. He thought he was followed from New York to Washington by some enemies and was picked up in this city in 1899 when he tried to see the President about some persecutions. He was sent to Washington Asylum Hospital for observation, and while here expressed hallucinations in both ears of voices which were "squealy" in character and extremely abusive.

Physical Examination: When admitted to the Government Hospital for the Insane the facial expression was quiet and contented, the attitude erect, and the gait uncertain and somewhat paretic. The skin was pale but well nourished and with normal moisture. The hair and beard were iron gray, and the nose red from superficial capillary dilatation. Scars from bullet wounds were present on the left shoulder and through the left thigh. The skeleton was well formed, 5 feet 7¾ inches tall, and weight was 155 pounds. The muscles of the left leg, both shoulders, both arms, and particularly all interosseous muscles of the hands were atrophied, lacking strength and tone. The abdominal walls were thin and flabby, and there was a marked general deficiency of subcutaneous fat.

The breathing was slow wtih the expiration prolonged, with a decrease in pulmonary sounds over the left side. The capillary circulation seemed feeble, and there was a large varicose vein on the inner surface of the left leg, and internal hemorrhoids were present. The maximum impulse of the heart was observed in the second interspace and the valvular sounds were slightly roughened. Pulse 80, regular, and of fair volume. The gastrointestinal system was normal, appetite fair, and teeth irregular and discolored. There were no positive findings in the genito-urinary system.

Examination of the nervous system showed a diminution of all reflexes, with an absence of the knee jerks and an uncertain gait, the left leg being raised higher than the right, with the foot hanging extended. There was a positive Rhomberg, but no ankle clonus or Babinsky. His general muscular coordination was impaired, and the movements were very jerky and irregular.

There was a partial paralysis of all muscles of the right arm and also of the right pectorales, subcapsular, and trapezius. All of the left arm muscles with the exception of the triceps and a portion of the deltoid

FIG. 1.—Showing the appearance of the hands after the disease was well under way.

were considerably weakened. No contractures were noted.

During examination he complained of sharp shooting pains through the entire body, and also of dizziness. His touch and pain sensations were impaired, and more so on the right than on the left side of the body, but there were no definite anesthesias. Temperature sensations normal, smell and taste normal, and hearing fair. The sight was impaired, the pupils being very small, and reacting sluggishly to light but well to accommodation.

Mental Examination: At the time of admission the perception, memory, reasoning, and judgment were fair, and he answered questions with intelligence. At times, however, he was suspicious that people were talking about him and forming a conspiracy to injure or kill him.

He had pronounced respect for the physicians, was rather reserved, appreciative, and tractable, with good habits, tidiness, and normal sleep. Personally, he

claimed to be mentally depressed, physically weak, and affected with great lassitude.

Notes on Physical and Mental Developments, 1906 (six years after admission): He was said by the charge physicians to suffer from progressive mucular atrophy. The muscles were extremely thin and weak,

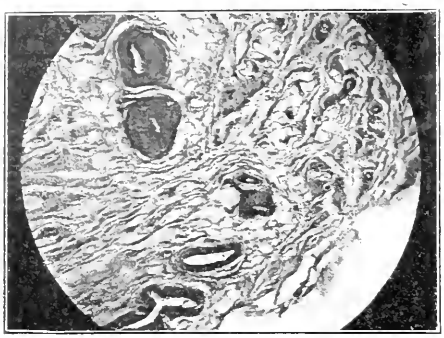


Fig. 2.—Photomicrograph of a section of the gastrocnemius muscle showing connective tissue, fat, and thickened vessels.

and he was unable to handle his arms except in a flail-like manner (Figure 1). His condition had advanced to such an extent that he was bed-ridden and unable to manage himself, otherwise his general health was apparently good. All of the upper arm muscles were in extreme atrophy, with barely remnants of former muscular structure.

Mentally he was very irritable and abusive, punctuating every sentence with an oath of some kind. His delusions of persecution were fleeting and ever changing, but he frequently thought that he had been kidnapped and brought to the institution for the purpose of being held and tormented. There was a complete lack of appreciation of his physical condition, a resentment toward being spoken to or disturbed in any way, and partial disorientation, but he could still give a fair account of his illness.

1907: During this year he progressed rapidly, becoming extremely helpless, and gradually developing delusions of grandeur. He imagined himself to be a very "smart" man, with plenty of money, and ability to deliver a speech to the House of Representatives. When spoken to on the ward he became very profane and went into tirades of abuse. He was still tidy in habits in spite of his extremely helpless state.

1908: The patient seemed fairly well oriented, knowing the names of the physicians and nurses, but was examined only with greatest difficulty and when asked a question answered—"Are you too — —— dumb to know yourself?" There was absolutely no use of the arms and hands, there being even insufficient muscular power to produce extension at the wrists. There was no grip to the hands, but the forearm could be partially pronated and supinated, the right forearm being apparently more helpless than the left. He could walk to the bathroom with the aid of an attendant, and ate his food in the following manner: Would lean forward taking hold of the cup with his lips to drink, while solid food he ate like one of the lower animals, lifting meat and bread from the table or cornering the piece, moving it toward him with lips and tongue. He always asked for what he wanted, and insisted upon eating it without the assistance of the nurses. He was now sure that the President knew about him, and in some way caused his condition, but was quite sure that it could be cured by a few applications of whale oil.

1913: He manifested good attention during the interviews, but became easily and highly excited, stating that he was Christ and that this was a "cruel" place in which to exist. He claimed that he was tracked here against his will by thieves and murderers and that he was Captain Kidd the King of the Highways. Although he was now absolutely helpless, and unable to leave the bed, he demanded his discharge and clothes so that he might go out to work for a living. The facial expression was hostile and he not only used a vile vocabulary as a means of protection but also expectorated freely on unwelcome visitors. His voice was very highly pitched and rasping, forbidding close examination and threatening to expectorate tobacco juice on the examiner.

1918: There was very little change in the general condition. His delusions now centered about the physicians who he thought stuck him with pins, tormented him with electricity, and tortured him in many other ways. Occasionally he became very noisy with protests against the nurses whom he imagined were putting various pastes on him. He was absolutely helpless so far as the trunk and extremities were concerned, rotation of the trunk being impossible. The head and tongue movements were apparently perfect; closing and opening the eyes, wrinkling of the forehead, and method of showing the teeth were all well executed. The diaphragm was apparently not affected, nor were the bladder or rectal sphincters.

Repeated Wassermann reactions on both blood and spinal fluid were negative. Spinal fluid cell .15. Colloidal gold reaction negative. Pandy: positive.

The patient in this year developed an extreme diarrhea, pulse gradually became more and more feeble, respiratory difficulties developed, and he died in coma July 1918 at the age of 78, eighteen years after admission to this hospital, with developing muscular atrophy and mental disturbance.

Post Mortem Examination.—The body was that of an aged man with a normally shaped skeleton a complete absence of subcutaneous adipose tissue, and a remarkable atrophy of the entire muscular system. The interosseous muscles of the hands and the triceps and solei were entirely gone, and were represented only by tendon sheaths and fibrous tissue. The atrophy of the forearms was remarkable where the skin was drawn loosely over the bones. The hands were flattened, "flail-like", and the muscles had apparently been useless for years. Sections of the affected muscles revealed a pale "fish flesh" appearance of the remaining bundles which could scarcely be distinguished from fat, and a large amount of fibrous tissue overgrowth between the muscle groups.

The following muscles were affected: Pectorales major and minor, Deltoids, Latissimus dorsi, Serratus magnus, Erectores spinae, Trapezius (both parts), Rhomboideus, Biceps brachii, Supinator longus, Brachialis anticus, Glutei, Adductores femoris (less than others), Quadriceps extensores, Peronei, Gastrocnemii, Teres major and minor, Tibialis anticus, Triceps, all Interossei, and abdominal muscles. The muscles of the

Fig. 3.—Photomicrograph of muscle showing wide separation of fibers and staining of sarcolemma cells.

neck, face, head, tongue, and diaphragm were not affected.

Microscopical examinations were made of all muscles and a few selected representatives reports are made below.

Gluteus Maximus.—The muscle bundles were few in

number and irregular in width, some being extremely narrow and others being wider in outline. These strips of muscle fibers were widely separated by bands of fibrous tissue and infiltrating round cells. All blood vessels in the supporting tissues were distorted, having irregular, thickened walls and reduplications of elastic

FIG. 4.—Photomicrograph of rectus femoris showing degenerations and localized swellings of fibers.

membranes. Some vessels presented multiple canaliculations while others were necrotic and contained calcium infiltrations with much destruction of the wall substance. A few mononuclear cells laden with débris were wandering in these areas. The nuclei of the sarcolemma sheaths were particularly numerous, many being arranged along the margins of the atrophied fibers in rosary formations. Throughout the sections, areas of degeneration and necrosis were seen in the muscle fibers. Cross sections of this muscle showed clearly the variations in the sizes of the individual fibers in the bundles, and also the irregular distribution of the degenerations. Occasionally the most extensive degeneration was seen in the central fibers of the bundle, but usually the peripheral zones were the areas affected, the appearance ranging from a blue finely granular alteration (hematoxylin stain) to complete necrosis.

Gastrocnemius and Soleus.—In sections taken from the lower portion of the muscles just above the tendo Achillis no trace of muscle tissue was noted. There was much fat and areolar connective tissue stroma, which was heavily stained and bearing various types of cells, such as large and small mononuclear phagocytes, irregular fibroblasts, and large pale cells bearing elongated nuclei. Many thickened arterioles and capillaries were a feature in all areas, and occasionally large vessels with endarteritis proliferans and surrounded by heavily stained connective tissue containing muscle remnants in the form of distorted sarcolemma cells (Figure 2).

In the "belly" of this muscle group, muscle fibers were present, but were extremely irregular in size, and in advanced stages of degeneration. Sarcolemma nuclei had everywhere assumed a rounded form, were arranged in chains (Figure 3), and in patches were heaped together in round or oval masses. In other areas the nuclei in contact end to end formed solid lines along the shrunken fibre. The sheath cells and small round cells had completely replaced the degenerated muscle fibres in many fields. The nuclei of the remaining muscle cells were far more numerous than is expected in an ordinary case of senility.

Diaphragm.—The muscles of the diaphragm showed very little change in the fibers, they being uniform in size, well formed, and in only a few areas affected by localized swelling of the fiber, traces of granular degeneration, and separation of the muscle bands by replacing connective tissue. The nuclear elements of the muscle cells and of the sheath were normal in number and distribution. The diaphragm was not involved in the general changes affecting the skeletal muscles.

Rectus Femoris.—These muscles exhibited localized swellings of the fibers (Figure 4), which reacted very weakly to the stains. Many fibers were interrupted for variable distances by complete fibrous tissue replacement, bearing many round cells and sarcolemma nuclei. Everywhere the muscle fibers were heavily nucleated, and in some areas knots of chromatin material were seen at the margins of the fibers, probably from coalescence of many cells. The longitudinal bundles exhibited an interruption characterized by a mere network of fibrous tissue containing very few nuclei, and these areas alternated with others heavily nucleated and containing short oval strips of swollen muscle cells, some of which were enormous in size.

Erector Spinae.—The prominent feature of these sections was the pale, swollen, scantily nucleated, homogeneous appearance of long strips of muscle cells in each bundle. In some other portions a heavy infiltration with round cells and overlapping nuclei was manifest. A few large bundles revealed complete interruption of the cells for some distance, with dropping out of tissue, or replacement with long thin strands of heavily nucleated tissue composed chiefly of modified sarcolemma cells. Nowhere through these extensively degenerated muscles were the cross striations absent, except in the completely degenerated patches.

Biceps.—These fibers taken as a whole revealed an advanced state of atrophy with a marked increase in heavily stained sarcolemma and muscle cell nuclei, and a frequent heaping up of the cellular elements. These atrophied muscle bands were widely separated by connective tissue growth bearing vessels conspicuously thickened by endarteritis and mesoarteritis. In many of the extremely atrophied fibers the cross striations were perfectly retained. In teased and stained fibers of the biceps, the sarcolemma cells evinced a remarkable proliferative propensity, to the extent that many muscle fibers were bound in on both sides by long skeins of these nuclei. The nuclei of the muscle cells were long, irregular, and finely granular. The interstitial tissues were a mass of various types of cells of connective tissue origin.

Triceps.—The muscle bundles were widely separated by a great abundance of supporting tissue, bearing thickened vessels, as were also the fibers in the bundles from degenerated elements. The muscle nuclei were numerous and heavily stained and the fibers showed irregularity, numerical reduction, variability in size, and occasonally a complete central necrosis, leaving only a thin line of tissue representing the periphery—some of these fibers exhibited fragmentation, local swelling, and ruptures.

Interosseous Muscles of Hand.—Sections from these areas showed a mass of grey, fatty substance, no feature of which might be recognized as muscle tissue (Figure 5). There were many irregular wide, short

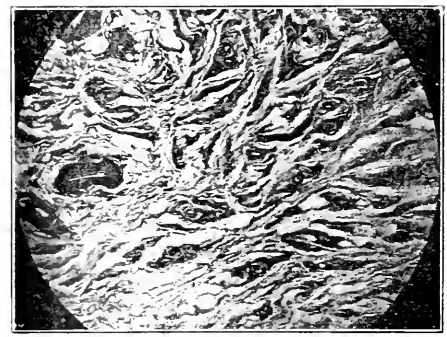


FIG. 5.—[illegible] of interosseous muscles, complete [illegible] of muscle elements by connective tissues.

bands of fibrous tissue bearing probably modified sarcolemma cells and many large fibroblasts and small round cells. Distributed through the sections were large and small obliterated, partially obliterated, and irregularly thickened blood vessels with an occasional wall undergoing hyaline degeneration.

The Nervous System. Brain: The dura was tightly adherent to the calvarium and was considerably thickened. The brain weighed 1300 grams, was well formed with notable convolutional complexity and with a very slight general senile atrophy. The right hemisphere was slightly smaller than the left, and a few

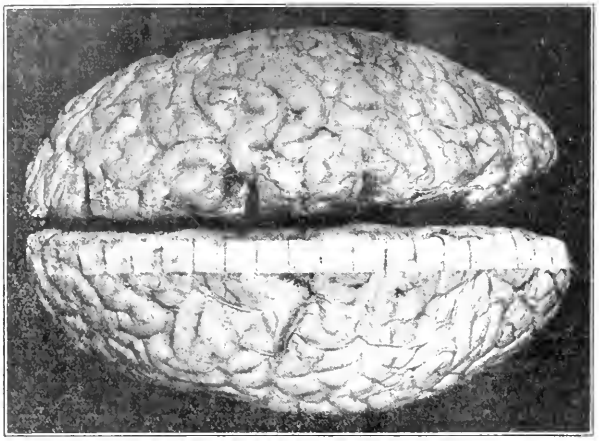


Fig. 6. Superior cerebral surface. Note the cloudy thickened appearance of the leptomeninges.

small patches of arteriosclerosis were located in the basilar artery. The entire pia-arachnoid was distinctly thickened, toughened, and milky throughout (Figure 6) with these changes pronounced along the surface veins and over the sulci. There were a few patches of morbid adhesion to the frontal cortex of both sides. The cerebrospinal fluid was normal in amount and appearance. No remarkable changes were seen on sectioning the organ, and no unusual gross changes were noted in the spinal cord.

Microscopical Examination.—Frontal Cortex: The meninges covering this region were thickened with fibrous tissue, presented prominent congested vessels, and had developed along the superior surface a few good sized patches of endothelial proliferation. The cortical architecture was somewhat broken up, the neuron cells were shrunken and heavily pigmented, and a mild neuroglial proliferation was in evidence. In the white substance there was an occasional area of fibre degeneration.

Precentral Cortex: The overlying meninges were irregularly thickened by connecting tissue meshes and endothelial elements, with localizd large sized patches of endothelial cell hyperplasia. Radiating from the meninges downward into the cortex were extending bands of fibrous tissue ramifying among the nerve cell layers. The meningeal vessels were thin walled and greatly dilated, but the vessels of the upper layers of the cortex were markedly thickened. The motor cells were narrowed and elongated, the majority presenting a finely granular degeneration of the cytoplasm with an increase in the yellow globular pigment. Some cells presented a margin well outlined by finely fragmented chromatin substance with the dendrites fairly intact, while in others there was a loss of cytoplasm, a dropping off of dendrites and pericellular accumulations of satellites. An abundance of neurophags were distributed through all layers of this region.

Post-Central Sensory Cortex: The parenchymatous cells of this area were shrunken, the outlines irregular, and the dendrites evinced, varicosities, localized swellings and granular degenerations. Many large sized neuroglia were present throughout the sections. The meninges of this region showed the same chronic changes described for the motor cortex. Sections through the hippocampus, first temporal and calcarine regions revealed very little additional information excepting there was a considerable number of small localized degenerations and dropping out of portions of fiber tracts, with atrophies and pigmentary alterations in the layers of cortical cells.

Basal Ganglia and Medulla: The choroid plexus showed a general atrophy of the epithelial cells, with considerable vacuolization. The ependyma covering the basal ganglia as well as that covering the floor of the fourth ventricle was broken in many places by granulations formed by proliferating neuroglia. Throughout the supependymal layers was a thick felting produced by overgrowth of neuroglia with deeply stained protoplasmic fibers. Many varieties of neuroglia bearing large granular nuclei were noted through the medulla and many neuroglia were packed about the nuclei of the cranial nerves—particularly was this true of the facial nerve nuclei, while the nuclei of the trigeminus were comparatively free from neuroglial infiltration. Throughout the motor tract much diffuse degeneration with a dropping out of fibers was noted. Sections through the regions of the fourth nerve nucleus showed considerable neuroglia increase and everywhere between the pyramidal fasiculi were seen Golgi cells of modified varieties. Considerable degeneration of the pigmentary type was noted in the nerve cells. Section through the Olives disclosed the upper median raphe to be choked by neuroglial overgrowth with much atrophy and degeneration with numerical reduction in the parenchymatous cells of this area.

Cerebellum: There was a moderate chronic fibrous thickening of the meninges and although the molecular layer of the organ was apparently narrowed and showed vascular dilitation with blood casts in the capillaries, no unusual sclerotic changes in the structures were present, nor were the neuroglial elements particularly increased. The purkinjian cells showed a numerical reduction with many peculiarities of distribution, shape, and structure. In general there was a unilateral granular degeneration of the protoplasm, although some cells showed complete granular degeneration with extremely pale staining properties, and a few exhibited sharp protoplasmic outlines with prominent nuclei, but in many cells the nuclei were barely

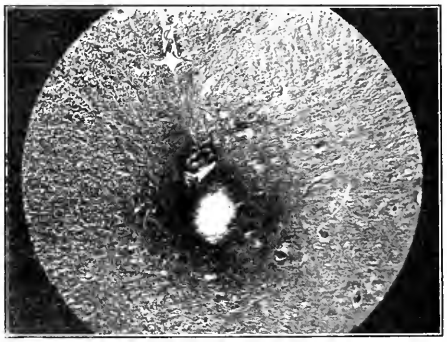


Fig. 7. Photomicrograph of the thoracic portion of the spinal cord, showing miliary glioma with central disintegration.

visible. The greatest reduction in the number of cells was apparently around the curves of the tips of the leaflets where there was considerable replacement and felting of the structure by supporting cells.

Cervical Cord: A great dropping out of fibers was seen in all tracts, particularly on the inner side close

to the posterior gray extensions. Some neuroglial increase was seen through these areas replacing the extensive loss of nerve fibers. The posterior tracts were in extreme degeneration with many small patches located near the posterior median fissure, but not to the extent of those seen in the thoracic region. Many deep stained amorphous globular accumulations of hyaline material were seen in the tracts of Gall and Burdach, and many neuroglia cells replacing sensory nerve fibers were seen through these tissues.

Thoracic Cord: Marked destruction was noted of the motor conducting fibers, which were thinly scattered and reacted weakly to the stain however, most marked degeneration was seen of all structures between the posterior horns. In these areas there were many large hyaline accumulations concentric in type and with numerous mononuclear phagocytic cells and only an occasional large fiber, remaining, there being almost a complete dropping out of the entire structure with a few remnants of fibers and a few remaining myelin sheaths. Occasionally on the border of the gray and white matter a densely sclerotic miliary patch composed of neuroglia cells and twisted, knotted nerve fibers replaced the architecture of the cord and sometimes there was a central dropping out of all these structures including the new formation tissues. (Figure 7). A few large swollen, deeply pigmented parenchymatous cells were seen around these miliary gliomata. The anterior horn cells presented the following characteristics: Some were entirely shrunken and degenerated, while others showed a deep yellow pigmentation and many presented a central area of complete degeneration surrounded by a peripheral zone of chromatin, finely granular, but heavily stained. The lumbar cord showed practically the same pathological changes as above described for the thoracic portion.

Spinal Nerves: The nuclei of the sheaths were elongated, very granular and were undergoing rapid proliferation, the nuclear structures in places being oval or oblong in shape, and of large size, while in other regions they were extremely eliptical, sausage shaped or spatulated in character, but were always granular. In some areas the spinal nerve with its ganglia was nearly obliterated by smooth fibrohyaline structures among which were accumulations of large sized, heavily stained mononuclear cells, bearing nuclei which could be described as vesicular in type exhibiting small areas with a pale interlacement of fine network. Congestion of all vessels of the epineurium was prominent throughout.

Median Nerve: The nerve fibers were compact, but the bundles were small and widely separated by areas of fatty arolar tissue. About one-half of the nerve fibers were seen to be in various stages of degeneration which for short distances were characterized by networks of granular debris, and in other places by collapse and closing of neurilemma sheaths with infiltration of connective tissue, cells, and large accumulations of nuclei. Fatty products from the dissolved myelin sheaths were seen through all portions of the nerve preparation, and iron hematoxylin preparations showed very plainly the extensive granular degeneration of the fibrils with occasional heavy stained bands of nerve structure which appeared to have undergone universal infiltration. Blood vessels are all packed with red blood elements.

Cross sections of these peripheral nerves showed the nerve bundles to be few in number, extremely small in size with the funiculi showing numerical reductions and an extensive degeneration of individual fibers. The perineurium was widened, very wavy, and composed of large numbers of fibres. The endoneurium was also enormously increased in amount. The replacing tissues between the nerve bundles contained many fibroblasts, the whole being imbedded in a mass of areolar fibrous tissue bearing large thin walled blood vessels.

Sciatic Nerve: The sciatic nerve in cross sections showed the nerve bundles to be very small with a widened perineurium. Connective tissues and fat separating the large bundles to a marked degree were supplied with blood vessels which were both sclerotic and congested. The nerve fibers showed an absence of about one-half of the usual number, and some of the remaining ones were swollen and vacuolated, while others were small and granular with the spaces occupied by the degenerated ones filled with debris. The perineurium was very cellular, showing many mononuclear phagocytes and neurophags laden with granular debris and fat. In a few nerve bundles could be seen the fibers knotting themselves into whirls growing wildly outside the endoneurium. In longitudinal sections the nerve fibers for long distances showed partial degeneration of the substance into a fatty, granular-appearing material, with the nuclei of the neurilemma extremely granular, some being vacuolated and more elongated in shape than usual. In portions of the sections the nerve fibers stained very heavily as if the substance had undergone some type of mineral infiltration, while in other places a fine network of granular fibers was seen extending along the path of former nerve bundles.

Thorax.—The lungs were tightly adherent posteriorly and in the apex of each lung a small, completely walled off, inactive tuberculous nodule was located. There was considerable emphysema throughout all lobes, the surfaces of which were pale in color, and somewhat mottled. Microscopically the alveoli exhibited an advanced vesicular emphysema with dilatation and rupture of the walls. Around the bronchi, and some of the large vessels, all of which were thickened, were rather dense deposits of exogenous pigment. In parts of the sections the alveolar walls were thickened and irregular nodules of fibrous tissue protruded into the spaces. Most of the large vessels were deeply congested.

The heart presented considerable epicardial fat. The muscle was relaxed, soft, and showed some surface fatty degeneration. The right ventricle was very thin and soft, and the left ventricle showed a moderate amount of interstitial replacement. All the heart valves were thickened and presented a number of sclerotic patches. The aorta had lost its elasticity, was much thickened, and the endothelium was studded by large elevated patches of fibrofatty production.

Microscopically the heart muscle fibers were thin and the muscle cells elongated and fairly heavily pigmented. The striations were easily seen and the nuclei of the muscle cells were well stained, regular in size and contour. A large amount of interstitial myocarditis was present in all sections but in some places it had largely replaced the normal muscular structure. The visceral pericardium was quite fatty in type, and evinced localized accumulations of fibrous tissue.

Abdomen.—The stomach, intestines, and pancreas showed no remarkable features. The liver showed very few gross changes, and the gall-bladder was normal. Microscopically the capsule showed some senile changes and congested vessels. The lobules in general were small in size with many individual cells presenting enlarged, heavily stained granular nuclei with karyorrhexis and karyolysis, while other cells presented small nuclei surrounded by pale protoplasm. Near the central lobular veins, many large sized hepatic cells were seen bearing large, darkly stained, lobulated nuclei in which individual chromatin structures were obscure. The cytoplasm in these cells was shrunken, contained fat and in places was bile stained. The portal canals had congested veins and a slight increase in the connective tissues.

The spleen was senile in appearance and somewhat softened with localized thickenings in the capsule and a large sago body of amyloid appearance attached. Microscopically the capsule was seen to be exceptionally fibrous, and blood pigment was in great excess through the substance of the organ. The malpighian corpuscles were filled with red blood corpuscles, and the arterioles were in advanced stages of hyaline degeneration. In general the stroma was slightly increased and the vessels were all thickened.

In both kidneys there was positive evidence of an ascending pyelitis, particularly in the right. There was a thin yellowish pus in both pelves which were dilated along with the upper part of the ureter which was filled with cloudy, purulent, foul smelling urine. The kidney substance was sclerotic, scarred and the surfaces pitted and granular with the capsule slightly adherent. The bladder was filled with the same type of urine which contained a large amount of amorphous material. Prostate was enlarged, soft, but not nodular. Penis and testicles were senile in type.

Microscopical examination of the kidney showed that the architecture of the cortex was entirely destroyed and in many instances could not be recognized

as kidney structure. A few partially fibrous glomeruli were still present and in places the cortex showed such a heavy lymphoid infiltration that its appearance resembled the structure of a lymphoid follicle. The capsules of Bowman were greatly thickened, and there was an enormous amount of hyaline material scattered through the tubules where in some instances the epithelium had undergone retrograde changes, the cells assuming columnar and high cuboidal types. In many places the tubules were collapsed with the cells degenerated and replaced by fibroblasts in great numbers. In the collecting tubule regions much fibrosis and degenerated epithelium were noted and in some places the lumina were completely filled with granular debris with here and there a cell undergoing necrotic changes. Abnormal and rapid mitoses appeared frequently. In many of the collecting tubules, masses of polymorphonuclear leucocytes were seen and all vessels were enormously thickened, many showing a remarkable endarteritis proliferans.

The kidney sections stained by orcein technique for elastic tissue exhibited an enormous amount of this tissue in the blood vessels of the cortex in which both large and small vessels contained knotted and wavy masses of elastic tissue. The large vessels showed many reduplications of internal elastic membranes.

Glands of Internal Secretion: The pituitary gland appeared to be atrophied, and was covered by a thick diaphragma sella. Microscopically the anterior lobe was seen to be surrounded by a thickened capsule composed of white fibrous tissue containing many newly formed vessels. The supporting tissues through the anterior lobe were enormously increased and the pars intermedia was partially replaced by connective tissues. In some portions of the gland the acini were large and filled with proliferating cells while in others atrophic changes were predominating with acidophilic cells in abundance. Only a small amount of colloid was present and the posterior lobe showed a general atrophy of its substance and some congestion.

The adrenals were small, pale, thin, and presented a terminal liquefaction of the medulla. The cortex exhibited a few pale yellow cortical hypertrophies. Microscopically the capsules were thickened and ramified into the upper two zones of the cortex, which showed a disorganized architecture with extreme fatty alterations of cells. The remains of the medullary portions contained masses of lymphocyte infiltrations and brown pigmentation.

The thyroid gland was small, firm and pale with sections showing large traversing bands of connective tissue, and a reduction of colloid substance. The isthmus was absent. Microscopical examinations revealed a dense fibrous tissue stroma in which there were many accumulations of thyroid epithelial cells. The colloid was reduced to about one-third the average amount and the acini were small and often occluded by densely stained cells, which had lost their normal vesicular appearing nuclei. All blood vessels were thickened and many were arteriosclerotic with calcium infiltrations.

Discussion.—In most instances of the progressive muscular dystrophies it is rather difficult to make a sharp differentiation into one of the more or less classical types, as there is usually some overlapping of symptoms and pathological features. In cases like the one under consideration where complete family and early personal histories are unavailable the task is still more ponderous.

As the patient was quite positive of the absence of other cases in his family line, and as the history of syphilis was rather vague and not borne out by subsequent laboratory findings, one is perhaps justified in assuming an etiology of personal endogenic factors.

While some of the following features are common in other types, the sum total of the facts listed below seems to indicate a position in the group of spinal forms described by Aran and Duchenne about the middle of the last century.

1. No other case in family history.
2. A member of the working class of society.
3. Atrophy began at 25 years, in peripheral muscles with gradual extension and with painful fibrillary contractions. No pseudohypertrophies were recorded.
4. Gradual impairment of sensations of touch and pain, tendon reflexes gradually lost, and positive Rhomberg.
5. Duration of condition over 40 years with muscles (excepting those of the neck), extremely atrophic; helpless and bedridden, but with internal organs functioning fairly well, involuntary muscles normal and spincters in good condition until death.
6. Progressive sclerotic atrophy of neuron cells of brain and spinal cord, advanced degeneration of sensory spinal tracts, miliary gliosis of spinal cord, degeneration of the peripheral nerve trunks and extreme atrophy and destruction of muscle fibers of the extremities and trunk.

The associated mental developments in this case are of particular interest as fairly early in his disease he developed vague ideas of persecution to account for his condition of unknown etiology, and in this connection he hallucinated abusive voices. Later he became very irritable and abusive with ever-changing, unsystematized delusions of persecution, with an occasional partial disorientation: simultaneously with this progress he gradually developed a lack of appreciation of his physical condition.

He resented being disturbed and as the muscular atrophy and resulting helplessness progressed he compensated completely by developing delusions of grandeur, and accepted only such aid as was absolutely necessary or was forced upon him. Gradually his beforementioned fleeting delusions became somewhat more definitely systematized and centered about the President on whom he placed the blame of being kept at the institution.

The frequent identification of himself with Christ, the greatest moralist, alternating with the idea that he was Captain Kidd, the king of robbers, is significant when one considers the patient's former profession and his prevailing belief that he was held for the purpose of torture (Crucifixion).

The utilization of the last remaining mechanism for bodily protection is also well illustrated as when the patient was completely incapable of any bodily motion (with the exception of the neck and head) he protected himself (often efficiently) from his supposed persecutors by a vile vocabulary and by expectoration.

Finally, compensation as a mental development in the face of extreme physical defect was seen when in an absolutely helpless condition this man demanded his clothing and his discharge from the hospital, that he might go out to make a living.

Action of Large Doses of Caffeine on the Abstainer.—Wedemeyer found in experimenting on subjects who had been weaned from coffee and tea during the war that the average drinker of these substances has more or less of acquired tolerance. With several exceptions these men showed marked excitement and signs of intoxication with progressive doses; and when 6 to 10 grams were taken daily over a period of 4 to 6 weeks the mental processes were notably weakened.—*Schweizerische medizinische Wochenschrift.*

THE USE OF POTASSIUM NITRATE IN OSTEOMYELITIS AND OTHER CHRONIC INFECTIONS.

PRELIMINARY REPORT.

By J. RAWSON PENNINGTON, M.D., F.A.C.S.,

CHICAGO, ILL.

My interest in this agent was revived about ten years ago, when a lady came to the office of my brother and myself, stating that she had a method for the local treatment of rheumatism with ox-gall and wanted us to try it out. She disclosed her formula; this — among other things — contained nitrate of potash. Finding there was some benefit in the remedy, we suggested making it known; she objected to publication; whereupon we dropped it.

In September, 1919, I accidentally met a Baltimorean, who claimed he had evolved a treatment for pyogenic infections which, he believed, was efficacious and wished to give it to the profession, but would first like to have his claims verified. He also claimed to use a "double synthetic salt—aluminum and potassium nitrate."

Three colleagues were induced to engage in a demonstration with me, which we continued for approximately nine months, treating over 200 patients. At the end of this time, not being satisfied the effect was due to the "double salt," I declined to join in the publication of a final report.

My informant stated he got the idea from an English engraver, and in October, 1920, being in

FIG. 1 (Left).—Taken December 15, 1920. Showing swollen condition of leg and foot and the ulcer exposing the tibia.
FIG. 2 (Right).—Eight days later, showing beginning of pustular formation from potassium nitrate.

Baltimore on other business, I found F. D. Pridham, the engraver in question. Soon after he sent me his affidavit, in which he testified he had used the method successfully on himself over twenty years before for osteomyelitis of the scapula, and on many patients since with like results.

During this demonstration period, my brother, Dr. W. D. Pennington, independently treated osteomyelitis and other infections, using in some in-

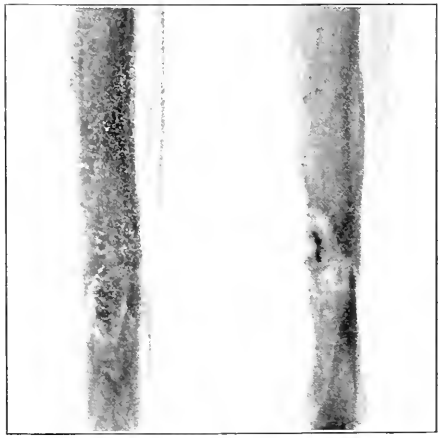


FIG. 3 (Left).—Anteroposterior radiogram (December 14, 1920) Showing worm-eaten condition of both bones, and large necrotic area at junction of lower and middle thirds.
FIG. 4 (Right).—Lateral radiogram, showing complete fracture of tibia.

stances the nitrate of potassium alone in about the same percentage as that of the "double salt"; in others, mixed with boric acid. The latter combination was made particularly because of the claims made for boric acid in osteomyelitis by Dr. A. J. Ochsner, and the reports by Professor Kahlenberg of the University of Wisconsin.

Upon my return from Baltimore I resigned from the combination and, with the aid of Dr. T. W. Blachley, began treating pyogenic infections with the nitrate alone, or combined with one or more of the following—boric acid, sulphate of magnesium, nitrate of aluminum, etc. The results obtained thus far are apparently the same or better than those by the use of the alleged "double salt"; moreover, the modifying agents may either be omitted or added to the nitrate in any proportions indicated. I am confirmed in my belief as to the preponderating effect of the nitrate by the analysis at the A. M. A. Chemical Laboratory, which showed 97.5 per cent. of potassium, and only 2.5 per cent. of the aluminum-nitrate.

The solution of potassium nitrate is applied through a dressing of rolled oats, which, in addition to being cheap and non-irritating, has considerable absorptive power. The salt is mixed with the oats and to this combination is added hot sufficient water to reduce it to a poultice-like mass. (The dose is governed by the reaction desired and ranges from 10 to 60 grains to the ounce of oats.) The poultice is spread on the affected area to the thickness of about 3/16 inch, then covered with oiled silk, paraffin paper, rubber dam, etc., and over this a bandage. Or the waterproof material can be cut to the desired size, placed between a double layer of gauze, and

the mass spread on this, then applied to the part. (The waterproof material is important, for the mixture must not be allowed to get dry.)

By aid of the *x*-ray plate and by palpation of the soft tissues the affected area is approximately

Fig. 5 (Left).—Taken July 20, 1921. Showing sequestra are separating, leaving a clean-cut edge of tibia.
Fig. 6 (Right).—Anteroposterior radiogram, showing bridging by a late callus (synostosis).

mapped out; the dressing of oats and nitrate is then applied well beyond the boundaries of the area involved. If there are any old sinuses which have for years been discharging a thin, serous fluid, in a few hours up to a day or so, this is replaced by creamy pus in incredible quantities. So far the skin is unchanged, but in two or three days or so small papules appear, and in about the same length of time develop into vesicles and then pustules, recalling the course of smallpox. The pustules at length rupture and continue to discharge pus, with the formation of new pustules from time to time, until the affection subsides. Each case is a law unto itself as regards change of dressing; a few may go two or three days, most need redressing every 24 hours, some occasionally several times a day. The lessening of the infection is shown by the change in the discharge—which, from thick pus, finally becomes thin and serous before ceasing.

This method upsets all our preconceived ideas and previous knowledge gained either by reading or observation. For instance, the nitrate is not antiseptic; when added to a culture the growth is greater than the control. Again, the number of bacteria in the discharge increases in a few days' time, instead of decreasing, as we would naturally suppose. In the next place it seems to influence favorably infection of many kinds. We have treated cases due to different staphylococci, streptococci, some bacilli (typhoid and tubercle), and even syphilis. A few cancers, as well, were relieved, but there, of course, as in syphilis, merely through the action on the accompanying infection, not the primary disease processes.

It is not clear as yet exactly what the action of the nitrate is; there is no effect at all when it is used for control on the opposite sound limb, nor does it have any when applied on gauze by itself without admixture with oats. In fact, if it is merely used on gauze over the affected side, the vesicles and pustules disappear completely. Various suggestions have been made as to the action—that the results are due to chemiotaxis, to liberation of oxygen in the nascent state, by the nitrate being decomposed into a nitrite, etc. But until further and precise information is to be had we may surmise there is osmosis with the skin as a dialyzer, and the reaction produced by contact with the diseased tissues sets up an enormous outpouring of lymph carrying with it the germs. There is an acute reaction on the part of the tissues, manifested by an enormous amount of leucocytosis and phagocytosis of a similar nature to that following an acute infection, and due probably to the toxins generated by the rapid increase of the germs. In addition there is evidently active dilatation and hyperemia of the blood vessels.

One of the many curious features is that treatment of the sinuses directly by injection of the nitrate has no influence whatever; it seems to need to be in contact with a larger territory. There is no reaction beyond the diseased area in the bones or soft tissues. Suppose we have a focus in the mid portion only of a long bone, and the dressing is applied for the whole length of the bone, no changes in the skin will occur and no pustules form beyond the area involved.

The improvement in a comparatively short time is startling. One of the first things noted is that pain disappears—on account of the relief of tension afforded by the profuse discharge of pus and serum. The skin and other soft parts regain

Fig. 7 (Left).—Taken October 20, 1921. Sequestra have been removed and synostosis is progressing.
Fig. 8 (Right).—Anteroposterior radiogram showing the progress of regeneration.

their flexibility for the same reason; muscles and tendons are freed, and if a joint capsule is thickened and infiltrated from infection near by, motion is restored and that reasonably soon.

It is nothing unusual for patients, especially

children, who have been bedridden—or, at least, crippled in their movements—to get about in a gratifyingly prompt time.

In the bones, of course, the effects are not so rapid, though in a few weeks the cloudy medulla shown by the *x*-rays clears up. In some the sequestrum has apparently disappeared, no trace being visible in the radiogram; in others it made its way out and was discharged.

So far as the nature of the affections is concerned, most of them naturally have been examples of osteomyelitis of long standing—from 1 or 2 up to 25 or more years' duration. A number had been operated on time and again, one, for example, by no less a man than J. B. Murphy and that 24 times! We have treated numerous examples of phlegmonous and other inflammations of the soft parts. One of the largest old-fashioned carbuncles I ever saw, located in the upper thigh, was successfully treated by my brother, Dr. W. D. Pennington, with the nitrate.

This being merely a preliminary report, I shall not occupy space with case reports, pausing only long enough to cite a typical one in brief:

Mr. R. W., aged 49, consulted me December 15, 1920, for a discharging sinus in right leg, pain, and gangrenous odor. While playing football 18 or 20 years ago he was kicked on shin about junction of lower and middle thirds; this was followed by pain and swelling which eventually subsided. Some 5 or 6 years later had pain in heel and ankle of same leg, was treated for "rheumatism." Finally openings appeared over the instep and inner side of ankle, but closed in due time. Three years ago pain followed by swelling and another opening appeared at site of original injury, and has discharged pus ever since. Leg has been growing weaker and weaker, until about a week previous, while he was walking along, it gave way; this was followed by quite a little pain. The odor, which is gangrenous in character, has been gradually growing worse for several weeks.

I found the limb swollen, hard, and dark purple. An ulcer about the size of a half-dollar is seen at the junction between the middle and lower thirds, exposing the tibia, which is black in color. Crepitus is easily obtained. The blackish bone seems to be the distal fragment of the tibia, as moving the foot moves this portion but not the bone above it. (The color may be due to the application of medicine which he has been using). There are a number of lymph nodes in the groin, one or two the size of a guinea hen's egg. The general appearance is septic.

December 15. Radiogram the same day showed a fractured tibia, and osteomyelitis of both bones. Placed on nitrate treatment at once.

For several weeks was dressed at the office every day in the afternoon, applying the dressing himself at home in the morning. As the condition improved it became possible for him to continue at his business, and occasionally be out of town for several days at a time, applying his own dressings.

July 10, 1921. Patient has been out on road for previous month. Moving foot moves distal fragment.

August 6. The black sequestrum seems to be loose, and was removed on the 11th.

The infection caused a pathological fracture. The applications of the nitrate of potash alone checked this destructive action, greatly increased the outflow of pus, and started up osteogenesis.

August 17, 1921. Patient now walking without aid of crutch.

In conclusion it may naturally be asked what advantage this plan possesses over the one by operation. To this I would reply, recurrences are common after mechanical removal of infected areas; so far I have never seen this with the nitrate, the cases remain healed. Next, such patients as decline any "cutting," as they term it, will submit to this plan. Again, other patients, who, for financial or other reasons, cannot undertake a stay in the hospital, may avail themselves of this ambulatory method. Finally, this nonoperative procedure is at the command of any member of the profession, whether he is accustomed to surgery or not; in fact, it is practicable in any village, hamlet, or even dwelling.

21 NORTH STATE STREET

OBSERVATIONS OF THE WHISPERED VOICE SOUND IN LUNG CONDITIONS OTHER THAN PNEUMONIA.*

BY HENRY H. LISSNER, M.D., F.A.C.P.

LOS ANGELES, CAL.

ON September 6, 1919, I published, in the MEDICAL RECORD, a paper entitled "The Whispered Voice Sound, an Aid to Early Diagnosis of Pneumonic Consolidation." At that time I called attention to the fact that in pneumonia, before the other evidences of consolidation were present, such as dullness on percussion, bronchial breathing, rales, etc., it was possible, by the aid of a stethoscope and the whispered voice, to pick out patches of consolidation, and by this means diagnose pneumonia much earlier than had previously been done.

Having followed the application of this particular sign for the past two years in conditions other than pneumonia, I am now prepared to discuss the value and accuracy of this method and to present the advantages it has over the other, and more frequently used diagnostic clinical methods. Its application is not only of value in conditions without consolidation, such as bronchitis, emphysema, and asthma, but it also has a definite place in the diagnosis of tuberculosis, with or without cavity formation, malignancy of the lung, pneumothorax, empyema, and other lung conditions.

Just a word with reference to the technique: The patient is stripped to the waist and is examined preferably in a sitting posture, as a comparison of the two sides is more accurate than when in a recumbent position. If too sick to sit up, the patient is turned on either side, as far as possible lying on the chest and abdomen, if the respiration is not interfered with too greatly. The instruction is then given to whisper "one, two, three," with a definite staccato, using only the one inspiration for the whisper of the three words, and taking a breath again at the end of each phonation. The whisper should also be accomplished during expiration and never during inspiration.

The character of the sound as heard in pneumonia is particularly close to the ear, sharply defined and clean-cut, and is best compared to the sound that is heard by placing the bell of the stethoscope over the occipital protuberance and having the individual whisper "one, two, three." The bony skull conducts the sound of the voice and gives a clear, audible repetition of the sound as heard in pneumonia.

In bronchitis the whispered voice sound is not

*Read before the Clinical and Pathological Society of Los Angeles, Cal.

increased, but is heard over the normal areas which have already been pointed out, *i.e.* at the hylus of the lung, bifurcation of the trachea, and over the upper part of the spine of the scapula, as a distant rush of air which might be likened to a soft blowing

Fig. 1.—Shows on the right side (the reader's left) pneumothorax, collapsed lung, pneumopericardium, complete obliteration of the heart shadow, and tuberculosis on the left side involving the upper two lobes and compensatory emphysema of the lower lobe.

sound, such as might be heard when an attempt to whistle is made without much air pressure behind the effort.

In bronchiectasis the character of the whispered voice depends entirely upon the degree of dilatation of the bronchi, and the amount of infiltration around them. The sound is therefore rather closer to the ear, louder and more distinct than in simple lung infiltration, and presents along the course of the bronchus or over an interspace, areas of definite clearness of voice sounds with areas of normal voice sounds interspersed. Of course, in a condition of this sort the personal equation must play an important part, as the response of the whispered voice as heard must depend entirely on the degree of dilatation of the bronchus, or its approach to definite cavity formation. Over a cavity the sound is loud, tubular in character, and is practically of the same type, nature, and intensity as would be heard if one were listening over the trachea.

In tuberculous infiltration the sound is not as clear or close to the ear as it is in pneumonia, but, on the other hand, it is very much more distinct by comparison than the sound which is heard over normal areas, depending entirely on the amount of infiltration and relative consolidation present. Where there is a cavity beside the infiltration, the sound again varies as to the size of the cavity and, as above mentioned, where the voice sounds are distinctly heard and there is an absence of sound in other areas along the same interspace one can almost with certainty make the diagnosis of dilated bronchi or early bronchiectasis. As the size of the cavity increases the transmission of the voice is increased until it is heard clearly and distinctly as if it was heard over the trachea itself. The pitch is higher, closer to the ear, and more rasping in character compared to the staccato heard in consolidation.

In pleurisy with effusion or empyema, either general or walled off, the sound is absent over the effusion but increased above the effusion over the compressed lung. This observation holds true whether the effusion is in the general pleural cavity or localized between the lobes. Here, again, the intensity of the sound and its character must be differentiated between that which is heard in simple lung infiltration and the natural gradation between this and true consolidation. The differential diagnosis is, therefore, very clearly brought out between the dullness due to consolidation and the dullness due to fluid, since in consolidation the whispered voice sound is increased over the dull area, while in the presence of fluid the whispered voice sound is absent over the dull area but is increased above it.

In spontaneous pneumothorax there is an absence of the sound over the area on the chest wall which is not in contact with lung tissue. The findings are practically the same as in pleuritic effusion. This fact is rather in striking contrast with the auscultatory sounds which can be heard over the entire chest wall anteriorly and posteriorly even though the lung is collapsed, but the voice sound is not transmitted. This is due to the fact that the collapsed lung expands and recollapses during every respiration, but on whispering, the lung not being in contact with the chest wall, the path of conductivity is not complete.

In emphysema and chronic asthma the sound is diminished, and if the increase of the whispered voice sound is heard in an asthmatic patient, particularly below the clavicle, this would be very suggestive of a fibroid change in the lung due to tuberculosis.

In carcinoma, depending upon the extent of involvement, the sound is increased but not to the extent as is heard in pneumonic consolidation. The

Fig. 2.—Shows complete pneumothorax and collapsed lung on the right side (the reader's left), tuberculosis of the left lung, and in place of the compensatory emphysema of the lower left side there is a compression of the lower left lobe. The heart shadow is also barely visible on the left side.

reason for this is obvious as the infiltration of the carcinomatous tissue is not as pronounced as the consolidation of pneumonia.

I will report one case of diagnostic significance and interest, also on account of its rarity.

Miss R. C. was referred to me for an acute pulmonary hemorrhage on December 7, 1920. No extensive examination was made at the time of the first visit but the patient was sent to the hospital.

December 9.—The patient had had two slight hemorrhages since first seen. On examination the left lung showed considerable moisture and bubbling, particularly at the end of inspiration. There was a pleuropericardial friction rub. There was also cardiorespiratory murmur, accompanied by a sound resembling the dropping of water at the end of deep inspiration, which was heard in the left axilla and over the precordia. The whispered voice sound was lost over the left side in the axilla and the base posteriorly, except that it was increased for a slight area at the hylus and extending out toward the axillary line, where it was again lost. The heart rate was 140. There was a presystolic murmur. The heart tones were distant and there was a suggestion of a churning sound over the precordia.

On the 10th of December there was hyperresonance over the left lung and the area of cardiac dullness was not obtained because of the hyperresonant note, which extended from the left to the right side. The right side showed dullness from the apex to the middle lobe anteriorly, and there was moisture over the right upper lobe. The whispered voice sounds were increased on the right side anteriorly over the upper lobe, and posteriorly over the upper and middle lobes uniformly. Over the lower lobe posteriorly the voice sound was not increased but was apparently more normal in type and character.

On the 24th of January there was hyperresonance bordering on tympany over the precordia. I was unable to percuss the border of the heart because of the lack of the line of demarcation between the cardiac dullness and resonance on deep inspiration. At the level of the fourth interspace there was a pericardial friction rub, a pleuropericardial friction and a metallic tinkling sound with an apparent rush of air into the pericardium at the end of deep inspiration. The heart rate was 140. The tinkling sound was about synchronous with the heart beat and not with the respiration as it was when the patient was first seen.

The clinical interpretation is as follows:

There was a partial spontaneous pneumothorax on the left side, pleuropericardial adhesions, pneumopericardium and pulmonary tuberculosis of the right upper and middle lobes, with compensatory emphysema of the lower right lobe.

Following a severe coughing spell the patient thought that she felt the heart move or change position. She explained that for a while she felt the heart pulsate in the left axilla and then shift toward the mid-line.

An examination of the chest showed the left side to be more bulging than it had been at the previous examination. The breast was tense over that side and there was less respiratory excursion. The percussion note was tympanitic or a high hyperresonance. The area of cardiac dullness was eliminated. The splash sound or the metallic tinkling, which was heard on other occasions, was absent at this time. There was a complete absence of whispered voice sounds over the left side, and there was an increase of whispered voice sounds posteriorly just at the root of the lung. On the right side the whispered voice sounds were markedly increased throughout the entire lung. It would seem that another collapse had taken place, which had pushed the heart over to the right side and had compressed the lower portion of the right lung which had been previously emphysematous.

The accompanying *x*-ray pictures verify the above clinical findings.

From the study of this case, in conjunction with others, I have gathered the impression that the clinical diagnosis carefully carried out, with attention to detailed physical examination, is of greater value than a laboratory diagnosis in which the clinical findings are not considered. In this day and age, where the laboratory is accessible to nearly every clinician, whether it is in his own office or in some outside special pathological laboratory, the great tendency is to look to it for the diagnosis before a definite clinical picture has been formed. The laboratory should not be used as a short-cut to diagnosis, nor should it be considered in the light of "the practice of medicine made easy," but should be called upon only for the verification of, or as an aid to the arriving at a proper diagnosis. In other words, the laboratory should be considered as a means to an end rather than the end itself. I am fully convinced that in the careful working out of a clinical examination the errors in diagnosis will be reduced to a minimum, and it is with the development of such diagnostic points as I have tried to show here, that greater aids to more accurate clinical work may be anticipated.

[illegible]

HYPERNEPHROMA OF THE STERNUM.

BY JAMES A. MacLEOD, M.D., M.R.C.S. Eng., F.A.C.S.

BUFFALO, N. Y.

ATTENDING SURGEON, BUFFALO CITY HOSPITAL; CONSULTING SURGEON, BUFFALO HOMEOPATHIC HOSPITAL.

AND

WILLIAM F. JACOBS, M.D.

BUFFALO, N. Y.

ATTENDING PATHOLOGIST, BUFFALO CITY HOSPITAL.

A HYPERNEPHROMA is a tumor which arises from an aberrant piece of suprarenal tissue. It runs a malignant course, and, as in other forms of malignancy, secondary growths occur in various

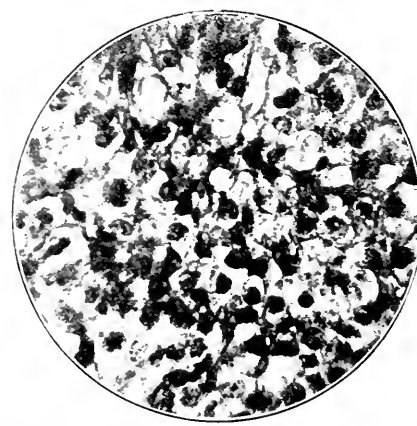


FIG. 1.—Microphotograph of section taken from sternal tumor of the first case; one-eighth objective, 800 magnifications.

parts of the body, most commonly in the long bones; the primary tumor, however, may remain quiescent for many years before it takes on its malignant characteristics. While it is regarded as a primary tumor of the kidney, we see no reason why it should not arise from an aberrant piece of suprarenal tissue situated elsewhere.

Hedblom in a recent contribution entitled "Tumors of Chest Wall," reported 213 cases of tumors of the chest wall collected from the Mayo Clinic and the literature; of these cases 46 were tumors of the sternum. We can find no special

mention in the literature of hypernephroma occurring in the sternum. We have had two such cases, one in the service of Dr. MacLeod at the Buffalo City Hospital, and the other in the private practice of Dr. Jacobs. In order that these cases may be added to the literature we give a brief summary of each. It may be of interest to note that at one time or other each of these cases was regarded as an aneurysm of the aorta; in the second case, up to the time of the postmortem examination.

Case I.—C. S., a male, 54 years of age, was admitted to the Buffalo City Hospital on May 31, 1921, with the diagnosis of aneurysm of the aorta. Through an interpreter the following history was obtained: Up to six months prior to his admission to the hospital the patient was a big husky man. At that time a swelling appeared upon the sternum; this was incised at another hospital and pus was said to have been obtained. During the following six months he steadily lost weight, dyspnea appeared, and he suffered pain and stiffness in the left side of his neck. Examination of the patient on admission showed that he was emaciated; his temperature was 98° F.; there was a tumor of the sternum, at the junction of the manubrium and gladiolus;

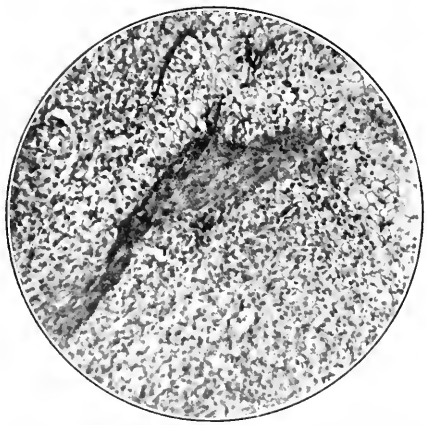


Fig. 2.—Microphotograph of section taken from sternal tumor of the first case; two-thirds objective, 250 magnifications

the tumor was hard, irregular and nodular on its surface; it was about the size and shape of half of an orange, overlapped the sides of the sternum, and was deeply fixed to it; the skin was adherent to its superficial surface at the site of an old scar; the tumor pulsated, but the pulsation was of the transmitted type rather than the expansile. Examination of the urine was negative and his renal function was 36 per cent. in two hours. Examination of the blood showed that the urea nitrogen was 17.8; the blood count showed 11,600 leucocytes with 76 per cent. polynuclear cells; the Wassermann tests were negative. Examination of the spinal fluid was negative. The lungs and abdomen were negative. Examination of the heart showed that the apex impulse was displaced upwards and to the left; there was a musical murmur just below the sternal tumor, and a rough systolic blow in the aortic area; the pulse was of the collapsing type, al though no aortic diastolic murmur was heard; the two radial pulses were equal in volume, time and tension. The *x*-ray examination by Dr. Clifford Orr showed that the sternal tumor arose from the sternum itself and extended anteriorly and posteriorly; that there were old sclerotic changes in the chest, but no evidence of any active disease.

A tentative diagnosis of sarcoma of the sternum was made and a small piece, somewhat friable and grayish in color, was removed for microscopical examination. Microscopically the tissue was found to be very cellular, with very little stroma; the cell type was large with a clear protoplasm, and a deeply strained nucleus centrally placed; the shape of the cells was at times somewhat rectangular, at times roughly columnar or cubiodal; there were, also, some small hemorrhages in areas that seemed to be breaking down. A diagnosis of hypernephroma was made and the study of the case continued to determine, if possible, a renal tumor as the primary source.

The patient was referred to the genitourinary department for an investigation of the kidneys. Dr. Frederick J. Parmenter reported that he found no evidence of hypernephroma by the cystoscope, but the sediment from the urine obtained from the right kidney, when sent to the pathological department, was found to be very cellular, with plaques of cells corresponding morphologically in size and shape to those found in the specimen removed from the sternum. An *x*-ray examination by Dr. Orr showed a cloudiness of the right kidney. These further studies suggested a renal involvement, either a metastasis or a primary growth.

The man's condition did not warrant any operative interference and consequently he was treated along palliative lines. His condition steadily retrogressed and he died on July 6, 1921. Unfortunately the patient's relatives refused a post mortem examination and so the latter laboratory work could not be substantiated.

Case II.—This case may be summarized as follows: J. B., a male, 69 years of age, was admitted to another hospital complaining of pain and swelling in the sternum, cough, backache and weakness of the legs. His family and personal histories were negative. Six months prior to his admission to the hospital he noticed for the first time a swelling of the sternum; it was then about the size of a hickory nut. Thereafter the swelling increased in size rapidly, and on admission to the hospital it occupied the entire sternum below the suprasternal notch, the dimensions being three and one-half by six inches. His general condition was good. The Wassermann tests were negative. The sternum was evidently eroded. The tumor had an expansile pulsation and he was discharged in about three weeks with a diagnosis of aortic aneurysm. About three weeks later he died and one of us was called upon to make a post mortem examination for an assumed case of aortic aneurysm. The body was then found to be emaciated. The sternal mass proved to be entirely sternal; it was cylindrical in shape, its long diameter being six and one-half inches, its anteroposterior diameter three and three-quarter inches. A tumor about the size of a chestnut was found in the left kidney. The gross appearance of the two tumors was characteristic; the texture was somewhat friable, the color was "cafe au lait," and there were hemorrhagic areas throughout. Microscopically the cells were large with clear protoplasm and deeply stained nuclei centrally placed; the cells were somewhat rectangular, columnar or cuboidal in shape, and were arranged in irregular collections, at times in aveoli; the stroma was very limited and irregularly disposed of.

288 Linwood Avenue.

CARCINOMA OF THE LUNG: REPORT OF A CASE.

By G. A. FRIEDMAN, M.D.

New York

Recent literature on the subject seems to point to the fact that pulmonary carcinoma is not as rare as some believe. A correct diagnosis of the condition can frequently be made provided one keeps in mind the possibility of such occurrence. Fishberg emphasized this in a recent paper. However, it is almost impossible to be sure that the carcinomatous growth in the lungs is primary, unless a complete autopsy has been made. The report of this case was prompted by the fact that the diagnosis of carcinoma was established beyond doubt

by the sections of a metastatic nodule in the skin.

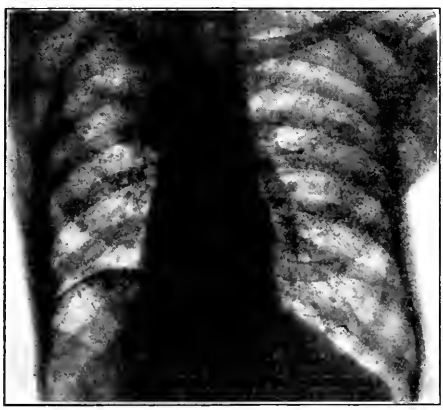
K. S., male, aged fifty-five, married, admitted to the Beth David Hospital, February 19, 1920; died, March 3, 1920. Chief complaint: Great weakness, pain over the precordium and epigastrium, dyspnea and hoarseness.

Past history: Negative, except that he had scarlet fever as a child.

Personal history: Heavy smoker. Venereal infection denied.

Present illness: Began seven weeks before admission, when he noticed that he was getting weak. Two weeks after onset he became hoarse, dyspneic, and cyanosed. Has lost about 10 pounds in weight.

Physical examination: Emaciated, rather cachectic looking, dyspnea, cyanotic, and hoarse. Eyes and ears, negative. Teeth in poor condition; tongue coated; odor from mouth. Neck, negative. Chest, thin; diminished expension on left side. Lungs, dullness on left side from apex to third rib, anteriorly, and to spine of scapula posteriorly; diminished voice and respiration over entire left lung; no rales. Heart, negative. Abdomen, negative. Extremities, negative. Rectal examination, negative. Skin, nodule in the second right interspace, about three inches from the sternum, freely movable, not tender, about the size of a pea. Nodule in the left buttock, freely movable, about the size of a hazelnut, not tender, fluctuating. Spine, negative.



Roentgenogram showing consolidation in the upper part of the lung and increased mediastinal density.

Joints, negative. Temperature, occasional rise; highest, 102°. Respiration between 20 and 28. Pulse between 72 and 110.

Laboratory findings: Wassermann, negative. Stools, negative for occult blood and parasites. Urine, negative. Blood, white cells, 15,200; polynuclears, 43 per cent.; lymphocytes, 53 per cent.; eosinophiles, 1 per cent.; transition, 1 per cent. Marked secondary anemia. Larynx, examination unsatisfactory because patient intolerant. Gastric analysis: nothing obtained on fasting stomach after preliminary test supper. Test breakfast: 120 c.c. obtained; free HCl, 7; total acidity, 39; no lactic acid; no Boas-Oppler bacilli.

X-ray examination of the stomach showed very slight irregularity of the stomach which might be due to adhesions; moderate retention after 5 hours. Chest, distinct consolidation occupying the upper left lung. This consolidation is suggestive of tuberculosis. There is a distinct area of increased density in the upper part of the mediastinum, apparently continuous with above mentioned area. This is suggestive of a neoplasm.

The nodule excised from skin showed alveolar carcinoma.

1006 Park Avenue.

X-RAY DERMATITIS.

By Mary L. H. Arnold Snow, M.D.,

New York.

(*Concluded from page* 931.)

Chronic dermatitis is found principally among *x*-ray operators. It is usually the result of a series of exposures and used to occur frequently when the hand was used often in connection with the fluoroscopic work. The skin is well described by Codman.[7] In the less pronounced forms it appears "chapped and roughened, and the normal markings are destroyed, at the knuckles the folds of skin are swollen and stiff, while between there is a peculiar dotting resembling small capillary hemorrhage." It is characterized by hyperkeratosis. The skin is apt to be drier than normal. Atrophic changes are seen. Hyperkeratosis is usually found about the knuckles as with keratoses. These keratoses may disappear and then reappear, degenerating or healing, according to the condition or treatment. They are apt to become epitheliomatous. Tousey[29] believes "the hyperkeratosis which is a characteristic effect upon the skin is an exaggeration of the normal degeneration through which epithelial cells pass." Telangiectasis may also be present.

In dermatitis with ulcerations, representative of a fourth degree dermatitis, the condition may last for years. When we consider the results observed after a series of rayings for uterine fibroid, as shown by an examination months after the last treatment, it may emphasize the tendency of the continued effect of the rays over a long period of time.

It is thought that the skin absorbs rays equivalent to those absorbed by 3/5 of a mm. of aluminum. The *action of the x-ray* may be stimulating or inhibitive, according to factors governing its potentiality. The rays at first have a contractile effect which later, owing to lowered metabolic activity, is followed by a vasodilatation, including a vasodilatation of the cutaneous arterioles and cutaneous capillaries. At times the blood serum effuses through the walls of the capillaries and edema is present, as noted in the reported case of tonsillar raying. It lowers oxygenation and blood pressure possibly by affecting the activating substance or hormone of some or one of the internal secretions. "Surgical[6] and traumatic 'shock' reduces the epinephrin content of the glands to only a fraction (8 per cent.) of their normal amounts." (Corbett) It is thought possible that "suprarenal deficiency may thus be a factor in the debility and prostration of acute infections," as such a deficiency is present.[24] "The locus of action[22] of epinephrin so far as the circulatory system is concerned is mainly on the small blood vessels, constricting them and thus raising the peripheral resistance." Epinephrin acts only on blood vessels that are supplied by the sympathetic nervous system. It is thought by Gradinescu[35] that "the suprarenal secretion controls metabolism by controlling the permeability of the blood capillaries, and hence the exchange between the blood and the tissues. He claims that adrenal deficiency causes the blood plasma to pass into the tissue spaces and the body cavities to such an extent that the concentration of blood corpuscles be-

comes twice as great as the normal. The viscosity of such blood is obviously great and the circulation correspondingly impeded." Cannon[34] associated "diminished clotting time of the blood" as one of the adaptations partly dependent "on the presence of excess of epinephrin in the blood." This is a factor for consideration in connection with the action of remedial agents in *x*-ray dermatitis.

Scholtz[37] found after extensive experiments that: "1. *X*-rays influence especially or exclusively the cellular elements of the skin. They degenerate; while the connective tissue, the elastic tissue, musculature and cartilage are changed only in a slight degree, as a result of the cellular degeneration and the inflammatory reaction consequent to it. 2. Degeneration affects the epithelial cells in the highest degree, and to a less extent the cells of the glands, the vessels, the muscular tissue, and the connective tissue. 3. The degenerative appearances are of various kinds, and affect both the protoplasm and nuclei. 4. As soon as the degeneration of the cells has reached a certain point, an inflammatory reaction appears, which manifests itself in a marked dilatation of the vessels, with gathering leucocytes and marked emigration of the blood-corpuscles. When greater cell regeneration occurs as a result of stronger exposure collections of leucocytes press into a mass of degenerated cells and accomplish their further destruction. The changes in the large and small vessels are apparently of great importance as affects the further development and slow healing of the ulcerations." There is stimulation, then degeneration, a necrotic process being present, followed later by regenerative processes or a continuance of the necrotic area if a dermatitis be severe.

There is a great question as to the cause of *x*-ray phenomena. Some believe these have an electrical origin, others that they are directly due to the *x*-rays as demonstrated by Elihu Thomson, cited by Pusey and Caldwell,[38] who believe the histologic findings favor a theory that the changes "are due to a form of energy of high actinic power to which the tissue cells are susceptible," and that they do not resemble ordinary inflammatory changes. From the time of exposure until a dermatitis occurs, preceding the ulcer, there is no "distinct increase in urinary nitrogen,"[37] although a lethal dose of hard *x*-rays from a Coolidge tube "increased" the elimination of urinary nitrogen on the day following the *x*-ray exposure and remained high until death, often an increase of 50 to 100 per cent. above the normal base line. "The blood nonprotein nitrogen commonly shows a marked increase (twice normal) on the day before death and triples on the day of death." Beumer[38] rayed the suprarenals in a case of diabetes with general improvement following, it being "most pronounced in the drop of the sugar content of the blood."

Ehrmann[39] explains the erythema and pigment formation from *x*-rays as follows. The ray acts on the capillaries and causes hyperemia, simultaneously there is an outflow of plasma containing hemoglobin in solution, which gives the reddish tinge to the skin. After awhile the coloring matter "in the interstitial spaces of the tissues breaks down into gloden yellow hemosiderin," resulting in the yellowish brown skin until absorbed. If many melanoblasts, there is an abundance of material, and through excitation by the *x*-ray, a large quantity of melanin is formed, which causes a "sepia brown skin." The iron of the blood[40] "under stimulation by hard rays gives out an abundant *very soft* radiance—true specific secondary rays—which are intensely active within a very limited range."

According to Block[41] "the normal as well as the pathological pigmentation of the skin is produced by the epithelium of the stratum germinativum in deep pigmentation, also by the superjacent cells of the stratum spinosum, also by the deep layer of the cells of the hair follicle and of the hair papilla. Under abnormal conditions the cells become active and there is more active pigment formation—the formation of the melanin pigment occurs in the protoplasm of the cell." He explains that "there exists in the cells of normally pigmented skin an oxidizing enzyme and upon the relative amount of this oxidizing enzyme depends the reaction to a stimulus such as light." Hence may be explained the variations in the degree of pigmentation produced by the action of rays of light on the skin of different individuals. Some believe "the epithelial cell of the stratum germinativum forms the pigment," others that "the pigment is formed in these chromatophore cells of mesoblastic origin." Those regarding chromatophores as pigment carriers obtaining the pigment from the epithelial cells or melanoblasts "to carry it away along the lymphatics" observe that chromatophores are not found "in non-pigmented scars," A. Ch. Hollande[42] states "that cells of mesoblastic origin in insects can form melanin in their protoplasm. Under the influence of light, owing to the presence of chromagenic melanogen and a tyrosinase enzyme, granules of melanin are formed in the vacuoles. Subsequently the melanin leaves the phagocyte, passes away in the blood, and is taken up by other cells." A. Richards[43] called attention to the effect of the *x*-ray on enzymes. It may stimulate or inhibit their activity according to the strength of applications. With, Kissmeyer, and Wassermann,[44] in a study of pigmentation during life, and With and Wassermann, in a study of pigmentation after death, concluded "It is derived from the epidermis and is produced by the oxidation of 'dopa,' or dioyphenylalanin in life, carried out by a ferment in the cells of the basal layer." May not the action of the ray stimulating pigment formation be due to its action on the ferment?

Sajous[45] believes melanin is formed "when oxidizing substance, *i.e.* the albuminous portion of hemoglobin, has become vicariously oxidized in any organ (hematoidin) or in the skin—the constituent of oxidizing substance which becomes oxidized when melanin is formed is the adrenal secretion."

The erythema petechiæ may be due to the lowered catabolic activity and the vasodilatation which is followed by an accumulated waste in the blood which might even result in skin disturbances as blisters or ulcerations.

In considering the cause of the itching accompanying an *x*-ray dermatitis, it is interesting to note some conclusions by Dr. Frederick G. Harris[46] in the correlation of various experimental and clinical observations in a study of eczema. "Since the vasomotor changes in eczema are so intimately asso-

ciated with itching and it has been shown that epinephrin prevents them both and is a normal constituent of the blood, it requires no great imagination to suppose that a deficiency of the active epinephrin in the blood could account for the increased sensitiveness of the skin on the one hand and the itching on the other. Might not the epinephrin act on the cutaneous reflex arc? The rather frequent association of eczema, low blood pressure and asthma, all conditions counteracted by epinephrin, is suggestive, to say the least." The same author experimented with anti-trypsin, having in mind the trypsin-antitrypsin balance causing skin reactions as he thought of the possibility "that chemical irritants penetrating to the rete mucosum could absorb antitrypsin, resulting in a solution of the epithelial cells and vesicle formation."[47] A study of the effects in the cause and cure of conditions in *x*-ray dermatitis along these lines would be of interest.

An erythema dose needs no attention except suspension of *x*-ray treatment until it has subsided. In regard to the second, third, or fourth degrees we have two powerful agents in radiant light and heat from a carbon filament lamp and in the use of the ultra-violet rays, and radium in some of the sequelæ of the fourth degree. In an article entitled "The employment of the Arc Light as a Prevention to X-Ray Dermatitis in the Treatment of Deep-Seated Conditions," Dr. William Benham Snow[48] in 1904 said, "One year's experience in the employment of a thirty-five ampere arc light, projecting parallel rays from a parabolic mirror as provided in a marine searchlight, has demonstrated its great value in preventing *x*-ray dermatitis." He advocated "an arc light of sufficient intensity to produce heat which can be just tolerated over a circle 15 to 20 inches in diameter when the patient is placed 10 feet from the apparatus, *i.e.* with parallel rays thrown against the surface." The same writer notes that in the treatment of *x*-ray dermatitis "No agent is as generally efficient as applications of radiant light and heat—the two conditions dermatitis from radiant light and heat and from the *x*-ray arising from opposite causes, one from excess of stimulation and the other from excess of inhibition." The blood stream absorbs most of the actinic rays.[49] Light acts particularly on inflammation by inducing relaxation and by increasing metabolic processes, assisting elimination, promoting assimulation, and increasing oxidation through heat induction. Freund has aptly said, "Light changes a passive congestion to an active one," which accounts for the changed appearance of an *x*-ray dermatitis after treatment with light. Since then we have treated many cases of *x*-ray dermatitis with radiant light and heat. The carbon filament lamp yields the best results. The applications are for from one-half to one hour and sometimes longer, according to the severity of the case. The lamp should be at such a distance that it may be easily tolerated. If there has been a rupture of the vesicles the wet surface will soon become glazed and the other parts will show a relaxing effect. It alleviates the itching and burning associated with an *x*-ray dermatitis.

The ultraviolet rays are another valuable agent. Their source in the past has been an iron electrode lamp, the electric spark, or an electric arc having an iron-cored electrode. Now we have the tungsten arc and the mercury vapor lamp. It is best to precede the use of the ultraviolet rays by a radiant light treatment to secure an erythematous effect, the more blood, the greater the absorption surface or the greater the quantity to absorb the rays. J. East[50] thinks by this method the iron and sulphur in the blood bring in oxygen and carry out carbonic acid. Margaret A. Cleaves, M.D.,[51] in her work on "Light Energy," long ago noted that ultraviolet frequencies had an affinity for oxygen, and believed the oxidizing action was shown "by the blistering of the skin and bactericidal effect" when ultraviolet light affects the free oxygen on the surfaces of the body. It is known that rarefied air at high altitudes will produce an erythema if tanning hasn't developed—even blistering sometimes occurs. The ultraviolet rays have a peculiar sterilizing effect on bacteria as well as varied chemical, biochemical, physical and physiological effects. They are decidedly bactericidal. Moore[52] demonstrated positively the destruction of streptococci and staphylococci and Plank claims of diphtheria bacteria.

The action of ultraviolet rays offers a wide field for study, one part of which is concerned with its actions on the blood. The blood contains ferments—that are closely connected with immunity questions—proteases, nuclein ferment, lipases, and amylase, as well as an antiferment known by some as "antitrypsin." Clotting occurs by the blood platelets and possibly leucocytes disintegrating and "as a result of which there is shed forth into the plasma a substance called prothrombin which afterwards becomes activated or converted into thrombin," which in turn "attacks a protein present in plasma called fibrinogen, producing from it in threadlike form the insoluble protein, fibrin." Soluble calcium salts and "thromboplastic substances derived from the tissues outside the blood vessels" are necessary requisites. Blood also contains an anticlotting substance, antithrombin. Harris and Hoyt[53] believe that ultraviolet "light is generally highly toxic, even for colorless organisms," and that this is due presumably to photochemical reactions. Their results are "in harmony with the view that the susceptibility of protoplasm to ultraviolet light is conditioned by the aromatic aminoacid radicals of the proteins." Kober's[54] investigations show that "the absorption of aliphatic amino-acids in acid or alkaline solution is only general in the extreme ultraviolet region" and, "with the exception of the aromatic derivatives, phenylalanine and tyrosine and amino-acids, where they are marked, do not show any special absorption, being general in the extreme ultraviolet." In the blood are found amino-acids as alanin, valine, and histidine, and the above conclusions give us cause to believe they are affected by the ultraviolet rays.

It has been shown that "ultraviolet rays change starchy solutions into maltose and dextrin" and also "inulin (dahlia starch) into glucose and levulose."[55] They also change saccharose into glucose and levulose,[56] all of which indicates the promotion of the activity of ferments by ultraviolet rays. They destroy the antitryptic properties of human blood serum,[57] which shows an inhibitory action against an antiferment. A. Chauchard[58] and B. Mazonie claim the rays destroy amylase and invertase (in malt

and yeast) from which it would seem that the rays have an inhibitory action on a ferment, but I consider that the test, since it includes other factors in malt and yeast, bactericidal, the result, cannot be taken as conclusive evidence. H. Agulhon[60] discovered that whether "properties of diastase in solution" were destroyed by the ultraviolet rays depends on their wave length, only waves having wave lengths less than 3,022 Angström units having such effects. Biochemically, according to Maurice Breton,[61] "they do not affect the properties of sera rich in antibodies, but antigens and antibodies no longer fix alexins." They coagulate protoplasm and blood plasma. Ultraviolet rays have the property of making blood coagulate sooner,[62] which undoubtedly makes them so efficacious in the treatment of ulcerated and raw surfaces. Traugott found red corpuscles unaffected. A 10 to 15 minute exposure increases the number of leucocytes and lymphocytes but with a shorter exposure there is a difference between the number of leucocytes in capillary and in venous blood. Blood platelets are also increased in number.

If epinephrin is an element to be considered in the clotting of blood as well as the itching present in *x*-ray dermatitis, it would be an interesting study to learn the effect of the ultraviolet rays on this hormone. Ultraviolet rays may burn as well as the *x*-rays, but as Dr. Plank[63] says, "the latter occludes all blood vessels, both surface and deep, causing destruction, whereas the former destroys only the surface vessels and then only the pathological ones wherein the endothelial cells are more readily proliferated."

In applying the ultraviolet rays due precaution as to protection of the operator and the exposed parts of the patient must be taken as to the reflected rays as well as the direct rays. Brown glasses are best for the eyes.

We used ultraviolet rays in combination with light rays from a 35-amperage arc as early as 1903 in the treatment of *x*-ray dermatitis. In 1904 Dr. Margaret Cleaves[64] noted, "a case giving symptoms of the left labia majora being badly swollen, red hot, sensitive, and complaining of great distress about the vulva and to the left side. A 10-minute exposure to the ultraviolet light energy from the condenser lamp resulted in immediate relief from pain and sensitiveness, with greatly diminished swelling and lessened heat. The following morning the parts were normal and the patient was comfortable." A red skin reacts more quickly than a deeply pigmented skin, as we have often observed in the treatment of cases who have had many *x*-ray exposures. Diesing[65] claims that the pigment of the skin resorbs the ultraviolet, and Weidenreich[66] believes that the pigment and sebum are regulators of heat for the body. Bach,[67] in 1916, reported that Steuermach (Krakau) cured an *x*-ray dermatitis on himself "by subjecting himself once a week to treatment with the Alpine lamp until slight erythema was produced."

We have had excellent results from an air-cooled Burdick lamp. One case of stubborn dermatitis of the epigastric region of the second degree was cured in one treatment. The patient was rayed for a presumably malignant growth. He did not return until fourteen days after the last exposure. Below each breast and over the umbilicus and in the vicinity were ruptured vesicles. The umbilicus was raw and ulcerated in one spot. After a few treatments given with radiant light and heat the ultraviolet rays were applied over the umbilicus for three minutes at a distance of 20 inches. On his return, the umbilicus and the skin around it was healed but the parts beneath each breast were not. One application for five minutes at 15 inches resulted in complete recovery. Not only is it beneficial in acute but chronic dermatitis as well; a single application of one minute, 20 inches distance, gave a physician suffering from chronic dermatitis of the hand such immediate relief that he remarked that he hadn't been able to close his hand like that for more than a year. Dr. Howard Plank[68] reports "such cases as *x*-ray burns and telangiectasis are being treated with these rays with apparent good results." It also has an atrophic effect on hypertrophied tissues. Dr. Chris. Sampson, in discussing "Actinic Rays,"[69] said, "there is nothing like ultraviolet rays for sterilizing an open, foul ulcer or other destructive processes. The *x*-ray dermatoses and ulcers on the hands that have persisted for seventeen years I have seen cleared up by the Kromayer lamp with, in some cases, the addition of diathermy to soften the areas and produce a deeper hyperemia than was possible with the rays alone. You must produce an erythema.

Tousey[70] quotes the cure of "irregular keratoses and fissures (of the palm) remaining after *x*-ray treatment, by three chlorin ionizations." No pigmentation was left. He advocates the daily use of lanolin or cold cream for *x*-ray keratoses to keep them "innocuous." 10 to 20 per cent. salicylic acid, adhesive plaster and avoiding *x*-rays, he claims removes *x*-ray warts, but they are apt to recur. The same author[71] reports that "Holzknecht has cured about 50 cases by the application of hard filtered *x*-rays and an equal number by the gamma rays from radium." The applicator has a coat of 4 mgm. of radium per square cm. of surface. The filters used are 2 mm. silver, 1 mm. aluminum, 1 mm. of copper and a thin layer of cotton. The time was "from 1½ to 8½ hours."

Knox[72] claims that "the curative effect of radium depends in many cases on the Becquerel rays stimulating the connective tissue and producing fibrosis." Roberts thinks "there is reason to suppose that the blood stream is hostile to intrusive epithelium." He suggests the study "of normal epithelium and connective tissue in nutrient media while they are subjected to *x*-rays or radium or both, or to the influence of endocrine secretions or of various toxins," and concludes, "The phenomena observed in the chorionic trophoblast, in chorion epithelioma, in *x*-ray dermatitis and cancer, as well as in the experimental growth of the two tissues liable to malignancy, support the view of this relationship between epithelium and connective tissue, and suggest that a morbid condition of the pituitary may be a fundamental cause of the disease. Radium element acts like emanation.[73] It "increases tissue oxidation and the activity of ferments; it has a strong bactericidal action, though it slightly diminishes phagocytosis." There are hemoglobin increase, leucocytic diminution and "dilatation of the peripheral blood vessels."

For the keratoses, radium has been found most satisfactory. Formerly, and even now, by some the cautery and the curette are used for keratoses, and excision and skin grafting for ulcers. Fulguration is also sometimes used, but the use of radium plaques in skillful hands will result in the eradication of these annoying *x*-ray sequelæ.

We have used the *x*-ray for twenty years and have never had a dermatitis of the third degree even in the early days of the use of the *x*-ray when unfiltered and indefinitely measured doses were given. The *x*-rays, with their varying range of activity from stimulation to inhibition, stimulant if in small doses at long intervals of time, distance being a factor, inhibitant if the strength, time and distance are sufficiently increased, inhibitant even to the death of a part—demand skill and knowledge on the part of the operator for the production of best results with least harm. Particularly is this so now that the newer *x*-ray therapy uses such heavy doses when the removal of one filter from a filtration of 10 mm. may cause an "incurable" dermatitis as one operator noted.

When the factors as heretofore enumerated as to the various stages of *x*-ray dermatitis are considered, the intolerable itching, burning, atrophy, tension, raw and bleeding surfaces, ulceration with accompanying bodily discomfiture, urgent demand is made for alleviation and cure. In the past, ointments and drug therapy have been practically failures. Our experience during the past two decades has demonstrated the value of reflected radiant light and heat. Too much stress cannot be laid on its great therapeutic value. It relieves the itching, possibly through the induction of vasomotor changes. It increases the circulatory activity in the passively congested tissue, inducing first relaxation then contraction. It promotes oxygenation and the metabolic activity of all processes, hastening the regeneration of tissue in need of repair. It relieves tension and has a sedative effect generally. It overcomes atrophy through its effect on the circulation, which also hastens the removal of waste products, and possibly increases locally the supply of epinephrin, a hormone. The patient improves physically as well as locally. The fact is the light from the carbon filament lamp is best because of its richness in infra-red and yellow rays representative of heat and maximum absorptive region by the blood. We never have found the tungsten filament lamp of so great appreciable value in the treatment of *x*-ray dermatitis. Our experience with ultraviolet rays in the treatment of *x*-ray dermatitis had been of comparatively recent date. We have had excellent results. The greater the influence of an agent for stimulation, the more marked its effect when employed as an inhibitant. It is thus with the ultraviolet rays, so great care must be taken in their application. Time and distance demand special consideration. Radium we also found of value.

Radiant light and heat, ultraviolet rays and the gamma rays of radium, we have proved them all agents to be considered in the treatment of *x*-ray dermatitis. Time and investigation will probably demonstrate that each has a certain selective field. Thus far in our experience radiant light and heat will conquer the reactions from the *x*-ray with the exception of the hyperkeratosis, the ultraviolet rays will do what radiant light accomplishes, but they have also a marked atrophic effect on hypertrophic tissue as does radium, but radium to this date is limited in the treatment of *x*-ray dermatitis to the keratoses. The *x*-ray in its induction and the above-mentioned agents in its cure call for further study as to definite action chemically and physiochemically. Clinically many questions have been answered, but further study and greater consideration of idiosyncrasy and susceptibility will tend to lessen the frequency of *x*-ray dermatitis and hasten recovery. From the foregoing facts we claim recognition in the treatment of *x*-ray dermatitis, of radiant light and heat, except for keratoses; ultraviolet rays in general; and radium and ultraviolet rays in the treatment of keratoses:

1. Because of the great demand for a remedial agent with which to combat the dire effects of an *x*-ray dermatitis.

2. Because these agents have been proven to counteract the effects of the *x*-ray as above enumerated.

3. Beause they not only inhibit the degenerative process, but institute regenerative processes, especially is this true of the radiant light and heat and of the ultraviolet rays.

4. Because radiant light and heat and ultraviolet rays have a systemic effect which raises the patient's resistive powers and assists in the re-establishment of his normal physical condition.

Considering the exigency of *x*-ray dermatitis, its annoyances, sequelæ, and difficulty of treatment, too great stress cannot be laid on a plea for a trial of these physical agents, with due regard to technique, especially radiant light and heat and the ultraviolet rays, when clinically and technically their action is a known asset. All who are called upon to treat *x*-ray dermatitis, whether acute or chronic, will find in them remedial agents satisfactory alike to physician and patient.

[The list of references is here omitted but will be restored in the reprints.]

THE NEGLECT OF THE NARCOTIC DRUG PROBLEM.

By ERNEST S. BISHOP, M.D., F.A.C.P.,

NEW YORK.

In dealing with the narcotic drug situation or problem I shall not discuss the great mass of generally unappreciated and neglected scientific and other literature which has been accumulating for over a hundred years on this subject—lost sight of in the frenzied competition between various panaceas and "treatments" and "cures," medical, medico-commercial, medico-political, legislative, administrative, uplift, "reform," "control," and otherwise.

I shall not go into the psychological or the physiological or the pathological or the clinical or the therapeutic or the research considerations and controversies. I shall not attempt to condense into abbreviated finalities the generally unappreciated, unrecognized, and undigested mass of accumulated record and experience, scientific and lay, upon the many angles and problems of what has become, or, rather, been made into, a most bitterly controversial subject.

I shall simply try to portray what seem to be some of the generally unsuspected but really fundamental features and facts which constitute the present narcotic drug situation—which has arisen from the neglect of the narcotic drug problem—the chaos which has come to exist and in the persistence of which all discussion of special issues and problems merely adds fuel to the flames of discord and bickering and recrimination, and postpones real progress and final remedy and practical control.

For over two years the lay press has been pretty constantly portraying various spectacular, criminal, or morbid angles or manifestations of what is popularly called the "drug evil." For two years it and the medical press have reflected the conflicts over the medical and pseudomedical issues and false issues of the drug situation. For two years administration has been divided as to the meaning and interpretation of laws and the proper bases and policies of administration and application. For two years have gone on in various parts of the country, and especially in New York State, almost constant struggles before the legislatures in most bitter and factional and partisan contests for the passage of bills of various and absolutely conflicting presentations and opinions and interests. For two years the honest doctor and druggist and the innocent type of addicted sick have been in constant uncertainty, shuttlecocks batted from one policy or interpretation or opinion to another.

For two years the types of individuals included among the hundreds of thousands of honest and innocent citizens who have contracted opiate addiction through ignorance or through necessary or unavoidable therapeutics, some of them on the battlefields of France, have been worried and frightened and harassed to the great detriment of their personal, social, and economic status and efficiency, and have been more and more abandoned by the medical profession and medical institutions.

For two years, from all accounts, the criminal and illicit and "underworld" smuggling and peddling of what are popularly and loosely described as "habit-forming" drugs have been growing by leaps and bounds and becoming more and more organized. For two years, as a result of this stimulated criminal and illicit traffic and its commercial extension, the condition known as drug addiction has been spreading among the youth and ignorant and curious and adventurous of this country.

For two years has been going on between medical or pseudomedical factions, and somewhat within the medical profession, a most violent exacerbation of one of the most bitter controversies and conflicts between opposing theories and factions and interests as to the character of this condition of drug addiction, and the proper or desired lines of treatment of or attitude toward its clinical aspects and sufferers—a controversy which has at times threatened to split medical organizations and has displayed some of the most bitter personalities and personal attacks to be found in medical history.

The whole situation presents a picture of one of the most confusing muddles imaginable—a muddle of controversy and of personal and group opinion—a strife of influence of power and of propaganda and publicity—a veritable chaos of internal struggle in the midst of which all the evils of the situation are increasing, and real control and study and constructive remedy are aborted and postponed.

This situation had its origins prior to two years ago, breaking out into periodical flare-ups of greater or less intensity and extent. The last two years, however, have seen an aggravation of it which has extended into circles previously untouched. The controversy has extended even into departments of government, and rocked the machinery of legislation, has violently disturbed the lay press, and reached into many avenues and places outside of the medical profession. This is, of course, natural and unavoidable, since in many of its manifestations and connections it touches upon nearly every angle of human life or activity.

In spite of all this and of its open record and dissemination, the situation itself and the multitude of problems connected with it are to-day as much unsettled as, if not more unsettled than ever. There is scarcely a topic or issue in it which has not been made the subject of violent disagreement and upon which cannot be found opposing statements, statistics, and reports.

About the only undisputed fact in the present situation is the rapid extension of criminal and illicit "underworld" smuggling and peddling, and the increase of addiction through its commercial extension and the activities of its agents, and, as claimed by many, through the unfortunate and curiosity-stimulating publicity given to morbid and spectacular incidentals and fungous features which have fastened themselves upon and obscured the real narcotic drug problem.

This rapid extension of underworld smuggling and peddling and the increase of addiction among the youthful and curious and adventurous, and some of the defective, was foretold and warned against in open legislative hearing and elsewhere nearly two years ago, if the then apparently settled plans and policies which had been recently worked out and generally agreed upon after thorough study and investigation should be upset and discarded and the experience of the preceding six years ignored.

One of the most forceful warnings of this sort came in the form of a protest from the New York State Association of Magistrates against what was known as the Cotillo Bill, then before the legislature and having among its proponents those who seemed likely to dominate the opinion of recently appointed officials, medical and lay. This protest from the judges stated that this bill and the ideas behind it "would utterly destroy the constructive work of five years," would "threaten public calamity," that "the underworld and illicit traffic would find a new and appalling impetus and violations of the criminal law as to both narcotics and incidental crimes vastly increased." All of these had markedly decreased under the policies adopted as a result of experience and study during the previous two years.

Discussion to the same effect as that from the judges is to be found in the report from the Legislative Committee of the Medical Society of New York State at its last annual convention, and in many other places.

Ample justification for these warnings seems to be found in the present situation, in which smuggling and peddling of narcotic drugs and the criminality associated with and growing out of such smuggling and peddling have already completely overshadowed all other manifestations and increased to proportions formerly undreamed of, increasing the census of "underworld"-created addiction cases far beyond any previous proportion.

This recognized increase has been attributed to all sorts of extrinsic causes and influences by those promoting the ideas and theories behind the Cotillo-Smith or Fearon-Smith Bill type of legislation and interpretation. The older workers and students, however, men of longer experience and familiar with previous similar and similarly created situations, find its origin intrinsic and along the lines of explanation embodied in the protest of the judges against the Cotillo Bill and the criticisms of it contained in the report of the committee on legislation of the New York State Medical Society.

It is significant that the introducer of the Cotillo Bill did not push it further for passage after he heard the facts and arguments arrayed against it and its ideas.

It is also an interesting fact that, although the bill itself was defeated, it has since been shown in open record that the ideas behind the bill, and probably the influence of the proponents of the bill itself, prevailed in actual administration of existing law through the medium of administrative rules and regulations which, as has also been pointed out by high judicial authority, were contrary to the intents and purposes of that existing law and acted practically to repeal it. The report of the Legislative Committee at the last convention of the New York State Medical Society warns of the same attempt being made to influence the interpretation and administration of the Federal (Harrison) Narcotic Act.

So that we have had in New York State the interesting anomaly of existing statute interpreted and administered to give it the force and effect of its rejected opposite. This state of affairs has, however, provided a practical tryout for the ideas expressed in and behind that rejected opposite—something which would seem to have been unnecessary after the revelations of the two years' investigation of the New York State Legislative Investigation Committee under Senator Whitney, and the several years of study of the narcotic committee of the judges of the State under the chairmanship of Judge Collins, and the experience of the former Federal administrators, and the mass of available literature and record, medical, and otherwise.

To one at all familiar with this mass of data there should be no difficulty in tracing the real origin and machinery of the developments of the past two years. It is clear that they are directly traceable to newly arisen forces which, through the incident of political or medico-political appointment, about two and a half years ago obtained positions of unusual command of publicity and influence, and announcement in which they unfortunately ignored the experience of the past and its literature and record, and reintroduced ideas and administrative experiments which had hitherto repeatedly and calamitously failed or were obviously unsound.

The fundamental origin of the present situation and conditions connected with it lies in the neglect of the real issues and problems of the narcotic drug situation—the issues and problems and needs which were pointed out and made basis for constructive work and plan by practical consensus of administrative, scientific, judicial, and other experience and opinion two and a half years ago.

Perhaps the really basic problem of the whole situation lies in the failure as yet fully to understand and generally to appreciate the effects of the continued action of narcotic or opiate drugs upon the human body, one of the most generally neglected fields of medical and scientific study and investigation.

Senator Whitney, at the conclusion of a speech in which he outlined to a medical audience the purposes and plans originally laid down but never followed for the then newly created New York State Department of Drug Control, put into a nutshell the findings of his investigation and of those who had cooperated with it, medical and official and lay. In speaking of narcotic drug addiction and of the situation, he concluded with the words, "*The cause of which is ignorance, the results of which are misery, and the remedy for which is education.*"

It is the neglect to recognize the needs expressed behind this statement which is largely responsible for the possibility of continuance of the real evils of the situation, and of the bitter strife and persistence of recurring panaceas and formularized remedies, medical, pseudomedical, politicomedical, legislative, administrative, and otherwise, which have chased each other with confusing and kaleidoscopic rapidity through legislative halls, through administrative considerations, through medical and lay press to the utter distraction from the constructive work of the preceding years and the possible constructive work of the present. It is also this same neglect which has left us in present confusion and without generally recognized foundation for constructive work for the future.

The fact of the matter is that the fundamental and basic problems of the narcotic situation have received always very little attention during times of such strife and controversy as we have been going through. In distracting and mud-slinging controversy and at times personal attack over various incidentals, "we have left undone the things which we ought to have done"—and "we have done the things which," previous experience should have taught us, "we ought not to have done."

We have played with phrases and panaceas and "Morrison's Pills" and formularized statements and remedies, and in the heat of bitter and often personal conflict and controversy over them have

for the period of this warfare left untouched the basic problems of science and medicine, as well as public health education and study and research; but without these there can be no solution or efficient machinery for any constructive remedy, and without them chaos and misery and injustice have come to prevail.

In our quarrels over panaceas and phrases we have not only driven out the constructive foundations and plans for remedy, but we have driven in the now dominating factor in the situation, one of the most horrible productions and exploitations of human misery ever known. We have fostered the market for the wares of the underworld drug smuggler and peddler, and, through allowing the general ignorance of physical narcotic effect to continue, have permitted its extension through the same nefarious channels of traffic in the needs of human flesh and its ills.

Three years ago or more the preliminary report of the Whitney investigation of the New York State Legislature attributed the extension and growth of this smuggling and peddling traffic to conditions in administration reacting upon the medical profession in a situation for which it found itself entirely unprepared. Today it finds itself as much unprepared as it was then and far more discouraged and confused—the usual result when bickering and quarreling take the place of cooperative, honest endeavor, and when factional strife replaces effort at mutual understanding and tolerant interchange of information and experience and ideas, and when lurid or persistent reiteration of morbid or misleading incidentals replaces broad and dispassionate survey and discussion of all available facts.

It is unfortunate that the original purposes and plans of the now abolished New York State Department of Narcotic Drug Control could not have been completely carried out and given a thorough and fair trial.

Its original purposes were to have established one non-partisan office or center or clearing-house for the collection of all available information upon the subject of narcotics and narcotic drug addiction and for the further investigation into the various angles and problems of the subject—for the fostering and encouragement of all possible lines of honest work and study, for the open discussion and correlation of various activities, for the investigation and improvement, where necessary, of conditions in institutions treating these narcotic patients and the betterment of their methods of treatment and results, which had been shown by the investigation to be in many cases largely unsatisfactory; to have instituted as soon as possible a well-equipped and competently and scientifically conducted State institution in which the clinical and scientific problems of this condition could be studied and developed and from which could go out education for the betterment of methods of handling and treatment of these cases (for which betterment a plea is contained in the Report of the Special Committee of the Treasury, June, 1919); and for the institution of measures looking to the proper enforcement of the laws against the frankly recognized evils which had been uncovered.

All of this was aimed at (1) the rational prevention of extension of narcotic drug addiction; (2) the suppression and elimination of the "underworld" and "underground" narcotic traffic and smuggler and peddler; (3) the best possible immediate care of existing sufferers according to their individual personal needs and deserts; (4) the development as rapidly as possible of competent means and methods of treatment for the cure of as many as possible of those already in existence; (5) the protection of the public and the sick against the charlatans and all sorts of incompetents; (6) the spread of non-spectacular information and education concerning this whole subject into all possible places and along all possible lines.

The investigation by the Whitney committee was the outcome of a previous situation parallel and similar to the one existing today on a national scale. It grew out of a similar deadlock between conflicting conceptions and opinions and interests. It worked coincidentally with the special committee of the judges of the State conducting simultaneous study, and it had the cooperation of that committee and of the Federal officials then in office and of the representative bulk of the medical and pharmaceutical professions and of other people legitimately interested in and affected by this situation. Its thousands of pages of transcribed testimony and its reports afford a mass of very valuable material for the study of the present investigator.

Unfortunately, as I have said before, in the upheaval of the war and in the reawakening of violent controversies over partisan issues, and in the advent of administrators who were apparently unfamiliar with the work of the Committee of Investigation and the original plans for the conduct of the commission, its real purposes and plans were never carried out.

It was unfortunate, for in such plans and constructive lines of broad approach (whether carried on under a commission or otherwise, most of the older and more experienced workers and students and the older administrators saw the earliest solution of the narcotic drug problem and the earliest remedy and control of the narcotic drug situation, and the elimination of the two chief exploiters of its victims, the camp-followers and scavengers of its neglected needs and of its illicit opportunities and of its controversies and battlefields, the vendor or promoter of the fake "cure" and the "underworld" smuggler and peddler of narcotic drugs.

There is a great amount of real work that needs to be done, work in scientific study and therapeutics and administration and practical control. How can any of it be competently done until there is a general and widely recognized and agreed foundation of real knowledge? The earliest possible obtaining of this is the great need of the present situation, caused by the neglect of the narcotic drug problem. We should have had enough of formularized remedies and panaceas. The only slogan should be tolerant cooperation and hard work through every honest agency. All else has failed.

15 West Seventy-third Street

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, December 3, 1921.

THE MOTOR DISTURBANCES OF SYRINGOMYELIA.

THE motor disturbances in syringomyelia comprise the symptoms of anterior polyomyelitis and usually are first made manifest by muscular weakness—of the upper limbs most frequently. The hands become clumsy and are quickly fatigued. These patients complain almost constantly of numbness, tingling, and sometimes peculiar sensations of glacial cold or burning. Then after a variable lapse of time one is struck by the emaciation of the hands which is accompanied at first by a decrease of the muscular strength which can be verified with the dynamometer, and progressively increases until functional impotence ensues. Atrophy of certain muscles or groups of muscles will be noted, this atrophy often commencing in the thenar eminence. Muscular atrophy is an almost constant symptom of syringomyelia and generally is localized from the onset and almost exclusively in the upper limbs, especially the small muscles of the hands. Then the ulnar group of the forearm becomes involved, the topography of the atrophy corresponding to the territory of the eighth cervical and first dorsal pairs. The consecutive deformities are the same as those observed in progressive muscular atrophy, and although usually the atrophied muscles are innervated by different nerves, the predominance of the atrophy or even its exclusive localization in muscles supplied by the same nerve has occasionally been met with. In these circumstances the atrophy and paralysis are systematized. But this systematization is not, strictly speaking, absolute, and Déjerine and Thomas maintain that the topography of the atrophy is always radicular and is never exclusively limited to the domain of a single peripheral nerve.

When the muscular atrophy involves both upper limbs the same muscles on both sides are usually, but not always, involved, so that the hands may assume different attitudes as time goes on. Finally, during the greatest part of the evolution, the atrophy may be limited to one upper limb—unilateral syringomyelia—in which case the disturbances of sensibility exist on the atrophied side. The atrophy follows an ascending evolution passing from the hand to the forearm and later to the arm and shoulder, but this ascending evolution is not always so regular and after the hand the pectoralis, deltoid, and other muscles of the shoulder may become involved, the muscles of the forearm and arm being more or less completely passed over. The atrophy then extends to the muscles of the back, the intercostals, and those of the abdominal parietes, and lastly to the lower limbs. Here also many irregularities of evolution may be noted, the atrophy sometimes passing from the upper to the lower limbs without involving the trunk. Extension of the atrophy to the lower limbs and trunk is far from being as frequent as restriction to the upper limbs. The distribution of the atrophy offers great variations. The muscles of the lower limbs most frequently atrophied are those of the calf, the adductors of the thigh, and extensors of the foot.

In its ascending progress the atrophy does not always respect the muscles of the neck and head and may involve the trapezius, scalenus, and sternomastoid. Death is sometimes caused by paralysis of the intercostals and diaphragm. Instead of beginning in the muscles of the hands the atrophy may first attack the shoulder muscles, thus simulating the scapulohumeral type of progressive atrophic myopathy. In these circumstances the atrophy is limited to the domain of the fifth and sixth anterior cervical roots. More exceptionally, the atrophy progresses symmetrically and rapidly, like amyotrophic lateral sclerosis. The majority of observers attribute a segmentary arrangement to syringomyelitic muscular atrophy; extending from the periphery toward the roots it involves larger and larger segments—first the hand, then the forearm, arm, and shoulder. On careful examination it is easy to see that this socalled segmentary distribution really does not exist and that in syringomyelia, as in hematomyelia, the topography of the atrophy is radicular—the scapulo-humeral type at its onset is quite striking in this respect. The paralysis is not always exactly proportionate with the atrophy and frequently it is more marked than might be supposed from the state of the muscles.

The atrophy does not involve an entire muscle at once, the fasciculi often being attacked separately in the same muscle; this fascicular atrophy is more frequently observed in the deltoid. Fibrillary jerks are frequent, not to say constant, and are an early sign, but may last for months or years. They are more numerous and easy to see in muscles undergoing atrophy after prolonged exertion or when the patient is exposed to cold. The atrophy and twitchings may be concealed by the fat when this is well developed, and when the fibrous tissue takes on considerable development in symmetrical atrophy of the deltoids the resemblance to myopathic atrophies may be very great. Idiomuscular contraction is exaggerated but is slow and paretic. The electric reactions are

weak or absent, according to the muscle; the reaction of degeneration—total or partial—exists when the atrophy is undergoing evolution.

Besides muscular atrophy, other motor disturbances exist, such as paralysis with or without contracture, tremor, and various phenomena of excitation. Besides sudden hemiplegic, monoplegic, or paraplegic paralyses, which are rare and rather complications than symptoms of syringomyelia—supposed by some to be due to hemorrhage or intramedullary edema—paresis of the lower limbs with contracture is rather frequent; but syringomyelia with contracture of the lower or all four limbs should be regarded as a special form of the affection. Tremor has been observed, especially in the fingers. It does not occur during rest and walking does not provoke it. A simple mechanical stimulus causes it to appear. Other spasmodic phenomena have been observed and as far back as 1892 Critzman (Thesis, Paris, 1892) described a clinical type of syringomyelia that he called the lateral amyotrophic sclerotic type. Cases of spasmodic tabetic syringomyelia have also been recorded. Briefly, observers have noted spasmodic phenomena in this affection, a symptomatology recalling that of spasmodic tabes dorsalis, multiple sclerosis, and lateral amyotrophic sclerosis, but the symptomatic picture of involuntary movements in syringomyelia has only comparatively recently been studied.

RADIUM IN NON-MALIGNANT DISEASE.

RADIUM, undoubtedly, in spite of a recent pronouncement, has its chief sphere of usefulness in the treatment of malignant disease, either by itself or in conjunction with or as an adjunct to operation. Although the therapeutic and perhaps even curative value of radium is mainly witnessed in maladies of a malignant nature, good results have followed its employment in non-malignant conditions. In a paper read by Dr. W. H. B. Aikins of Toronto at the meeting of the Ontario Medical Association, and published in the *Medical Press and Circular*, October 19, 1921, attention is directed to the use of radium in non-malignant disease. Aikins has done a good deal of work with this agent in cases of splenic leucemia, and a report of the results has been drawn up by Dr. F. A. Clarkson of Toronto. This report bears out the following contentions: From the many hundreds of cases recorded in the literature nothing can be more certain than that radium will bring about a remission in a patient with splenic leucemia who has not been treated previously. Within 48 hours many of the unpleasant symptoms of this incurable disease will be ameliorated. The appetite returns and sleep is restored. In a few days the dreadful weakness so characteristic of the malady is greatly improved and many patients are able to return to their work for a time. The change in the blood picture is most marked. Within a few weeks the leucocytes will fall from 500,000 or more to normal, while the spleen will shrink to its usual size. Unfortunately these changes so rapidly and so painlessly brought about are only temporary. When a patient is treated the second time the results are not so marked, and after a time radium seems to lose its effect. The results, however, are so satisfactory that one is safe in saying that life has been prolonged and the patient has been rendered much more comfortable. In lymphatic leucemia and in Hodgkin's disease the effects of radium, although not so striking as in splenic anemia, are, on the other hand, sometimes more lasting. Radium has been used with beneficial results in tuberculous adenitis, and Aikins cites several cases from a large number treated by him, in support of this statement. That radium affords specific treatment for certain forms of uterine fibroids is now well established, but Aikins points out that there are some very definite contraindications, such as large fibroids, malignancy, and inflammation of the pelvic organs. Also it must be noted that radium is not always advisable for women under 35 years of age, as there is grave danger of cessation of the menses. Therefore it may be stated that for women over 35, with fibroids not larger than a 3½ to 4 months' pregnancy, radium is the treatment of choice, except in cases when it is contraindicated because of malignancy or pelvic inflammation.

The author is especially enthusiastic with regard to the value of radium in the treatment of toxic goiter. In fact, he is of the opinion that toxic goiter is never a surgical disease, on account of the nervous and heart symptoms and the shock to the system caused by operation. Radium has none of these drawbacks, is simple of application, and Aikins' experience has been that in the majority of cases its effects are quite as satisfactory as those brought about by operation. Its disadvantage is that results are slow to come and therefore a great deal of patience is demanded. Keloids of all kinds are very successfully treated by radiation. It gives splendid results with naevi, and angiomatous naevi, and also with angiomata. Psoriasis and chronic eczema are responsive but require persistent treatment. Warts and simple papillomatous moles soon vanish under radium treatment, but it is safer perhaps not to treat pigmented moles in this way, for while they are removed easily by radium, in certain cases their disturbance may set up a melanesis in the blood which will result in metastases. Lupus erythematosus is generally treated with excellent results. The field of radium therapy in non-malignant disease appears therefore to be fairly wide, and Aikins claims that its use with an accurate knowledge of its powers and limitations is extremely valuable. But it is the potentialities and possibilities of radium which most puzzle those who have studied the subject and are conversant with its use. Treatment by radium is scarcely in its adolescence, but it seems to be advancing rapidly and bids fair to take a leading place among curative and healing agents. Aikins does not unduly praise its therapeutic properties and his paper is a fair

presentation of the position occupied by radium among the many methods for dealing with disease at the present time.

THE EUGENIC MARRIAGE.

PLANS of a far-reaching and drastic nature have been proposed, and indeed made law in some places, for the purpose of ensuring the propagation of a healthy stock, but it cannot be said that they have met with any large meed of success. Although many people both physically and mentally unfit breed children, natural selection is always at work preserving, to a large extent, the best types and eliminating the most defective. Moreover, it is by no means the most physically perfect who ought to survive for the good of the race. Not only are they frequently the least immune to the onslaughts of infection, but the defective physically or, at any rate, those of puny physique, are often endowed with great intellect bordering on genius.

Sir S. Squire Sprigge, editor of the *Lancet*, brought out recently a book* one chapter of which is devoted to a consideration of marriage in which the controversial points are discussed. He believes the time has not yet come when the legalized interference of the medical man in respect of marriage designs would serve practical purposes commensurate with its inconveniences. He holds that marriage may be regarded theoretically as an individual, social, or racial affair, according as the contract has for its essential object the promotion of the happiness of the pair concerned, consolidation in social politics, or the maintenance of the race in good and improving health. But it must be remembered that whatever object any two persons who are marrying may think is their essential one, they must play their part, being married, as factors in present society, and also as factors in the future of the race. If two persons could decide that they would belong to one class, and to one class only, that is that they would marry out of consideration simply to personal happiness, or social convenience, or respect for eugenics, it would be feasible sometimes to assist them with a medical opinion as to whether they were or were not fitted to belong to the particular class selected; but, even so, the difficulties of civilized life might outweigh the advantages of scientific correctness. It is pointed out that too many of the problems of heredity remain as yet unsolved, and too much waste land lies between the territories of physiology and psychology, to make it safe for medicine to prophesy as to the physical or mental health of the offspring of any particular pair. Putting on one side the social difficulties in the way of refusing a marriage certificate unless each of the parties desirous of entering into connubial bonds could produce a health certificate, the question may be fairly asked what taint or inherited predisposition to disease is to constitute a cause for the refusal of a health certificate. As Sir Squire Sprigge remarks, the medical man takes much on himself if he declares that a family history of cancer or tuberculosis is a sufficient cause. Again certain nervous diseases are hereditary, though many marry with a family history of such troubles and have children free from the taints. It goes without saying that the obvious degenerates, the drunkards, the imbeciles, and the syphilitic should not marry, but love laughs at locksmiths, and mates will mate, with sanction of the law or without, as needs must.

The author submits that, in the present state of medical knowledge, no case can be made out for compulsory health certification previous to marriage. In a complicated society like that of Great Britain the legal restrictions would be insuperably difficult to enforce, though younger countries may find the task simpler.

A good deal of stress is laid by the author upon the fact that it is not alone physical suitability that makes for happy marriages. Ignorance or incompatibility of temper may lead to differences of opinion about the management and future of the children which must have an unfortunate effect upon the next generation. He deprecates the institution of any form of medical priestcraft, and holds that the position of independent adviser is a stronger one than that of State certifier, though whether it is as strong today as it was formerly he doubts.

*"Physic and Fiction," by S. Squire Sprigg. Hodder & Stoughton, Ltd., London.

MIXTURE OF RACE AND FACIAL TYPE.

ILLUSIONAL and accidental resemblances constantly occur, even in comparative racial purity, which falsely suggest a mixture of race, perhaps harking back for generations. Men of undoubtedly pure Aryan ancestry occasionally present the oblique eyes of the Mongol, a negroid nose, etc. The individual known as "Chang the Chinese Giant" of circus fame is known to have been a Manxman. When to these purely illusional resemblances there is added actual race blending the problem becomes more complicated. Are certain features in a given subject derived from known alien ancestors or are they explicable by coincidence? Mendelism makes it possible for some individuals of mixed race to escape the features of one parent race altogether, as shown in rare cases where a couple have had a very large number of children. If a white man and black woman could produce a sufficiently large number of children, one or more should be pure white. In the *Upsala Läkareförenings Forhandlingar* for September 1, 1921, xxvi, 5-6, Lundborg writes briefly on individuals of mixed blood studied by him in Sweden—crosses of Swedes with Finns, Jews, Gipsies, Walloons, etc. In the reigning and noble houses of Europe, he says, mixing of different strains has gone on for centuries. As a result, the nominally Alpine types of Central and Eastern Europe occasionally present facial types belonging to the Nordic races. These resemblances, he believes, are not accidental. It is also certain that the *milieu* exerts an influence on the facial type, else many stocks originally Asiatic would not resemble so closely the European races among whom

they have lived for centuries. But there are certain laws in the blending of races whereby certain measurements become definitely modified. The broad face tends on the whole to lose its breadth when crossed with a long-faced race, even if it often crops out in exaggerated form in certain individuals.

An Occupational Form of Pneumonia.

A form of pneumonia which is occupational and dependent on inhalation, while at the same time of bacillary origin, is described in *Journal de médecine et de chirurgie pratiques* for September 10, 1921, cviii., 17. In reality two separate conditions exist, one a pneumoconiosis and the other a frank pneumonia, due to any one of the banal exciters of that disease. The dust in question comes from the slag of phosphoric acid works and is used as a land dressing; and the workmen most exposed to it are the factory hands and those who handle the refuse afterwards, as the teamsters and cultivators. The mortality of these subjects who contract the pneumonia is over one-half of those attacked. The disease develops rapidly and the sputum, while viscid, is not rusty or red, but comparable in appearance to honey. The inhalation of dust is but one predisposing factor. Another is alcoholism, for like all workers in dust these men are habitually thirsty. Exposure may be another, although not mentioned by the author, who is Dr. Monnier of Nantes. At autopsy the lung is found in grey hepatisation, while a diffuse nephritis is present. The author has studied this affection for many years, and as far back as 1899 one of his internes devoted to it his graduation thesis. He is confident that the deadliness of this pneumonia is determined not by the germ but by the inhaled dust. Still in the worst cases he has found the Friedlander pneumobacillus, which is regarded as more deadly than the pneumococcus. A similar occupational pneumonia is said to occur in sandblasters. In the industrial process of dephosphorating calcium phosphate by adding sulphuric acid, the slag, which retains enough phosphorus to be useful as a fertilizer, contains several irritating impurities, and has an acid reaction, sufficient even to make it irritating to the hands.

News of the Week.

Health Education and the Nutrition Class.—Under this title the Bureau of Educational Experiments has published a report giving the results of its three-year experiment with nutrition classes in a New York public school. The experiment was carried out at Public School 64 on East Ninth Street, from February, 1918, to June, 1921. The school offered a fairly homogeneous Jewish population, somewhat removed from the worst slums, though the neighborhood was crowded and unsightly. Dr. William R. Emerson of Boston organized the work and trained the workers. Four hundred and four children took part in the experiment. Of these 104 normal children were studied as "control groups." In addition to the special provision for diagnosis and care of individuals showing defects or morbid conditions, a nutrition class was conducted calling for a daily regime of good eating habits, abundant food, frequent rest, and constant fresh air. The main conclusions derived from the experiment are as follows: "Gain in fitness, as represented by increased weight for height was greatest from September to February. It seems that New York City children in the public schools show a season of maximal weight increase in the fall and early winter. Any attempt to improve a child's weight for height will appear relatively successful if begun at one season of the year, and relatively unsuccessful if begun at another season. Gain in fitness was greatest on the part of the children supposedly well. It was also observed that gain in fitness was greatest on the part of unusually "bright" children. A number of children having intelligence quotients of 125 or over were examined and a larger percentage of underweight was found among them than in any other groups studied, yet under improved conditions they responded better than the others. Except for this group having high intelligence quotients, mental tests failed to reveal any significant difference between the underweight children studied and the normal children of the control groups. The report has been published by E. P. Dutton & Company and makes a volume of 281 pages.

Would Have All Hospitals Admit Students.—In the interests of scientific medicine, Dr. John B. Deaver of Philadelphia has recently suggested that a threefold demand should be made respectively on the hospitals, the Legislature, and the public. Of the hospitals Dr. Deaver demands that without exception they shall open their wards to medical students and that any patient, whether private or not, shall be accessible as a subject for clinics. Of the Legislature, and incidentally of public opinion, Dr. Deaver asks for pathologists an unrestricted right of animal experimentation. By the public Dr. Deaver wants an abandonment of the "silly and selfish sentimentalism" that leads them to deny surgeons the authority to make post mortem examinations. It is vain, Dr. Deaver thinks, to ask for legislative help in this direction until the public has been brought to "a more intelligent attitude."

Hospital Notes.—William Fellowes Morgan, chairman of the Executive Committee of the United Hospital Fund of New York, has issued a statement asking the support of the entire city for the city's hospitals. The goal set for the annual hospital collection this year is $1,000,000.

A square block between Webster, Summit, and Orchard streets and Central Avenue, has been purchased as a site for an addition to the Providence Hospital, Alameda, Cal.

An informal campaign is being conducted to raise a fund of $50,000 for the Children's Hospital, Denver, Col., for the purpose of erecting an additional building on property adjoining the present hospital buildings.

A new seven-story nurses' home and training school is being erected by the Sacred Heart Hospital at Spokane, Wash.

The building committee of the Meriden (Conn.) Hospital announces that it is ready to let a contract for a new $375,000 hospital. The contract

is to be placed at once and work will be started as soon as possible. The hospital will provide more than one hundred beds.

Plans have been drawn for the new hospital of the Sisters of St. Francis in Santa Barbara, Cal., to cost when equipped about $200,000. The new structure is to be erected on the site of the old hospital.

Dr. Elmer E. Eddy of Redwood, N. Y., has been appointed village health officer at Alexandria Bay to fill the position left vacant by the resignation of Dr. C. M. Lukens.

Dr. S. C. Hollis has been appointed by the Town Board to the position of health officer and registrar of vital statistics of the town of Adams, N. Y., for a term of four years beginning January 1, 1922.

Dr. C. Floyd Haviland has resigned the position of superintendent of the Connecticut State Hospital. Dr. Roy L. Leak has been appointed assistant superintendent in his stead.

Gifts and Bequests.—Adolph Lewisohn has given the pathological laboratory of Mt. Sinai Hospital, New York, a gift of $150,000, to be known as the Adolph Lewisohn Foundation.

By the will of the late Emma Louise Lennig of Philadelphia the sum of $5,000 is bequeathed to the Children's Seashore Home at Atlantic City.

Physicians Ask Veto of Anti-Beer Bill.—The New York Medical Association has sent a petition to President Harding petitioning him to veto the bill supplementary to the Volstead act. A portion of the petition reads as follows: "This prayer is inspired by the usurpation of Congress, under Section 2 of this act of the therapeutic right of the physician to prescribe a legitimate medicinal agent in any form than that dictated by Congress. This is a sacrifice of principle to expediency as well as a form of inhibition never before attempted in the history of legislative government elsewhere throughout the civilized world. There is nothing in the history of the practice of medicine in this country to justify this control by Congress, neither is there anything inherent in the powers, the traditions or the knowledge of Congress to justify this assumption of the suzerainity over the profession of medicine as practiced in the United States." The letter was framed by Dr. John P. Davin, who also directs the attention of the President to a letter in the *Journal of the American Medical Association* signed by nine physicians in this State, condemning the measure, and quotes a part of this letter.

Institute in Public Health Nursing.—The New York State Department of Health will conduct a two weeks' Institute in Public Health Nursing in Albany from November 28 to December 10, for the benefit of nurses of the State who have not previously had an opportunity to receive such instruction. All phases of public health nursing from both the technical and administrative standpoints will be presented. The course will consist of lectures and field work. Upon the completion of the course an examination will be given. The only expense will be that for travel and maintenance as no fee is required. For further information address Charles C. Duryee, M.D., State Department of Health, Albany, N. Y.

The New York State Society of Industrial Medicine will hold its second annual meeting at the Onondaga Hotel in Syracuse on December 10. A symposium on "Industrial Medicine and Its Relation to the New York State Compensation Law" will be held. Among those who will participate in the symposium will be Dr. Henry D. Sayer, State Industrial Commissioner; Dr. A. C. Snell, Rochester; Dr. George E. Tucker, Hartford, Conn.; Dr. William Mehl, Buffalo; Dr. Glen Smith, Schenectady, and Dr. Riley M. Little of the State Department of Education.

The Radiological Society of North America will hold its annual meeting at the Hotel Sherman, Chicago, December 7, 8, and 9, 1921, under the presidency of Dr. Alden Williams of Grand Rapids, Mich.

Medical Society Elections. — THE JEFFERSON COUNTY (N. Y.) MEDICAL SOCIETY, at its annual meeting held in Watertown, Nov. 10, 1921, elected the following officers for the ensuing year: *President*, Dr. F. G. Metzger, Carthage; *Vice-President*, Dr. Murray M. Gardner, Watertown; *Secretary*, Dr. Walter Atkinson; *Treasurer*, Dr. A. H. Allen, Watertown.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK, at its annual meeting held Nov. 28, 1921, elected the following officers for the ensuing year: *President*, Dr. Orrin S. Wightman; *First Vice-President*, Dr. Arthur F. Chace; *Second Vice-President*, Dr. Eugene H. Pool; *Secretary*, Dr. Daniel S. Dougherty; *Assistant Secretary*, Dr. J. Milton Mabbott; *Treasurer*, Dr. James Pedersen; *Assistant Treasurer*, Dr. Ten Eyck Elmendorf; *Censors*' Dr. William P. Healy, Dr. George W. Kosmak, and Dr. Henry H. M. Lyle; *Chairman of Committee on Membership*, Dr. Frederick H. Dillingham; *Chairman of Committee on Legislation*, Dr. Alfred C. Prentice; *Chairman of Committee on Civic Policy*, Dr. Samuel J. Kopetzky.

Obituary Notes.—Dr. EDDY STEARNS HASWELL of Albany, N. Y., died in a local hospital on Nov. 19, at the age of thirty-five years. He was graduated from the Albany Medical College in 1909.

Dr. GEORGE W. H. MOORE of Northport, Wash., a graduate of the University Medical College of Kansas City in 1896, died in a local hospital on Oct. 31, at the age of sixty-four years.

Dr. LOUIS H. HENDRICKSON of New Holland, Pa., a graduate of Hahnemann Medical College and Hospital, Philadelphia, in 1899, died suddenly of heart disease on Nov. 11, at the age of forty-eight years.

Dr. LILLIAN A. BARTOLS, a graduate of the Woman's Medical College in Baltimore in 1901, died at her home in Dorchester, Mass., on Nov. 9, at the age of forty years.

Dr. JOSIAH E. COOPER of Springfield, Ohio, died suddenly of valvular heart disease on Nov. 3, at the age of forty-nine years. He was graduated from the Eclectic Medical College, Cincinnati, in 1896.

Dr. WILLIAM L. CARRISON of Toulon, Ill., died of injuries received when he accidentally fell from a window on Oct. 31. He was a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1890, and was fifty-three years of age.

Dr. WILLIAM HITCH, a graduate of Jefferson Medical College, Philadelphia, in 1861, died at his home in Laurel, Del., on Nov. 11, at the age of eighty-four years.

Dr. JOEL DAVIS MADDEN of Ossining, N. Y., a graduate of the New York Homeopathic Medical College in 1876, formerly physician to Sing Sing prison, died on Nov. 18, at the age of seventy years.

Dr. ANDNES M. TALLMADGE of Arkport, N. Y., a graduate of the Chicago College of Medicine and Surgery in 1894, died after a lingering illness on Nov. 9, at the age of seventy-four years.

Dr. JOHN G. SMITH died at his home in Blair, Neb., from a fractured skull, the result of an accident on Nov. 10. He was graduated from the Washington University Medical College, St. Louis, in 1891, and was sixty-two years of age.

Dr. JAMES MILTON SPEAR of Cumberland, Md., died from heart disease on Nov. 17, at the age of seventy-eight years. He was a graduate of Miami Medical College in 1869, and a Civil War veteran.

Dr. JOHN J. FLYNN of Pittsfield, Mass., died in a local hospital following an operation for appendicitis on Nov. 13, at the age of sixty years. He was graduated from Jefferson Medical College in 1869. He was a member of the Western Massachusetts Medical Society and a member of the House of Mercy staff.

Dr. ELLWOOD PATRICK died at West Chester, Pa., on Oct. 29, at the age of sixty-five years. He was graduated from the Medical Department of the University of Pennsylvania in 1880. He was a member of the local school board for many years and its president for several years. He was a member of the Chester County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Nov. 11, 1921.

Fever Situation in London.—It has been officially announced recently that in view of the grave situation which has arisen with regard to the prevailing London epidemics of scarlet fever and diphtheria, all the available accommodation being practically exhausted, special emergency proposals have been discussed and agreed to. The authorities of the Metropolitan Asylums Board have met Sir George Newman, chief medical officer of the Ministry of Health, and all the London medical officers of health, and it has been agreed: (1) That, forthwith, all applications for the admission of cases of scarlet fever to the Asylums Board's hospitals shall be made, in the first instance, to the medical officer of health, who will select the most necessitous cases and advise the board thereon; and (2) that preference in admitting cases is to be given to the poorest and more crowded districts, and especially to cases coming from homes where there is unemployment. It is thought that the necessity for these special measures will only last a few weeks. At the meeting of the Metropolitan Asylums Board November 5, Mr. Walter Eickhoff, in submitting the report of the Infections' Hospitals Committee, said that from September 4 to November 3, no fewer than 11,500 cases were admitted to the Board's fever hospitals. Of this number 6,500 cases were brought in during October, and the patients on November 5, in round numbers, were 9,500. Cases had come in so quickly, continued Mr. Eickhoff, that although they had made provision for 4,000 more beds than last year, sufficient accommodation could not be found to meet the requirements, and, after conference with the Ministry of Health, and the medical officers, it was decided to adopt a system of selection, preference being given to necessitous cases, and especially to those coming from homes where there was unemployment. There was a larger number of diphtheria cases this year than last year. They were happily now getting over the difficulty. They still had a certain number of beds in hand and they hoped before the Board met again they would be able to revert to the old system of taking in all fever cases, irrespective of circumstances. As a matter of fact, at the time of writing both scarlet fever and diphtheria have increased and the hospitals are not able to cope with the situation. However, cold weather seems to have set in and this change from the warm muggy weather which has prevailed for some time should have a tendency to check the further spread of infection.

The Red Cross League in the Fight Against Disease.—On November 10, last, a special meeting of the delegates to the International Labor Conference being held in Geneva attended a meeting to hear addresses by General Sir Claude Hill, Director General of the League of Red Cross Societies, and Dr. René Sand, Secretary General of that organization, on the work carried on by it in combating disease and spreading a knowledge of hygiene. Sir Claude Hill said in part, that it was not generally realized that the loss of efficient lives in peace time, through preventable causes, far exceeded the losses in war. He pointed out that Federal Public Health Department in Washington estimates at 8,000,000 the number of living Americans who must sooner or later die of tuberculosis, or over 8 per cent. of the total population of the United States. Again, the National Service Department in England found out, that, out of 2,500,000 men between the ages of 18 and 42 only 900,000 were physically fit for active military service, 36 per cent. Finally, the Health Insurance statistics for England showed that the 10,000,000 insured persons lose by disease each year more than 80,000,000 working days, the equivalent of over 250,000 working years.

Dr. René Sand said in part that, in order, first of all, to appreciate the effects of labor, of industrial life, and of excess he would give figures referring to children between the ages of 7 and 15 in England, where for the past twelve years, a really excellent system of school medical inspection had been in force of 7,000,000 children of school age, 1,000,000 were seriously handicapped in their growth and education by physical and mental defects; a second million was totally deprived of education as a result of disease or disablement; so one child out of every three was doomed to ignorance, suffering, and sometimes to early death. Next to show the appalling toll

levied on human life, he would take a small group of people during the first forty years of existence. Take ten young women about to become mothers: Of these only eight would produce a living child. Twenty years later, two of these children would be dead. In another twenty years only five of the group would be left, of whom two would be healthy, the remaining three, being more or less incapacitated. In other words, there was over 50 per cent. wastage of human life, and this not during the period of unrest following on the war, but in peace time, in time of full prosperity, in the best educated, best organized states of western Europe. Was this a process of natural selection, which, by pitilessly sacrificing the unfit, safeguarded the strength of the race? That was true only to a certain extent; artificial feeding, errors of diet, and infectious diseases attacked, maimed or destroyed the strong as well as the weak. Take as example infantile ophthalmia, responsible for so vast a number of cases of blindness; in England every year 6,500 children were attacked by this disease. The experience of fifty years had shown, however, that the infection was easily counteracted by a few drops of citrate of silver or even of lemon juice. Referring to the disablements brought about by ignorance of or neglect to employ preventive, curative, or remedial measures, the speaker emphasized the fact that these evils were for the most part avoidable. He would cite the case of the Norton company, Worcester, Mass., which, by organizing a really competent medical service, had reduced the number of days of sick leave by three-quarters, and the Goodrich company, Akron, Ohio, had achieved a reduction of four-fifths. It is estimated in America that the net loss through sickness to employers and workpeople amounts to several billion dollars each year. Dr. Sand concluded his address by an appeal to the labor organizations to come to the support of the Red Cross.

Delirium.—An interesting address on delirium was given by Sir James Purves Stewart at a meeting of the Devon and Exeter Medico-Chirurgical Society, held at the Royal Devon and Exeter Hospital on October 20, last. Sir James classified his subject in the three divisions of acute delirium, non-febrile, toxic delirium, and delirium in organic brain affections. After subdividing these forms of delirium, he discussed their diagnosis, prognosis, and treatment. Dr. Richard Eager, in discussing the address and speaking from his experience in mental hospitals, considered that acute delirious mania was a very rare condition, and that in the cases which had come under his notice there had been no high degree of pyrexia. Dr. Eager praised the good effects of Stoddart's treatment in this condition. He considered that "senile mania" was often influenced by traumatism, and that "exhaustion psychosis" was frequently wrongly classified as "delusional insanity." Dr. Eager advocated the early treatment of mental cases in special hospitals, regarding certification as an objectionable procedure. Dr. W. Gordon dealt with the "colored nightmares" mentioned by Sir James Purves Stewart and related his own visual impressions during the course of a severe infective illness. Dr. F. A. Roper advocated a more extended use of hyoscine in delirium. Sir James, in reply, acknowledged that hyoscine in repeated full doses had often proved of great value in the quieting of delirium.

Obituary.—Francis Arthur Bainbridge, M.A., M.D., University Professor of Physiology at St. Bartholomew's Hospital, London, died on Oct. 27, last, after a short illness. He was born in 1874 and entered Trinity College, Cambridge, in 1892. He obtained a first class in each part of the Science Tripos. In 1902 he was elected to a research scholarship of the British Medical Association. Bainbridge then turned his attention to general pathology and held for some years the Gordon lectureship at Guy's Hospital. Later he was on the bacteriological staff of the Lister Institute. However, his main interest was always in experimental physiology, and the opportunity to follow his bent came with his appointment to the chair of physiology at the University of Durham Medical School at Newcastle. Here he commenced a series of investigations on the mechanisms coordinating the activities of the heart and the respiratory center, which he continued at St. Bartholomew's Hospital and which he had in hand at the time of his death. In collaboration with his colleague at Newcastle, the late Prof. J. Menzies, he wrote perhaps the best student's text-book of physiology ever written. The premature death of Prof. Bainbridge is a great loss to British medical science and, indeed, to medical science everywhere. He was a man of short stature, frail physique, and weak constitution. Throughout his life he struggled with ill health, and, considering his handicap, his contributions to medical science were remarkable. He was a man of charming personality and will be missed by a large circle of friends.

A PLEA FOR THE SALE OF CHRISTMAS SEALS ON BEHALF OF THE ANTITUBERCULOSIS MOVEMENT IN THE UNITED STATES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Because of the favorable reports of results obtained by the tuberculosis campaign in the reduction of the death rate from tuberculosis, many well-meaning people think that there is no longer any need to help in that direction. Yet if there was ever need of funds to carry on the antituberculosis work efficiently, it is now. Tuberculosis, as a rule, does not begin in adult life. It is most frequently contracted in childhood. While it may always remain a latent infection and never develop into a disease, where there is privation and want, underfeeding, insufficient clothing, and overcrowding, the infected child is bound to develop tuberculosis. Underfeeding, technically called malnutrition, among parents are in poor ar even moderate circumstances, owing to the hard times and approaching winter, is more to be feared this year than ever before. Many an adult predisposed to tuberculosis retains his good health in prosperous times because he can get good, nutritious food and have a comfortable home. It is different now with the vast army of unemployed, many of whom not only live less comfortably

and less hygienically, but must content themselves with insufficient food. Add to this their natural anxiety about the future, and I am sure that unless the situation changes soon we shall have a great many tuberculous adults. Let us come to the rescue of those thousands of children and the thousands of men and women who are in danger of becoming tuberculous.

But besides doing this glorious preventive work, we must also be reminded that there are yet many, many tuberculous cases without proper medical care, some who should be in a sanatorium, others in a hospital, others at least in more sanitary environments than they are at the present time, and others who should receive medical supervision.

I appeal to the hearts of men and women who have enough food, enough clothing, and a comfortable home, to think of the little children and the men and women who may be saved from contracting tuberculosis, and those who may be cured by proper and timely treatment and care. Let those who can not help by personal service do their share by giving freely and generously to this campaign. Let all show their interest in the fight for the prevention and cure by buying as many Christmas seals as they can. Every penny helps. Everyone will enjoy Christmastide with a lighter and more joyous heart if he or she can say: "I have helped a child or a poor man or woman not to contract tuberculosis, or I have helped one tuberculous sufferer to regain his health and happiness."

I have had the privilege of having been associated, as an humble antituberculosis worker, with many great, generous, and noble-hearted men and women who, after they had learned of the needs of the consumptive poor, found their greatest happiness in financially and actively joining this great humanitarian movement. It is true much has been done, but there is more to do. Not only must the work be kept up, in order to retain the good results already obtained, but it must still be expanded in order to get better and better results in the future.

The immortal Pasteur once said: "It is in the power of man to cause all parasitic (germ) diseases to disappear from the world." Let us begin with tuberculosis and show our power.

S. Adolphus Knopf, M.D.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 17, 1921, clxxxv, 20.

1. The Work of the Joint Committee of State and National Legislation. James S. Stone.
2. Some Criteria of X-Ray Diagnosis. Frederick W. O'Brien.
3. Some Notes on Typhoid Fever. Dwight O'Hara.
4. Gastrogastrostomy for Hour-Glass Stomach. William H. Rose.
5. Nasal Hemorrhage. Joseph Frenn.
6. Nonspecific Protein Therapy. John C. Potter.

2. Some Criteria of X-Ray Diagnosis.—Frederick W. O'Brien asserts that the *x*-ray technician should be ruled out as one qualified to interpret *x*-ray shadows, and insists that the roentgenologist alone is the proper person to interpret *x*-ray findings. He should be a well trained physician specializing in diagnosis by means of the *x*-rays. The fluoroscope is of decided but limited value and should not be employed alone when desiring to detect early pathological processes. He would discourage the habit of asking for one plate of this or that part. The important thing to keep in mind is that the object of the roentgenological examination is to find out what is wrong with the patient, and it is better to ask the roentgenologist to make his charges consistent with the patient's means than to attempt to direct or limit the examination. Currently some members of the medical profession appear to have made overmuch of focal infection, and some of the dental profession to be surgically obsessed. In justice much of it may be laid at the door of the roentgenologist. The terms, pericementitis, apical abscess, pus pocket, pyorrhea and necrosis are used with a freedom that is startling. It should be written large on the minds of medical men and oral surgeons that a tooth that responds to vitality tests irrespective of the *x*-ray appearances of the same is, to the best of our present day knowledge, not a cause, primarily or remotely, of morbidity. Every area of increased radiability seen in the body structure does not signify necrosis. Just as one commonly witnesses, for instance, in a forearm that has been at rest, say for the immobilization of a fracture, an increase of radiability due to the atrophy of disuse, so in the alveolar processes one sees areas of increased radiability due to the atrophy of disuse, especially over bridges and about teeth that improperly impinge. Such areas are not infrequently called necrotic when they are nothing of the sort. The writer's experience leads him to believe that if an area of increased radiability seen at the apex of a tooth is well defined, black in tone and delimited by an area of increased density meaning calcification, the process is that such is an abscess cavity and not a pus sac or an active source of infection. Again in diseases of the lung, a definite roentgen diagnosis is made altogether too often on insufficient data. During the past year at the Boston Consumptives' Hospital he has personally examined over 800 thoraces, including suspects, early and advanced cases, and it often has been far easier to determine those not having tuberculosis rather than to say definitely that chests presenting patent evidence of pathology were tuberculous. If it be recollected that most of us are tuberculous, it is plain that the important thing to determine is who are the tuberculous sick, and this is a combined operation of internist and roentgenologist. It would be well if the term "negative" disappeared from the roentgen nomenclature, because of the false hopes raised by it; far better say "no pathology recognized."

3. Some Notes on Typhoid Fever.—Dwight O'Hara claims that the macroscopic method of testing the blood serum for typhoid agglutinins is superior in every way to the microscopic method. Among its advantages are the greater ease with which a uniform antigen can be kept on hand; the greater precision with which dilutions can be made, and the more sharply defined endpoint obtainable between positive and negative reactions. These factors bring back to the clinician a more scientific report, and should therefore be encouraged by him, even though he must needs submit 0.5 c.c. of blood or more in a small tube, instead of a few dried drops on the most convenient thing he can find about the house. The technique of the macroscopic method is described. On the basis of observations made during an epidemic of typhoid fever in Waltham, Mass., O'Hara concludes that negative agglutinations are more common in typhoid fever than is generally thought. High titres of agglutination occur mainly after the fourth week. The pro-agglutinoid zone is a possible source of error in reading agglutinations which are not set up in the higher dilutions. The typhoid patient's immunity, to be effectively protective, must develop in time to prevent the typhoid poisons from doing local damage capable of causing fatal accidents. Immunity in this sense cannot be estimated by titration of antibodies. A means of typhoid prevention is insufficient without ways to apply it. Preventive medicine must come to the community through the individual quite as much as to the individual through the community. This must be brought about through individual education.

New York Medical Journal.

November 16, 1921, cxiv, 10.

1. The Man Galen and His Times. Jonathan Wright.
2. The Diagnostic Value of Pupillary Symptoms in General Disease. Matthias Lanckton Foster.

3. The Ocular Factor in Headache. J. A. Kearney.
4. Mobilization of Bony Ankylosis of the Knee Joint-Arthroplasty. Charles Ogilvy.
5. The Treatment of Fracture of the Femur. William Hadden Irish.
6. Radium in Surgery. W. S. Schley.
7. Etiology and Treatment of Hand Infections. C. D. Hill.
8. Important Points in Bone Surgery. Joseph W. Walsh.
9. Thoracic Tumor Mistaken for Aneurysm. Hyman I. Goldstein.
10. Psychotherapy. Charles R. Ball.
11. Organic Conditions Associated with the Psychoneuroses. Clyde B. Covey.
12. Acute Diffuse Suppurative Labyrinthitis with Report of Cases. Joseph Friedman and Samual D. Greenfield.
13. Immanence of Health. John J. McNulty.
14. Syphilis (Concluded). James H. Stevens.
15. A Contribution to the Mercurial Therapeusis of Syphilis (Concluded). L. G. Hadjopoulos, Reginald Eurbank and L. P. Kyrides.

2. The Diagnostic Value of Pupillary Symptoms in General Disease.—Matthias Lanckton Foster cites an instance of failure on the part of several physicians to recognize typical Argyll-Robertson pupils, which has led him to review the significance of pupillary reactions in general disease. He states that we must admit that the behavior of the pupils, taken by itself, is an unreliable guide to diagnosis. The pupils may be dilated, contracted, or normal in acute or chronic alcoholism, as well as in other kinds of poisoning, and their reactions may be increased, decreased, or unaffected; their condition depends upon the quantity of the poison taken, the nature of its action, the stage of its action when one happens to see the patient, and the latter's susceptibility. The same uncertainty of pupillary behavior exists in meningitis, most intracranial troubles, psychoneuroses, and many other diseases. In rare instances unequal pupils with normal light reactions are congenital and physiological, but one should not permit himself to make this diagnosis until after every possible affection of the central nervous system has been excluded. In spite of the uncertainty of pupillary behavior, observation of the pupils, when taken in conjunction with the other symptoms present, frequently proves a valuable aid in the diagnosis of general disease and should not be overlooked by the general practitioner.

9. Thoracic Tumor Mistaken for Aneurysm.—Hyman I. Goldstein reports an interesting case of a tumor of the anterior left chest, resembling in its appearance, shape, and location an aortic aneurysm. The patient had seen several physicians and, according to the statement of the patient, the diagnosis of aneurysm was made by several medical attendants. The chief complaint was sharp neuralgic pains in the left shoulder region, around the back and abdomen, and along the thoracic and upper lumbar vertebrae. There was no headache, no attacks of dizziness, no flushing or congestion of the face, no unilateral sweating, no cough; in fact, the patient presented no symptoms characteristic of a typical thoracic aneurysm. The symptoms were those of pressure neuritis. Furthermore, there was an appreciable irregular outline distinguished by palpation around this definite circular mass, which made one suspect a neoplasm. The blood Wassermann was negative. Dr. Henry K. Pancoast of Philadelphia, from his *x*-ray examination, reports sarcoma of the anterior chest wall, with metastases to the mediastinum and lungs in the region of the aortic arch and the base of the lung, and possibly a retroperitoneal growth.

14. Syphilis.—James H. Stevens asserts that syphilization of the people of the United States is progressing rapidly and that little can be expected of governmental supervision as long as our political system controls medical supervision. Until we can devise some simplification of technique which will place the treatment of primary syphilis in the hands of the general practitioner we shall not accomplish much by treatment. A simplification in the method of treatment is presented, the main feature of which is the use of arsenicals in concentrated solution. In the administration of neosalvarsan great quantities of water are not an advantage but a detriment. In 100 cases Stevens has used 2 c.c. of distilled water to the usual dose of neosalvarsan, and by this method has seen the nausea, vomiting, diarrhea, and headache which so often follow the administration of arsenicals in the more dilute solutions disappear. Syphilis reacts just as rapidly to the concentrated arsenicals as to the more dilute solutions. Reactions occurring with concentrated solutions are usually milder and if they occur come on at once and may be treated immediately. One-half c.c. of 1-1,000 adrenalin, in every case that shows reaction, fifteen to twenty minutes before administration will prevent repetition. The nitratoid is the only type of reaction to be expected with the concentrated solution. Reaction once established in a patient will invariably occur thereafter without regard to dose unless adrenalin is used. This applies to a series of administrations only. After a rest of several months reaction may not follow in cases which previously reacted. The mercurials are of value when used to the point of tolerance and kept there, but to expect results from most of the doses recommended is an absurdity.

Journal of the American Medical Association.

November 19, 1921, lxxvii, 21.

1. Sarcoid and Syphilis. Arthur William Stillians.
2. The Defensive Reactions of Animals Infected with Spirochaeta Pallida. Wade H. Brown and Louise Pearce.
3. Two Hundred and Fifteen Cases of Syphilis After Five Years. H. G. Irvine.
4. The Visceral Changes in Congenital Syphilis. J. Frank Fraser.
5. Correction of Cicatricial Ectropion by Use of True Skin of Upper Lid. John M. Wheeler.
6. The Phenoltetrachlorphthalein Test for Liver Function. A. H. Aaron, E. C. Beck, and H. C. Schneider.
7. Pregnancy After Nephrectomy. Harvey Burleson Matthews.
8. Four Years' Progress in Public Health Organization in Ohio. Allen W. Freeman.
9. The Use of Carbon Tetrachloride for the Removal of Hookworms. Maurice C. Hall.
10. "Pseudotumors" of the Brain: A Remarkable Combination of Psychic, Neurologic and Autonomic Symptoms. R. G. Rows.
11. Effect of Undernourishment on Human Ovary and the Sexual Cycle. Leo Loeb.
12. The So-Called Presystolic Murmur. William D. Reid.
13. A Method for Determining Death by Drowning. Alexander O. Gettler.

6. The Phenoltetrachlorphthalein Test for Liver Function.—A. H. Aaron, E. C. Beck, and H. C. Schneider enumerate the disadvantages of the focal tetrachlor test for liver function and describe a method by which they have prepared a stable solution of phenoltetrachlorphthalein which has undergone no deterioration in eight months. They point out that for some reason the duodenal time tetrachlor test has been neglected. The test is performed by passing the duodenal tube and giving the patient 500 c.c. of cool water by mouth. This insures a continuous drip of 60 to 80 drops a minute of bile-stained fluid for a period of from a half to three-quarters of an hour, which gives ample time to carry out the test. One c.c., representing 50 mg. of the dye, is injected intravenously into the lumen of a prominent vein of the forearm. The establishment of a drip by the administration of water by mouth in no way interferes with the test. The end reaction is clear and distinct, and makes it a simple matter to decide at which point the dye is at maximum. In the nonpathologic cases the dye appeared in an average time of 17.2 minutes. The pathologic cases, not including a common duct obstruction case, definitely gave delayed figures, the average being 32 minutes. The estimation of the excretion of dye in a given time is of no value because of the leakage of contents into the intestine below. If the time of the first appearance of the dye is more than twenty minutes, one should be suspicious of hepatic involvement. In surgical cases the test may be of value in determining how much damage has been done to the parenchyma of the liver, which is an important factor in estimating shock liability. The appearance of the dye in fifteen minutes in the contents shows that, despite which procedure for fractional duodenal analysis is followed, bile from the liver is present from that time on. If the dye fails to appear in thirty minutes it is necessary to give additional water by mouth to maintain the drip. This dye test also demonstrates the presence of the tube in the duodenum.

9. The Use of Carbon Tetrachloride for the Removal of Hookworms.—Maurice A. Hall has tested this agent in dogs for the removal of parasitic worms, with special reference to its effect on hookworms. The results

have been very gratifying. In the case of animals given 0.3 c.c. of this drug for every kilogram of live weight, all the hookworms originally present were expelled, a result he has never been able to obtain in a series of tests of anthelmintics on hundreds of dogs during the past six years. The expulsion of all the hookworms present was also obtained by the use of a mixture of carbon tetrachloride and thymol in the proportion of 1 c.c. of carbon tetrachloride and 10 grains of thymol, and by a mixture of carbon tetrachloride and oil of chenopodium in the proportion of 3 c.c. of carbon tetrachloride to 1 c.c. of chenopodium. These mixtures, as well as carbon tetrachloride alone, were given in hard gelatin capsules, without purgation, to dogs after fasting eighteen hours. The carbon tetrachloride is also very effective in removing ascarides. Before adopting this drug for administration in human beings the question of its safety must be considered, inasmuch as, like chloroform, it may develop phosgen (carbonyl chloride) under certain conditions, and the suggestion is thrown out that the drug might act on the liver in a manner similar to the action of chloroform in delayed chloroform poisoning. So far as the dogs were concerned, no macroscopic changes were noted in the liver after the oral administration of the drug up to 1.5 c.c. per kilograms of live weight, though acute yellow necrosis due to chloroform is unmistakable in dogs after doses of 0.3 c.c. per kilogram. It would seem that discomfort and subjective effects, such as those produced by thymol and chenopodium, are not produced by carbon tetrachloride. This drug is also much cheaper than thymol or chenopodium and may be obtained anywhere.

12. **The So-Called Presystolic Murmur.**—William D. Reid brings out a number of points to show that the crescendo murmur ending in a sharp first sound or merging into a systolic murmur is wrongly designated as presystolic, since in reality it is systolic in time. This so-called presystolic murmur is due to a regurgitant stream of blood, impelled through the mitral valve by ventricular systole. The writings of a number of previous observers support this interpretation. Against the conception that it is due to the contraction of the auricle, there are in addition data presented in an earlier paper (*Journal of the American Medical Association*, lxxvi, 432, 1921) its quality, time, absence of a pause between it and the succeeding sound or murmur, its persistence in some cases of auricular fibrillation, and the occurrence at times of another murmur in true presystole. While the murmur is frequently observed in hearts whose mitral valve is stenosed, it may be present in conditions in which the mitral orifice is not narrowed.

13. **A Method for Determining Death by Drowning.**—Alexander O. Gettler reviews the surface and interior signs suggested by various observers as aids in determining whether death was the result of drowning and shows that most of these conditions are misleading and useless. The method described consists in collecting 5 to 10 c.c. of blood from the right and left ventricles separately and determining the sodium chloride content. An appended table makes it evident that the chloride content in the blood of the right and left chambers of the heart is the same in the various pathological conditions so far examined, the greatest difference being 5 mg. in 100 c.c. of blood. In some cases the left is higher and in others the right; but the difference is never greater than 5 mg. In eighteen cases in which there was no doubt that death was due to drowning, the difference in the chloride content in the right and left chambers was always much more than 5 mg., ranging from 19 to 294 mg. In all those cases in which drowning occurred in salt water, the left heart chamber always showed the high chloride content; in those cases in which the drowning occurred in fresh water, the left heart chamber always showed the lower chloride content. A difference in the chloride content of the two heart chambers exceeding 25 mg. indicates that the individual was drowned. Persons who are submerged while alive and die of shock during the first stage of drowning may not show this difference in chloride content. Such cases, however, are rare. The writer believes this is certainly the most specific of all the methods so far devised for proving that death was due to drowning.

The Lancet.

October 29, 1921, cci, 5122.

1. Schorstein Lecture on Chronic Inflammatory Diseases of the Spleen. Alexander George Gibson.
2. Some Aspects of the Treatment of Acute Suppuration. F. D. Saner.
3. Arrest of Auricular Fibrillation by the Use of Quinidine. Arthur W. M. Ellis and A. E. Cark-Kennedy.
4. Acidosis and Toxic Symptoms of Severe Diarrhea in Infancy. R. A. Guy.
5. Ineturmin: A New Remedy for the Treatment of Slowly Healing Sores. J. F. Fischer.

1. Chronic Inflammatory Diseases of the Spleen.—Alexander George Gibson in this lecture limits himself to a discussion of those affections that are caused by invasion of the spleen by an organism, whether such invasion is indicated by the discovery of the actual organism, by the clinical aspect, or by the fact that the lesion in the spleen, being inflammatory, admits of this view as the most likely etiology. The spleen becomes infected in three ways: First, as a result of a general blood infection which subsequently may become restricted to the spleen, as in syphilis and tuberculosis; secondly, because the spleen in destroying blood cells comes into fuller contact with the organism, as in malaria and kala-azar; and thirdly, being the largest lymphatic gland in the abdomen, it may be the point of attack in any gastrointestinal infection. After describing the local and bodily effects of chronic inflammatory lesions of the spleen, Gibson states that there is no evidence at present available that the spleen of itself produces any internal secretion which is deleterious under any circumstances. He is frankly skeptical about any etiology which implies some undemonstrated nonbacterial toxin secreted by an abnormal metabolism of some splenic tissue. His working rule is to suspect all splenic enlargements of an inflammatory type as being caused by extraneous organisms until proved otherwise. In order to accept that a given organism is the cause of the splenic condition it is necessary, if possible, to fulfill Koch's postulates. The raising of this point is to draw attention to the very loose way in which many reports of cases are presented. For purposes of science only those cases in which the bacterial cause has been demonstrated should be included. A review of twenty-five reported cases whose syphilitic causation is probable indicates that the characteristics of syphilitic splenomgaly are an anemia tending to be of the chlorotic type. The white cell count varies. It was 4,560 in Stevenson's case, and as high as 21,000 in French's.

Attacks of jaundice are reported in several cases and hematemasis occurred in several instances. The reaction to antisyphilitic remedies is startling in its unevenness. A search must be made for the factor which explains why one case can be cured and another not. Tuberculosis of the spleen is extremely common as a secondary feature. An enlarged spleen is frequently met with in general glandular tuberculosis, but for the most part it causes no symptoms of splenic disease. Primary tuberculosis of the spleen is rare, but from the reported cases not quite so rare as the syphilitic. Seventeen cases of undoubted primary tuberculosis of the spleen collected from the literature are analyzed. These show that the tubercle bacillus may cause in the spleen both acute and chronic inflammations. The symptoms of tuberculous splenomegaly may be general and local. In about 25 per cent. of the cases there is fever. Sweating and collapse are mentioned, and very constantly loss of weight, weakness, and great lassitude. As regards local symptoms there is pain and a sensation of tumor and weight in the left side. The majority of cases are very chronic, but short illnesses terminated by death have been reported. There are fifteen clear cases of tuberculous splenomegaly in the literature that have been operated upon, with nine cures. Other clinical features have been enlargement of other glands, enlargement of the liver with cirrhosis, ascites, caries of the spine, meningitis, and intestinal ulceration. The degree of anemia is slight and has not been a marked feature in any case, and no case in this series showed an abnormally high blood count. Acholuric jaundice and splenic anemia are discussed, and the opinion advanced that there is no difficulty in presupposing an infective element in these, though among the cases of splenic anemia, after all those varieties depending upon a specific cause have been eliminated, there still re-

mains a group of cases not belonging to any known specific group. In closing, Gibson emphasizes the point that splenic disease as such may cause many symptoms and that the ultimate etiological subdivisions will not necessarily harmonize with the present merely temporary subdivisions which have been based on clinical observation alone.

3. Arrest of Auricular Fibrillation by the Use of Quinidine.—Arthur W. M. Ellis and A. E. Clark-Kennedy present a preliminary report of their results in the treatment of seven cases of auricular fibrillation, in five of which the administration of quinidine by the mouth has been associated with return to the normal cardiac rhythm. In all these five cases the change has been demonstrated by polygraph tracings, and in two of them by the appearance of a crescendo presystolic murmur at the apex. In one of these five relapse occurred soon after the drug was stopped, and again a second time when the dosage was reduced. In two the dosage was only decreased and there was no relapse into auricular fibrillation. In two of the five cases, shortly after the onset of normal cardiac rhythm, embolic infarction of internal organs occurred. The formation of clots in the appendix of a fibrillating auricle is not uncommon, and the loosening of these by restored auricular contraction and their projection into the general circulation is easily understood. The pharmacological action of quinidine is still undetermined. Electrocardiographic study shows that, under quinidine, alteration in both shape and size of the auricular and ventricular waves occur and are accompanied by a prolongation of the P. R. interval. It seems reasonable to suppose that quinidine abolished fibrillation either by increasing the conductivity or by prolonging the refractory period of heart muscle, with the result that the gap is bridged and circus movement ceases. The use of quinidine is not without danger, the risk of embolism being a real one. In the writers' cases the improvement in the general condition was not striking and much less marked than might have been anticipated, and perhaps little more than might be attributed to prolonged rest in bed. That quinidine will take a place in the treatment of cardiac disease seems altogether probable, but the authors show a commendable caution and are ready to admit that the nature of its action and the limitations of its therapeutic value remain to be determined.

4. Acidosis and Toxic Symptoms of Severe Diarrhea of Infancy.—R. A. Guy states that in England little attention has been paid to the study of this group of cases which have been shown by Howland and Marriott and by Schloss and Stetson to be accompanied by a state of acidosis. Accordingly, at the suggestion of Dr. Leonard Findlay, the present investigation into the alkali reserve of the plasma in cases of diarrhea in infancy was undertaken. The estimations were made according to the "micro-method" of Van Slyke. Three types of cases were studied, namely, normal infants, cases of dyspepsia, and cases with intoxication. From these the following conclusions are drawn: In certain of the diarrheas of infancy, symptoms of intoxication, the chief of which is increased pulmonary ventilation, are accompanied by a reduction in the reserve of bicarbonate in the blood plasma. The hyperpnea and the alkali reserve vary inversely. The reserve can be increased to normal by the administration of sodium bicarbonate. Hyperpnea is thus controlled and the general toxic symptoms are alleviated, but the ultimate outcome, in the diarrheal cases at any rate, is little influenced. Necropsy throws no light on the questions of the site or extent of the damage done. The usual lesions of gastroenteritis are the only ones found. Depletion of the alkali reserve is not a cause of the diseased condition, but is caused by it and is essentially, like an elevation of temperature or an acceleration of the heart rate, a variation in a physiological constant, an indication of deranged function. And just as fever and tachycardia demand certain therapeutic measures for their own sake, so acidosis indicates the administration of alkali and fluid and the stimulation of excretion. When the acid produced and the cause of its production are known more specific therapy may be available. These observations have confirmed the work of previous investigators.

British Medical Journal.

October 29, 1921, No. 3174

1. An Address on the Clinical Types of Convulsive Seizures in Very Young Babies. John Thomson.
2. Bilateral Rigidity in Middle Meningeal Hemorrhage. Geoffrey Jefferson.
3. Metatarsus Varus. A. S. Blundell Bankart.
4. Two Cases of Pernicious Anemia with Infective Foci in the Alimentary Tract. E. F. Maynard and S. D. Sturton.

1. Clinical Types of Convulsive Seizures in Very Young Babies.—John Thomson, on the basis of a study of the notes on 200 cases of convulsions in infants under three months, divides them into three groups, namely: (*A*) Those due to local injury or disease of the brain or its membranes. (*B*) Those dependent upon cerebral disturbance due to acute disease of organs other than the brain. (*C*) Those due to cerebral disturbance connected with various forms of general infection and of debility. Under the latter group he classifies convulsions due to tuberculosis, congenital syphilis, debility, whooping cough, and the idiopathic convulsions of early infancy. It is to the latter he directs special attention. These occur during the early weeks of life and are not very common, for in the last twenty-five years he has seen only thirty-five cases in very young babies and two in rather older infants. In a typical case the child, when two or three weeks old, begins to have slight twitchings of the face and limbs, which recur at regular intervals, and soon develop into regular convulsive seizures of short duration. The fits may become very numerous and continue for weeks if they are not successfully treated. The administration of bromide has little or no effect in stopping the attacks; but if chloral is given cautiously and continuously in a sufficiently large amount, the fits not only cease rapidly, but do not return when the drug is discontinued; and the child grows up perfectly healthy in mind and body. There are two dangers connected with the treatment by chloral. One of these is the danger of inhalation pneumonia being set up if the child is carelessly fed while deeply under the influence of the drug. The other arises when the chloral is given in too small quantities. When this is done the drug may only depress the child's vitality without preventing injury to the brain cells by the toxin of the disease and the damage done may permanently injure the child's mental condition. A search for some analogous phenomena which may possibly help to explain the action of the drug in these cases has led to the discovery of a fact which seems to have a bearing on the question. It has been observed by C. Richet, Besredka, and others, that when a guinea-pig is put deeply under ether, alcohol, chloral, or certain other narcotics, before a second dose of a serum which is usually rapidly fatal, the expected anaphylactic shock is generally suppressed altogether, and after a period of unconsciousness the animal "awakes vaccinated." These experiments suggest the possibility that this particular type of convulsions may be due to a peculiarly modified form of anaphylaxis, or some similar process set up by the ingested cow's milk. The writer thinks there is enough information available to justify one in saying that this is at least the most hopeful direction in which to look for an explanation of the facts. Two somewhat different types of severe acute poisoning from cow's milk, which apparently depend on anaphylaxis, may be met with in the young, both of which fortunately are extremely rare. If it should be shown that the above hypothetical explanation of these cases is correct, the question naturally arises as to whether, when symptoms of poisoning from cow's milk, white of egg, oatmeal, or other common foods occur in young children, they might not be stopped permanently if the patient were subjected to a thorough chloralization for some days, while continuing the offending diet, and even whether a tendency to asthma and eczema beginning in infancy might not be permanently arrested in a similar way.

4. Two Cases of Pernicious Anemia with Infective Foci in the Alimentary Tract.—E. F. Maynard and S. D. Sturton report these cases of pernicious anemia in the first of which there was a history of colitis and in the second of diarrhea. In the first case a definite ring of ulcers was found in the intestine, and in the second an infective focus in the teeth. The second patient is

apparently in good health and having novoarsenobillon and vaccine weekly. Novoarsenobillon seems to be a valuable drug in this disease; the value of autogenous vaccines cannot be estimated as they were given concurrently with other treatment. Evidence of alimentary derangement was also present in a fatal case of pernicious anemia following dysentery which the writers treated in 1920. There was a history of alimentary derangement in a case of aplastic anemia and a case of pernicious anemia which Dr. Rivas Hunt has allowed the writers to quote. The latter appears to be enjoying normal health under treatment with novoarsenobillon. These cases afford additional evidence that invasion of some part of the alimentary tract by pathogenic organisms is an etiological factor in a large percentage of cases of pernicious anemia.

Endocrinology.

September, 1921, v. 5.

2. Endocrine Problems in Pelvic Surgery with Special Reference to Vicarious Menstruation.—Curtice Rosser reports three cases which serve to emphasize that, while in pelvic disorders there will always be a place for the surgical correction of mechanical, inflammatory, or neoplastic defects, by discriminating appeal to hormone therapy, needless surgery can be avoided and necessary surgery supplemented. The three cases reported have been selected because each is a fairly typical example of the syndrome produced by predominant disorder of one gland of internal secretion, because each gave a positive "therapeutic test," and because in each case a routine gynecological procedure would perhaps have been followed a few years back, without the possibility of correcting fundamental causes. The first case is an example of thyroid deficiency; the second a case of deficiency of the anterior lobe of the pituitary body, and the third, a definite case of vicarious menstruation, was treated on the basis of modification of excess of the ovarian secretion. In discussing the latter case the writer points out that while unquestionably organic, constitutional, or genital defects, environment, psychic shock, and any number of other factors, may increase or decrease the syndrome in a case of vicarious menstruation, one is fairly safe in looking for the fundamental cause in an unbalanced endocrine system dependent upon a perversion or excess of ovarian secretion. Dysovarianism may act both directly and through stimulation of the posterior pituitary, the thyroid, and possibly adrenals, so that the resultant complex becomes a general pluriglandular disturbance. There are two factors present, the primary amount of modification in the ovarian secretion and the degree of instability of the individual's sympathetic system and remaining endocrine organs. It is not difficult to carry a step further the signposts of the menstrual crisis—the various hyperemias and congestions, the increased vascular tensions—to produce the symptomatology present in vicarious menstruation.

3. The New Views as to the Morphology of the Thymus Glands and Their Bearing on the Problems of the Function of the Thymus.—J. Aug. Hammar states that it has been shown that the thymus gland is fundamentally an epithelial organ infiltrated with lymphocytes. The epithelial components in various mammals are of diverse origin—entodermal in some, and combined ecto-entodermal in others. In man the lymphocytic infiltration begins in the second month of intrauterine life. Contrary to the usual teaching, the thymus is not a transitory organ, but persists and functions even until old age. At puberty its parenchyma begins to be reduced, but the old theory of an "age involution" of the thymus was certainly incorrect. It has undergone revision to the effect that the involution does not appear until puberty and that it certainly causes a gradual reduction of the parenchyma, but in such a way that a functioning parenchyma remains as a rule, even in old age. Five types of thymus, depending upon age, can be differentiated: (1) Type of childhood; (2) puberal types; (3) type of youth; (4) adult type; (5) senescent type. These types are described. Descriptions of the thymus gland, based upon material from diseased subjects, are misleading. Such glands are never normal. Usually the parenchyma is reduced; occasionally it is hyperplastic. The normal ratio between corpuscles and lymphoid elements is disturbed. Even in healthy subjects the thymus is a very labile gland. The condition of the thymus gland, even in the present imperfect state of our knowledge, is suited to give valuable indications as to the state of the organism, and it is to be expected that, with extended experience as to the correlative conditions of the organ, these possibilities will be very essentially increased.

6. The Heart in Experimental Hyperthyroidism with Special Reference to Its Histology.—Hirotoshi Hashimoto presents detailed experimental data which he summarizes as follows: The buccal administration of toxic doses of thyroid caused, in addition to enlargement of the heart, the appearance of myocarditic lesions in a large percentage of albino rats; in 90 per cent. of the animals killed in the first and second week and almost all of those dying in the second and third week of a daily administration of 0.5 grams of dessicated thyroid. The myocarditic lesions consisted chiefly in dense accumulations of large "histiocytare" cells (Kiyono), derived from the the clasmocytes present in the interstitial connective tissue, in small circumscribed areas between the muscle fibers or not infrequently in the neighborhood of the blood vessels. These cells may be accompanied by a small or occasionally very large number of cells of lymphoid type, at earlier periods in the sequence of the myocarditic changes; in the later stages they may be associated with fibroblasts, increasing gradually in number, and eventually prevailing over the other types of cells. The muscle fibers may be destroyed in confined areas adjoining larger areas of myocarditic changes. The muscle fibers may show, moreover, slight but diffuse degenerative changes, apparently occurring independent of the interstitial changes described above. The interstitial inflammatory proliferation and the diffuse parenchymatous degeneration described above may both be attributed directly to thyroid intoxication. The hearts showing such myocarditic lesions are functionally inferior to normal hearts. In their histological appearance the myocarditic lesions resulting from thyroid administration are closely related to those observed by Aschoff, Tawara, and many others in the hearts of individuals suffering from rheumatism. The myocarditic lesions occurring in experimental hyperthyroidism induced by thyroid administration correspond to those in goiter hearts, first noted by Fahr. It is evident, therefore, that thyroid administration can cause not only tachycardia or hypertrophy, but also myocarditic lesions, all of which simulate the functional and anatomical changes found in human goiter hearts. This evidence lends support to the theory that the cardiac disturbances associated with goiter are due to thyroid intoxication, and further, to excess of thyroid secretion.

American Journal of the Medical Sciences.

October, 1921, clxii, 4.

8. The Treatment of Syphilis. H. S. Newcomer.
9. A Memorandum on the Occupational Study of Syphilis, with Special Reference to Farmers. John H. Stokes and Helen E. Brehmer.
10. The Heart Irregularity Called "Sino-Auricular Block." S. Calvin Smith.
11. Bacteria on Subsidiary Coins and Currency. Charlotte B. Ward and Fred W. Tanner.
12. A Case of Meningitis in an Infant Due to a Thread-Like Diphtheroid Organism. Milo K. Miller and M. W. Lyon, Jr.

2. The Striatal and Thalamic Types of Encephalitis: A Consideration of the Symptoms and Syndromes Referable to the Basal Ganglia in Epidemic Encephalitis.—J. Ramsey Hunt has made investigations which show that the large basal ganglia, and especially the corpora striata, are frequently affected in epidemic encephalitis. Involvement of the corpus striatum produces three types of syndromes: (1) *A paleostriatal or pallidal syndrome—the paralysis agitans type.* (2) *A neostriatal syndrome—the choreiform type.* (3) *A mixed striatal syndrome—the combined paralysis agitans-choreiform types.* These types are believed to be dependent upon the existence of two distinct cellular systems within the corpus striatum. One, the *pallidal system*, which originates in the motor cells of the corpus striatum and links this structure with important nuclei of the hypothalamic region, and controls the various motor activities of the extrapyramidal tracts. When this system is involved the symptoms of paralysis agitans develop, that is paralysis of automatic associated movements with hypertonicity of the muscles and rhythmical tremor. The other, striopallidal or *neostriatal system*, which exercises a coordinating and inhibitory influence on the purely motor functions of the corpus striatum. When this system is involved, chorea or spontaneous movements of the automatic associated type develop. The mixed striatal types result from involvement of both systems with the production of symptoms characteristic of each. The recognition of these two systems and fundamental syndromes of the striatum serve to explain and reconcile many peculiarities of striatal symptomatology. The *pallidal* and *paralysis agitans* type of encephalitis lethargica may be general, hemilateral, or segmental in distribution. Abortive, relapsing, and progressive types are also recognized. The *neostriatal* or *choreiform type* may also be general, hemilateral, or local in distribution. There is an acute choreiform type; a choreo-athetosis and athetoid and rhythmical types. These types may occur in pure form or in combination. In the writer's series of twenty-five cases, eighteen were of the paralysis agitans type, four of the choreiform, and three of the mixed striatal type. Thalamic symptoms also occur in encephalitis lethargica. When present they consist of severe and persistent pain, with disturbances of superficial sensibility, more especially of the pain and temperature sense. Evidences of the complete thalamic syndrome are rarely if ever encountered.

7. Malignant Tricuspid Endocarditis: With a Report of Five Cases.—A. V. St. George states that primary acute endocarditis confined to one or other of the valves of the right heart is infrequent. Osler, in his Gulstonian Lectures, analyzed 209 cases of endocarditis and found the right heart alone involved nine times only. He mentions it as a rare finding and still more rarely diagnosed. The sign in tricuspid insufficiency, either relative or organic, is a jugular systolic (positive) pulse. Long continued physical signs in the lung which are evanescent or rapidly changing, together with the heart signs and associated with jugular and hepatic pulse, should make one fairly certain of tricuspid endocarditis. Bacteriologically the lesions in this series were associated with different varieties of pathogenic microorganisms. Lung emboli or abscesses were practically invariably present. The prognosis is extremely unfavorable, the average duration of life from onset of symptoms being two to three months.

10. The Heart Irregularity Called "Sino-Auricular Block."—S. Calvin Smith asserts that "sino-auricular block" is not as rare as the paucity of literature on the subject would lead one to believe. It was clinically suspected with some degree of certainty in scores of healthy young men in military examinations; it has been cardiographically proved to be present fourteen times in the last ten months of the writer's experience. "Sino-auricular block" can be clinically suspected in a person whose pulse is irregular as it returns to normal after exercise and who is free from symptoms and signs of circulatory fault. The condition is said to be differentiated from sinus arrhythmia and from premature contractions; in sinus arrhythmia the rate increases on inspiration and decreases on expiration, the irregularity disappearing when the breath is held. Respiration has no effect on the irregularity called "sino-auricular block." Premature contractions may be associated with other evidence of cardiocirculatory fault; they disappear on exercise and do not usually recur for several minutes following increased physical effort; they are especially noticeable when the patient is at physical rest or falling asleep. A person whose heart exhibits premature contractions (particularly if they be of ventricular origin) is usually conscious of the irregularity; the intermittency of "sino-auricular block" produces no such subjective symptoms. "Sino-auricular block" is not associated with nor is it the sequel of any one definite type of infective process. It is not necessarily dependent upon nor secondary to an infective process, as it occurs in individuals who are well. In a rapid heart it was recorded within twenty minutes following the hypodermic administration of strychnine and atropine. It has been observed in persons who had no other clinical evidence or physical signs of cardiovascular disturbance. "Sino-auricular block," in certain persons, can be made to appear following physical exertion, mental excitement, or emotional strain; it may also follow the administration of drugs; it is therefore due to a change in the nerve control of the heart. These premises lead to the deduction that "sino-auricular block" is not a pathological condition, but is, in all likelihood, a physiological manifestation in certain hearts. As such it does not require drug interference nor does it furnish an indication for modifying the individual's accustomed manner of living.

11. Bacteria on Subsidiary Coins and Currency.—Charlotte B. Ward and Fred W. Tanner carried out this investigation to determine the numbers and types of microorganisms on coins and currency being used in general circulation. They state that there seems to be little basis for the belief that coins bear any close relation to the spread of disease. Thirty-seven strains of microorganisms isolated from the coins were spore-formers, and probably spores are necessary before the organism can perpetuate itself for any considerable length of time on coins. This may explain why none of the commonly accepted indicators of pollution were found. It is shown in this paper that *Bacillus anthracis* was able to live for eighty days on pennies and seventy-one days on nickels when the experiment ended. The greatest factor tending to control the types and numbers of microorganisms on coins seems to be the metal of which the coins are made. Numerous instances are mentioned in the literature where it is shown that the metallic ions have a distinctly bactericidal effect. The same statement applies to certain salts of these metals. It is undoubtedly true that coins that are passing from person to person in general circulation come in contact with acids and alkalies with the formation of soluble salts on their surfaces. These tend to keep down the bacterial flora and to probably exert a selective action, destroying the nonspore-forming organisms. Mold spores were isolated in a few cases.

12. A Case of Meningitis in an Infant Due to Thread-like Diphtheroid Organism.—Milo K. Miller and M. W. Lyon, Jr., have isolated a diphtheroid microorganism named *Corynebacterium trichodiphtheroide* as the causative agent in a case of purulent meningitis developing in an infant suffering with bronchopneumonia. It appeared as a small bacillus in the spinal fluid, grew into irregular thread-like forms on first culturing, later becoming bacillary with Gram-positive polar bodies and segments of diphtheroid type. It was not pathogenic for rabbits or cavies.

The Hot Air Douche in Wound Healing.—Laqueur has extended the use of this recourse in threatened gangrene to badly healing wounds accompanied by a sanious discharge, obstinate ulcer-like defects, fistulæ, and deep suppurations of bone. This local management gives better results than the ultraviolet rays and noon sun. The author seems to employ the vapor douche rather dry than hot air in these cases.—*Schweizerische medizinische Wochenschrift.*

Book Reviews.

Gonococcal Infection in the Male. By Norman Lumb, M.R.C.L., L.R.C.P., Etc. Price $6. New York: William Wood & Co., 1921.

The author had already published monographs on Urethroscopy and on the Treatment of Gonorrhea, and the present volume is doubtless to be regarded as a successor to the preceding, with addenda. The two small monographs total 174 pages, while the corresponding chapters in the present volume (uroscopic diagnosis and treatment) add up to 225. There are also chapters on Anatomy of the Urethra, Bacteriology and Pathology, Uroscopy, the Complement-Fixation Test, Stricture and Impotence (as sequelæ of gonorrhea). The number of illustrations is 165. In reviewing the author's work on the urethroscope we remarked that hardly a word was wasted, there being nothing at all which could be called padding. We can testify to the same effect in connection with the present volume.

Chirurgische Operationslehre fur Studierende und Aerzte. Von Prof. Dr. Friedrich Pels-Leusden. Dritte, wesentliche verbesserte Auflage. Price 200 marks. Berlin and Vienna: Urban and Schwarzenberg, 1921.

The second edition of this work appeared in 1915 with 788 pages, and the present volume contains but 12 additional pages. This limitation, the author asserts, is to keep down the price. The addenda are chiefly under the head of war and post-bellum surgery, and the delay in the appearance of the present edition has been due to the necessary delay in coming by these data.

The Genuine Works of Hippocrates. Translated from the Greek, with a Preliminary Discourse and Annotations. By Francis Adams, LL.D., Surgeon. Two Volumes in One. Price $5. New York: William Wood & Co.

Just now there seems to be a revival of interest in the history of medicine. The appearance of this reissue of Adams' translation of the genuine works of Hippocrates should, therefore, be particularly welcome. Probably all physicians are acquainted with the name of Hippocrates; with some, this knowledge is extended so far that they know that he is the "father of medicine"; others, again, include in their knowledge the fact that he is the author or reputed author of the Hippocratic oath which they have heard read or perhaps have even read for themselves; still others know that the aphorism, "Life is short, and the Art long," is to be found in the works of Hippocrates. There is no reason why even this knowledge should not be further extended to include a perusal of the present volume, at any rate in part. There is a special reason why students of medical history should read some of the works of Hippocrates. Littré, in his edition of Hippocrates, says that when we inquire into the history of medicine and the beginnings of science, the first body of teaching that we meet with is the collection of writings known as the works of Hippocrates. Science mounts up to that origin, and there stops. Not that it had not been cultivated before this, and had not given rise to numerous writings; but everything that had been made before the physician of Cos has perished. We have only scattered and disconnected fragments remaining of them; the works of Hippocrates alone have escaped destruction; and, by a curious coincidence, there exists a great gap after them as well as before them.

The present volume begins with a preliminary discourse which contains an outline of the origin of Grecian medicine and a sketch of the life of Hippocrates. This is followed by a disquisition on the authenticity of the different treatises which have been attributed to Hippocrates. This disquisition is a fine piece of work, and Doctor Adams gives a critical résumé of the Hippocratic works (so-called, and also genuine), with some account of the various translations and editions which have appeared. Then follows the translation of the genuine works of Hippocrates, which was published by the Sydenham Society of London in 1849. This was the first attempt at a complete translation into English, and it remains the only such translation. This latter fact need cause no distress, for it would be difficult to improve on the work of Doctor Adams. Along with the translation the translator has furnished valuable notes, pointing out how, in several instances, the teachings of Hippocrates were still in force and in daily practice so late as 1849. The views of Hippocrates on the treatment of fractures and the use of bandages, splints, and rest; on the setting of a fractured limb in a faulty position; on the treatment of fevers by cold baths and fluid diet; on clubfoot, and the application of bandages in this condition; on dietetics, and on questions of obstetrics and gynecology, to mention only a few of the numerous subjects discussed in his writings, certainly evince a knowledge which too many "moderns" complacently assume to be the particular and peculiar possession of their own age. Case histories were known to Hippocrates; he reports several cases, and even says that some of the patients died; but he does not refer to the social prominence of the patients, or to the numerous physicians whom they had previously consulted in vain; nor does he indulge in remarks about his brother practitioners. In these latter respects he seems to have been hopelessly out of touch with more modern methods. If any of our readers are unacquainted with this volume they are strongly advised to dip into it and learn something about a real genius whose works have had a profound influence upon the science and art of medicine.

A Text-Book of Pathology. Seventh Edition, reset, with 509 text illustrations, many in colors, and 15 colored plates. By Alfred Stengel, M.D., Sc.D., Professor of Medicine, University of Pennsylvania; Physician to the Pennsylvania and University Hospitals, and Herbert Fox, M.D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania; Pathologist to the Philadelphia Zoological Garden. Price, $8.50. Philadelphia and London: W. B. Saunders Company.

The first edition of this work was published in 1898, and each successive edition has been enlarged and improved until in the present one the writers have produced a most complete and comprehensive volume of 1111 pages. It follows the style of previous issues in presenting the text in convenient paragraph reference form. In order to include the many advances in pathologic knowledge during recent years, much new matter has been added, always, however, with the avoidance of speculation and controversy, the attempt being to give the practitioner and student a conservative and defensible opinion on the subject. In addition to new sections, those on nephritis, influenza, and lymphomata have been entirely rewritten. The text is enhanced by replacements and additions of illustrations to about one hundred. It would be difficult to construct a clearer, more concise and all-inclusive text-book on pathology than these authors have succeeded in developing. It meets in an admirable way the needs of the student and provides a most valuable reference book for the practitioner.

Handbuch Der Ärztlichen Erfahrungen Im Weltkriege 1914-1918 herausgegeben von Prof. Dr. Otto von Schjerning, Generalstabsarzt der Armee a. D. in Berlin, während des Krieges Chef des Feld—Sanitätswesens. Band VIII. Pathologische Anatomie herausgegeben von Ludwig Aschoff in Freiburg i. Br. Mit 134 Abbildungen im Text und 6 farbigen Tafeln. Price 150 Marks. Leipzig: Johann Ambrosius Barth, 1921.

This is the eighth volume of an encyclopedic handbook. The entire handbook is edited by Otto von Schjerning. The eighth volume deals with pathological anatomy and is edited by Ludwig Aschoff with the collaboration of others mentioned in the announcement. The first part is divided into two sections; the one dealing with organic diseases, including the heart, lungs, the kidneys, and glands of internal secretion; and the other section dealing with infections, more particularly tuberculosis. Part II presents a discussion of typhoid, paratyphoid, meningitis, influenza, cholera, and malaria. The third part discusses shock, fat embolism, and miscellaneous topics presented without apparent anatomic classification. The fourth part deals with wound infections and the complications incident thereto. The entire text is based on military experience in Germany. The work is sparsely illustrated.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 3, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Anniversary Discourse.—A Layman's View of Medical Progress.—HENRY S. PRITCHETT of the Carnegie Foundation delivered this address, in which he said that it required considerable hardihood on the part of a layman to venture to speak to a technical group of men on matters pertaining to their particular field. As a matter of fact, however, the profession of medicine, the practice of medicine, and the teaching of medicine since historic time had been affected almost as much by laymen as by the profession itself. Among laymen there had been some confusion as to the amount of education a medical man should have. One reason for this was because there was confusion of thought because of failure to distinguish between the science of medicine as an experimental science on the one hand and medicine as the art of healing on the other hand. As a matter of fact, those engaged in scientific medicine and those who undertook to practise the art of healing constituted quite distinctive groups. Medicine as an experimental science was almost as old as history itself. In the Alexandrian School of Medicine, some 2,000 years ago, it was thought that a knowledge of the human body must be taught by dissection of the living human being and there was evidence to support the opinion that medicine at that time was an experimental science. To provide material for vivisection there was at that time a beneficent arrangement in that there was always a plentiful supply of criminals. Criminals, however, protested against this form of punishment and begged that they might be crucified or beheaded rather than given over to vivisection. But this was mentioned merely to show that there was a conception of scientific medicine even in those remote times. On the other side was the great group of people who had nothing to do with scientific medicine but engaged in the art of healing. Among the latter were the neuropaths, chiropractors, osteopaths, etc., who employed a part of scientific medicine, and at the other end were those who practiced medicine without the use of drugs, instruments or scientific appliances, like the Christian Scientists. The practice of medicine as an applied science had always been clearly defined to those who had engaged in the scientific study of medicine, and their idea was entirely different from the notion that any people who desired to do so might practise the art of healing. For this reason and because he had had something to do with teaching which had brought him into contact with scientific medicine as it had to do with medical education, he felt that as a layman he might speak of his conception of scientific medicine. The medical student had while in school a highly scientific training. He believed his methods were those of a scientific profession dependent upon experimental observation, analysis, and proof, all achieved by experimental research. All these were necessary if one was to be a part of that group of medical men taught in the schools. Whatever had to do with medicine and the profession of medicine was conceived as an experimental science for the prevention, diagnosis, and treatment of disease. Upon this conception was based the conduct of the medical schools and the method by which modern medical men were trained and brought into their profession. The ideas as to the teaching of scientific medicine had undergone radical changes in the last fifteen or twenty years, and as a result a process of elimination of medical schools that did not come up to the modern standards had been going on. As a consequence the number of medical schools in this country had been reduced from 160 to 85. This process had been mostly to the glory of God and the good of the State, and represented an enormous progress in the ideals and practice of medicine. All this had been due to the leaders in the profession who shaped the ideals of the practice of medicine and the ideals of medical education. This cleaning up had been thoroughly done. Indeed, in some instances it might have been wiser to strengthen a weak medical college rather than to kill it. There were communities where by the absence of any medical organization the ideas of the profession had become so confused that some individuals did not stop to consider whether the practice of medicine was a field subject to legal restrictions or whether it was a calling one might enter on the basis of his own inner consciousness. However, we stood at the end of a period of great medical progress in which achievements of the most notable sort had been attained. The real business of the next decade was the building up and founding of such schools as might be necessary to furnish the required number of reputable medical men. It seemed to him, as one who stood outside the medical profession and yet who was interested from the educational standpoint, that there were things we should have to remember. The progress and education of the profession would depend not upon a single means of education and not on the efforts of one group to prepare men to practice medicine but upon the co-operation and working together of four or five agencies in concord and unanimity. Taking a bird's-eye view of the subject in this light he would try to say briefly some of the things that appeared to him needed to be done in undergraduate medical education, in post-graduate medical education, in medical research, and in reference to the relationship of hospitals and organized medicine to them. In undergraduate medical schools, as a man outside the medical school yet in close touch with teaching, he had been struck by the fact that medical instruction seemed to be weaker than instruction in other professional schools. Very few men teaching in medical schools had given attention to the art of teaching. There should be increased emphasis on the art of teaching, and closely connected with that there should be reform of the undergraduate medical school. In his judgment that was one of the most important things to be undertaken. Today the medical schools were in much the same situation as the engineering schools were fifty years ago. When they began founding engineering schools they were founded on the fundamental sciences of chemistry and physics. Today in the engineering school one no longer had time to learn either chemistry or physics though they were fundamental to the entire work of the engineering schools. Today in the medical schools anatomy, physiology, chemistry, and pathology were taught alone. A man should learn these branches along with the practice of medicine just as in the engineering schools they had come to learn chemistry and physics along with engineering. Under the present curriculum the medical student was crowded with a burden he could ill carry, but he was not taught how closely pathology was associated with the actual practice of medicine. One of the greatest reforms to be effected was a restudy of the medical curriculum with the effort to arrange anatomy and pathology in such a way that a student began the practice of medicine and surgery along with these fundamental sciences. He was inclined to think this could be done best by the men who knew most about the methods of teaching, and, after all, medical education was not much different from other education. Education was one. First one must have a grip on the facts and then one must think about the facts. This applied to all professional education, whether it was medicine, law, or perhaps theology. The fundamental sciences of medicine were so closely associated with actual practice that the student must learn to think of them in terms of applied science. There was a general feeling among teachers who knew medical schools that the greatest improvement that could be brought about in them would be a reform in the curriculum, so that the fundamentals would not be separate things but part of one course.

Turning to the post-graduate school, to those who had to do with the educational side of medicine and to one who had visited these schools and studied them, the thought that stood out most notably was that only a start had been made when a man was put through the undergraduate school and turned loose on the community to learn to practice medicine. There should be the opportunity for the graduate in medicine to return to a post-graduate school and refresh his knowledge of medicine and surgery. As he had watched different groups of men, he had seen none so anxious

to learn as those who had practiced and returned to refresh and increase their knowledge of medicine. So it seemed that there must come a development of post-graduate medical education so that the medical practitioner could return and take up some of his fundamental studies or some branch of medicine or surgery in a more thorough way than was possible in the undergraduate school and might work in an atmosphere where other men already in the profession were working heartily and with spirit. When it came to the next agency of education, he felt that before this audience he ought not to spend any great length of time. He would, therefore, only emphasize the fact that medical education was impossible without the hospital as a part of the regime and the teachers of the medical school directing the hospital. However one might think of the undergraduate or post-graduate medical school, it would still remain a fact that neither was an educational unit until related to a hospital in the right way. That was so thoroughly admitted today that the proposition did not need to be discussed. It was also important that the education of the nurse keep pace with medical education in furthering the development and improvement of the hospitals. The trend today was to send the great bulk of medical students to cities where they received their training in laboratories, and this made them dissatisfied with the practice of medicine if separated from laboratory facilities; they felt that medicine could not be practiced away from the laboratory, consequently few men went into the country districts where no such aids to the practice of medicine existed. The old country doctor who was the salt of the earth had disappeared, and Mr. Pritchett said he believed he had gone not to return. He had heard the opinion advanced that there should be an inferior grade of medical men trained to meet this condition. To his mind this was not the solution of the problem, but rather in some way to reorganize the medical profession in small towns and country districts so that there might be opportunities which well-trained men would be willing to take. Some experiments along this line were being made. For a town say with 3000 inhabitants and a countryside which would bring the population up to 6000 or 8000, he would recommend a small hospital and a small group.

The next great agency related to medical education was medical research. The co-ordination of medical research with undergraduate and post-gradute medical schools and hospitals was a problem with which those interested in medical education were dealing today. Certainly the small-sized hospital could not do much in the way of research. With the spirit of endeavor to find the truth research must constitute a part of every medical school, and it had its relation to the hospital because in every community the hospital had come to be the agency which not only took care of the sick, but which also took care of the public health, and that function of the small hospital would be continued and enlarged. The man in the city who was engaged in scientific research was intimately connected with medical education and with the hospital. In speaking of medical research it must be stated that there was probably no subject and no field in which there was more fraud than in research. Every college and university, however small, coveted the reputation for research; institutions would rather have a fictitious reputation for research than the best reputation for teaching. We could never afford to lose sight of the fact that the primary duty of the university and the college was to teach, and the fundamental duty of the medical colleges was to train men for the practice of medicine. Huxley had pointed out that the medical school that conceived of its function in any other terms would become a fruitless and infertile agency. In this day of many societies perhaps there should be one for the prevention of medical research. On the other hand, to medicine, dealing as it did with the mental and the physical, dealing at once with body and soul, scientific research was an absolute necessity. It inspired the work of both undergraduate and post-graduate medical schools and of hospitals; it represented the fruit of their labors. In medical schools and hospitals the field for research was open and should by no means be neglected, but these institutions should remember that their first function was to teach clearly and well, and then the type of man turned out took easily to research. There were four types of research workers: First, the extraordinary man who was able to advance the boundaries of knowledge and to make discoveries. Those men were rare, and often it was the chemist or the bacteriologist who made the discovery which was applied to medicine. The great leaders of men were rare, and not many were caught in college and in the medical schools; they were usually men who were masters of their field. Back of them was another group, men who were industrious and willing to take up the technique and to apply it to a piece of work of great value which was not a discovery and that would never startle the world. Back of them was a group who took to research because it was easier than to teach, and lastly there was a group who seemed to be in research simply to spend money, and a great deal could be spent in that way. Mr. Pritchett compared research workers to prospectors who went out from their winter quarters to spend the summer in prospecting. When they returned in the fall one or two had found real metal; perhaps eight or ten had found something of value in advancing the resources of the country which would require a great deal of work to develop, but the great body of these men had just bored holes in the ground and amused themselves. While he did not wish to be discouraging, he must say that every man was not fitted for research. Again, when research was undertaken it should be something of real value. It might be a small thing, but it should be worthy of a man's real work. He was inclined to think that medical schools and colleges did best if they regarded teaching as their first duty and research as the breath of life, but to be the breath of life it must be real research patiently thought out and prosecuted with patient, thorough, humble work. Research was, then, of enormous importance, and those who had the real spirit ought to have the utmost encouragement. The enlistment of the devotion of men to this line of work was more a matter of the spirit of the place than of the actual subsidizing of men. In some small schools the personality of one or two strong men or of the governor of a hospital might bring men to take up an ambitious piece of work. There was much in the atmosphere of the medical school or hospital, and it was only where there was the real spirit of research that the work should be subsidized.

In the further development of medicine there remained one other feature to be discussed, and that was the organization of medicine itself. Medicine was organized today to a greater extent than any other group in the body politic. There were the county and State societies and the National Society, centering in a council like the Pope's conclave. The people at the top could put their hand on every individual in the profession. The profession of law could not be organized in this way, perhaps because lawyers were educated to disagree. The time had come when the profession itself should see that what it had been taught to render to mankind could be obtained by the general public, not only by the very poor who could obtain it in hospitals and clinics, or the rich who were able to pay for it—though it must be admitted that even though they were able to pay for it they sometimes received very poor advice—but by the common run of men, those with incomes of $100 to $150 a month, who now found good medical advice beyond their means. This could be brought about only by the medical profession through a co-ordination of the agencies of which he had spoken. The time had gone by when one man could practice medicine alone and do justice to the patient. Within the next ten years medicine would have to reorganize in such a way as to make the facilities of modern medicine available to people of average means and yet not to destroy personal initiative or the opportunity for a splendid medical practice. Practitioners of medicine should form an organization closely related to research and to the medical schools and hospitals, under conditions that would bring medical service to the public for what it could afford to pay. That could not be brought about except by the profession itself, and it was already being done in group practice; it brought to the men practising in the group the advantages of special knowledge that one man alone could not possess. There was another side of this matter constantly

brought to his mind. Education was expensive and perhaps medical education was the most expensive. The cost of medical education and the cost of medical service were so great that he did not see how medical schools, research work, and hospitals were going to be carried except by co-ordinating undergraduate and graduate medical schools and hospitals in such a way that diagnosis and treatment might be made available to the everyday man at a price within his ability to pay. This could only be brought about by a process of education, by teaching the public to appreciate the sacrifices the practitioner of medicine made. In his judgment the well-trained physician or surgeon had a character and idealism that made him perhaps the finest fruits of our modern civilization. On the whole there was no other human being who better represented the best of modern civilization than the well-trained physician who was abreast of his profession. He belonged to a profession in which science and human service were united, in which the finest type of scientific investigation and the highest ideals of service came together; he was thus a realization of the finest fruitage of our civilization. There was a flood of quacks and charlatans without any scientific knowledge who were today reaping a rich harvest from the public for which the public received no benefit, while the great advances in scientific medicine of the past fifty years were not available to a great body of the public. The present condition could not last. Men of a group could undertake to do for a community what no one of these men alone could do. It was carrying but one step further the co-ordination of medical schools and hospitals to have some arrangement by which the man of moderate means should contribute to them, and at the same time have the advantage of the best medical service this age could give him. The medical profession would never be raised by those outside its ranks; it could be raised only by the profession itself. Only the profession itself could make this ideal of service and usefulness a reality to the community. The bringing about of this improvement lay not with the men having to do with the schools or those having to do with foundations, but through those leaders of the profession who united in their own personalities the strictest views of scientific medicine, of the practice of medicine, and of human service. It was that kind of individuals who had brought medicine to what it was today and would bring it to be still more available to humankind the world over.

Dr. CHARLES L. DANA moved a rising vote of thanks for this extremely important, informing, critical, and instructing address.

FIRST DISTRICT BRANCH OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Fifteenth Annual Meeting, Held in South Nyack, N. Y., October 19, 1921.

THE PRESIDENT, DR. GEORGE A. LEITNER OF PIERMONT, IN THE CHAIR.

(*Concluded from page 963.*)

Fainting — Some Observations; Its Cause and Its Treatment.—Dr. JOHN WYCKOFF of New York presented this paper, in which he gave a "synopsis of the rôle of the nervous system in disease of the circulatory system," quoting from Langdon Brown, Chapter 5. He said that since fainting, according to their definition, was dependent upon a transitory cerebral anemia, and since the blood supply of the brain was directly dependent upon the systemic blood pressure, and since we knew the factors upon which this systemic blood pressure depended, we must look upon any case of fainting as being due to a disturbance of one or more of these factors. Before we could hope to understand the gravity of a given case of fainting, before we could have any idea of the prognosis, and before we could expect to treat it with any intelligence, we must determine which one or more of these factors was at fault. While hard arteries, that was, arteries with diminished elasticity, probably never were the sole cause of fainting, they undoubtedly made fainting more probable if there was a disturbance in any of the other three factors responsible for the maintaining of peripheral blood pressure. Fainting might be classified from its causes as being due to: (1) Some interference with the output of the heart; (2) some interference (lowering) of peripheral resistance; (3) diminution of volume of blood. Fainting due to the latter cause was nearly always due to hemorrhage; since its diagnosis was easy and it was a truly surgical condition it was not considered in the paper. Fainting due to fall in blood pressure caused by diminished peripheral resistance was a most common type. This was usually seen in cases in which there was a tremendous dilatation of the splanchnic vessels. These patients usually fainted when forced to stand upright for a considerable length of time, there being a loss of tone in the splanchnic vessels or sometimes lack of support of the splanchnic vessels from relaxed abdominal walls. This type of fainting was frequently seen in the army when men had to stand at attention for long periods of time as at inspections. In this type of fainting the pulse became rapid and the pressure fell, but this change in rate though rapid was not abrupt. As the patient recovered the heart slowed down rather gradually and not suddenly as in the paroxysmal tachycardias. These patients, in the writer's experience, had not shown marked sinus arrhythmia. The onset was usually not accompanied by palpitation. While such patients were usually given rapidly diffusable stimulants of the ammonia group the most efficacious treatment was to have the patient lie down with the head lower than the rest of the body. When these attacks occurred frequently the wearing of a snug abdominal binder which did not interfere with the movements of the body would often stop them. Exercises which strengthened relaxed abdominal muscles should be advised. School children who had such attacks should be excused from exercises where they had to stand upright for any length of time. There was a type of fainting seen when patients who had aortic insufficiency suddenly changed from a lying to a sitting or standing position. These were more frequently giddy attacks than real loss of consciousness. The quick rise in blood pressure due to the sudden change in posture forced blood back through the incompetent aortic valve and dilated the left ventricle, with a resulting cerebral anemia. The causes of a sudden diminution of cardiac output which resulted in fainting had been classified by Lewis as follows: (1) Retardation or cessation of ventricular action (a) caused by slowing or standstill of the whole heart, or (b) by slowing or standstill of the ventricle alone. (2) Acceleration of the ventricular action. Complete cardiac standstill was a comparatively rare condition. Lewis mentioned but two cases, and one of these was a case reported by Laslett. In the latter case atropine entirely abolished the attacks. Fainting due to sudden and profound slowing of both auricles and ventricles was extremely common. Such fainting was due to vagal stimulation which caused a depression and slowing of the sinoauricular node, the pacemaker of the heart. The stimulation which might cause such vagal action might be mental, as viewing some awful catastrophe or hearing distressing news, or it might be due to severe pain. This type of fainting was usually seen in adolescents or young adults. These patients were nauseated and frequently vomited, and after the attack often passed a loose stool. They broke into a cold sweat and their pulse became very slow. As they recovered the pulse became more rapid, but did not suddenly regain its normal rate. During recovery there was more or less sinus irregularity. Standstill of the ventricle alone was always due to auriculo-ventricular heart block. It occurred most frequently when patients who had a partial heart block developed a complete one. If the standstill lasted over a few seconds, the patients developed epileptiform seizures. Syncope due to auriculo-ventricular heart block was usually extremely easy to recognize. During the attack there was a complete ventricular standstill followed by a slow ventricular rhythm. The treatment of these cases was unsatisfactory. Atropine would increase the auricular rate, but had no influence on the ventricular. Patients subject to the attacks should not be allowed to go about alone. The prognosis was always grave. Many cases passed through the transition period dur-

ing which they changed from partial to complete block and finally became cases of permanent complete block. Such patients rarely fainted if they did not exert themselves and frequently lived some years with a great deal of handicap. The reasons for acceleration of the ventricle which frequently caused fainting were paroxysmal tachycardia, paroxysmal auricular fibrillation and auricular flutter. Each of these conditions was discussed, and it was pointed out that from the standpoint of prognosis and treatment it was necessary to determine whether the tachycardia was auricular, nodal or ventricular in type. The auricular type was frequently stopped by vagal stimulation. This might be done in three ways, by deep breathing, by ocular pressure, and by direct vagal pressure on the carotid sheath. A polygraph or better, an electrocardiograph, would always differentiate which type one was dealing with. Digitalis seemed to have no effect in paroxysmal tachycardia of auricular origin, but had considerable effect frequently in cases of nodal origin. Ventricular tachycardia was probably a dangerous condition in which to use digitalis, as the ventricle at such a time was apt to go into fibrillation, which of course meant instant death. Auricular flutter should always be suspected when there was a constant ventricular rate of 140 to 160. It should also be suspected in any case of tachycardia which slowed or in which the ventricle paused upon vagal or orbital pressure, but in which the rate returned to its former rapidity as soon as vagal stimulation was discontinued. The treatment of the condition was digitalis. In proper dosage this drug usually caused the auricles to go into fibrillation and the fibrillation could be controlled by its constant use. In some cases, if the digitalis was discontinued, the auricles returned to normal rhythm.

Dr. HAROLD E. B. PARDEE said he was interested in having the causes of fainting pointed out and in being shown to what particular group of cardiac cases they belonged. He cited one case in which there was a stoppage of the ventricular contraction and a typical Stokes-Adams syncope. He succeeded in taking electrocardiographic records during a convulsion. It was interesting to see how long the body could get along without the circulation. The time varied from 12 to 17 seconds from the stopping of the heart to the beginning of a convulsion, and when the heart started up again the convulsion passed off. This patient had this condition for about two weeks and then the heart again gave normal records. The patient had a mitral stenosis and it was probable that the Stokes-Adams attacks were due to some acute process superimposed on the chronic valvular disease. Dr. Wyckoff's records showing first the normal rhythm and later auricular fibrillation were very interesting. Auricular fibrillation was always associated with disease of the heart muscle while with extrasystoles the chances were that there was disease of the muscle but one could not be so sure of it.

Malignancies of the Colon; Their Consideration—Dr. JOHN F. ERDMANN of New York City read this paper in which he considered 129 patients that had passed under his operative care during the past six years. Of this number 15 were inoperable from the standpoint of metastases to other organs, and 9 were inoperable from the viewpoint of extensive regional metastases. The remaining 105 were operated upon according to some one of the various types of palliative or radical methods, which were considered in the paper. Malignancies of the colon had been observed over 50 per cent. more frequently during those six years than malignancies of the stomach. During this period carcinoma of the stomach (in the Post-Graduate Hospital) was seen in seventy patients, while carcinoma of the colon was found in ninety-six patients in the same service. These figures bore no positive relationship to the frequency or excess of the colonic patients but presented a fair indication of colonic malignancies. The sites of frequent occurrence in the order of frequency found in this series of patients was as follows: In that portion of the gut from the anus to the sigmoid, including the so-termed sigmoido-rectal junction, fifty out of the total of 129 cases; in the sigmoid zone proper thirty-seven; in the ileo-colic zone, or the cecum and the terminal ileum eighteen; in the hepatic flexure and the proximal half of the transverse colon fifteen; the mid-colic region, including the distal half of the transverse colon and the descending colon nine of the 129 patients. The regional frequencies presented food for thought as to the etiological factors so frequently given as stasis irritation. A series of eighty-six patients at the Post-Graduate Hospital were rather equally divided between the sexes, forty-six being males and forty females. But a marked difference in sex preponderance occurred in the female in cancers of the lowest segment. In the sigmoid, there were ten more males than females, while in the recto-sigmoid and recto-anal there were ten more females than males. The average age of the patients operated upon was 49 1/5 years, the youngest being a female of twenty-two years and the eldest a female of eighty-nine years. The rapidity of growth in cancer of the colon as in cancer in other parts of the body was influenced by the age of the patient and the type of the cell. The more youthful the patient the more rapid the growth. Multiple growths in the colon were not encountered in this series. From the standpoint of regional classification the symptoms should vary somewhat, but in the main they were prone to slight variation. It was a well-observed fact that in growths involving the cecum and the ileocecal region obstruction was a rarity, due to the liquid state of the contents of the small intestine. No acute ileus was observed in any of these patients suffering with a growth in this zone. It was also observable that tumors of the cecum were palpable as a rule late in the process of the disease and that the *x*-ray was not conclusive as early as in growths in the distal half of the colon. Pain, soreness and distress in the region of the appendix had led to some of these patients being operated on for appendicitis. In three cases in this series the true state of affairs had been overlooked by the original operators. Colic in this area was evidenced only when the growth involved the ileocecal valve area to such a degree as to become obstructive. Toxemias were seen more in the obstructions of the distal half, due to proximal deflection of the fecal current, the growth of intestinal bacteria and their absorption due to obstructive stases. Borborygmus was frequently present, especially when obstruction became evident. Dr. Erdmann stated that he had been laying special stress on the succussion sound in the cecal zone in various types of obstruction of the colon. This sound was made by the liquid contents distending the caput and the gas that of a necessity was forced into this portion of the intestinal tract. This succussion sound indicated an early operation. After further discussion of the symptoms, Dr. Erdmann said the treatment of these growths to-day resolved itself into the radical surgical procedure in the proximal $\frac{3}{4}$ of the colon; and the question of radical operation versus radium with or without excision. The preliminary to operation was thorough cleansing of the intestinal tract and the establishment of an artificial anus proximal to the growth. This site was a matter of choice to the operator, for years his selection had been the cecum because this location was remote from the field of final operation and did not interfere by newly formed adhesions nor by soiling; finally it was easy to close after its function had terminated. Cleansing of the distal bowel through a cecostomy was readily performed by irrigations after the cecostomy was old enough. A permanent artificial anus was to be made only in those patients in whom the growth was so firmly fixed to surrounding structures that removal would end disastrously or in patients in whom the contiguous and remote metastases were so extensive as to predicate an early demise with or without operative procedure. In this latter type with remote metastases, as in the liver, he had been doing the radical resection with anastomosis because in patients living from a few months to two or three years the disagreeable associations of an artificial anus could be abolished by an additional risk of a small percentage. He had been pleased with his results in this type of operation during the past five or six years. In the permanent artificial anus patients two methods of procedure as to the growth were to be followed. In the first instance the growth was left, while in the second it was removed with all the surrounding tissue. The growth was left in those patients in whom there was infiltration extending beyond the possibility of removal.

One might leave a double-barrelled anus so that radium could be applied from above and below through the upper and lower stomas of the bowel. In the event of a non-removable growth in portions of the colon proximal to the sigmoido-rectal zone, short-circuiting by means of a colonic or ileal byway was in order. This prevented an early total obstruction or a series of periods of partial obstruction. As to the methods of anastomosis he preferred the end to end, doing a plastic on the smaller caliber end to meet with the larger end, except in those cases in which the gut was friable from edema. In these a side to side anastomosis was as a rule successful. The operation of Mickulicz was quite amenable to the growths from the cecum to the recto-sigmoid junction. He had performed it, however, only ten times in the whole series, while end to end anastomosis was performed forty-five times and side to side anastomosis twelve times. He objected to the Mickulicz operation as being one of three or four times the duration of the suture method. The Mickulicz average time in the hospital was ten weeks, while that of suture anastomosis was four weeks. In regard to the implantation of the bowel in the perineum or high coccygeal or sacral zone, he found less and less objection to this procedure from his personal standpoint. He had been struck with the degree of control, often better than before operation, and also by the ease with which these victims preserved cleanliness. It was customary to have an artificial anus established from seven to fifteen days before the radical operation. After a consideration of operative details, Dr. Erdmann said that the advantages of the procedures outlined were (1) Extension of life with no foul discomforts, in those patients with existing metastasis in the liver at the time of operation, from eight to twenty-four months. (2) In those in whom no appreciable metastasis in remote zones was found, extension of life from months to years. In this series there were several patients of each variety living from one to four years. The mortality during the past three years had been in marked contrast to that of the first three years, about 5 per cent. in the former as compared to 15 to 18 per cent. in the latter. A great deal of this lowering of the mortality he felt was due to the preliminary drainage by means of an artificial opening, and the care observed in placing this opening remote from the field of expected removal. In closing, Dr. Erdmann emphasized the importance of proctoscopic and *x*-ray examination in every patient who had pain in the lower back, of perineal or sciatic distribution; who complained of distressing flatulence, abdominal colic, tenesmus, or blood and mucus in the stool, and a slow loss of weight.

Dr. RAYMOND P. SULLIVAN of New York City expressed the opinion that Professor Erdmann's series of 129 personal cases over a period of six years was an unusual experience of great value, and one which made possible practical deductions. The statistical percentages quoted seemed to coincide with those generally accepted. However, they justified repetition and showed what a tremendous problem colonic carcinoma presented. The successful treatment of carcinoma in any portion of the body was dependent upon the early recognition of the disease, and its early and complete removal. It was still a regrettable truism that these factors did not always obtain. The reason for this seemed attributable either to the patient or the physician or both. On the one hand there was a lack of education, or a tendency to neglect early signs of the malady. On the other hand, the physician was apt to fail in a thorough examination or proper translation of the symptomatology. Preventive measures *would* reduce the incidence of carcinoma, and herein lay the duty of the profession to intensify activity both from the standpoint of education and of therapeutics. Carcinoma was in the main a disease of middle life. It was related (W. J. Mayo) that since the Civil War fifteen years had been added to the average length of human life. With our present knowledge of precancerous conditions, and our present state of progress in handling them, it was our hope that proper radical treatment of these conditions would add another fifteen years or more to the life of man in this country within the next twenty years. The etiology of cancer was a much discussed topic. Many theories were advanced. The general impression seemed to be that several conditions were essential to the development of carcinoma. No particular theory seemed to account for the change in the cell that caused *it* to adopt a lawless existence and to lose its harmony with normal cell life. There was little change in the cancer cell from normal, yet cancer could be identified positively by the microscope. The diagnosis of colonic carcinoma had been well brought out by Dr. Erdmann, and too much stress could not be laid on the advice for the use of the proctoscope and *x*-ray as very valuable aids. Before the advance made by these factors, the diagnosis was principally dependent upon the cachexia, loss of weight, obstruction and palpable tumor. Dr. Erdmann had shown that these conditions indicated a time when operability was not so practical and hence should not be the guiding symptoms for treatment. Dr. Sullivan emphasized the advantage of a thorough, systematic and careful exploration of all the abdominal viscera whenever the abdomen was opened and the conditions permitted. To illustrate he reported the case of a young man, thirty-one years of age, operated upon by him at St. Vincent's Hospital on April 8, 1920. The case proved to be one of carcinoma of the splenic flexure. This was resected and a side to side anastomosis made. He was alive today, apparently enjoying complete relief of all his complaints. Prior to this operation he had had his appendix removed by a competent surgeon in 1914, and a second operation, in 1919, by still another surgeon for adhesions. Both surgeons had previously had complete *x*-ray examinations made and both opened the abdomen through a right rectus incision, but he continued to complain of intermittent colicky pains referred to the left upper quadrant of the abdomen associated with stomach distress, loss of flesh and strength without marked obstipation. The *x*-ray findings did not offer the help desired, but the presence of a small palpable tumor and the recurrent colicky attacks with signs of moderate distention of the ascending and transverse colon justified the diagnosis of chronic incomplete obstruction, and an exploration. To the speaker's mind, manual exploration at the time of the second operation would have revealed the presence of the tumor, and thus afforded an earlier removal of the carcinoma. In the treatment of colonic carcinoma there was a distinct field for aggressive surgery. Dr. Ewing stated that it was a rule to which there were notable exceptions that carcinoma of the colon and rectum was only moderately malignant. The course was comparatively slow, extensions beyond the intestinal wall occurred late and metastases were less frequent than with similar growths in other regions. The particular method of removal would depend upon the judgment and choice of the operator, as Dr. Erdmann had pointed out. The use of radium in colonic cancer—especially when the tumor was situated in the lower rectum or anal canal—might be successful, but should be combined with surgical removal. In the upper colon the early and radical removal should be the principal method of procedure. In the pelvic colon and rectum, the site of more than 60 per cent. of colonic carcinoma, the operative procedure was far from standard. To accomplish a reconstruction of the bowel after resection without permanent artificial anus *was ideal*. However, it was his belief that more ultimate cures would be effected with a permanent low mid-abdominal artificial anus and a total extirpation of the distal gut and tumor with the adjacent tissues than to attempt a reconstruction of the bowel integrity. The operability of carcinoma in any part of the colon was not easy of determination prior to exploration, especially when there was no definitely palpable metastasis, and a movable tumor. However, some interesting observations were reported at the last meeting of the Alumni of the Mayo Clinic by Dr. Walter Vaughan of Detroit. He stated that the human resistance to carcinoma might be determined by a differential blood count after the injection into the blood stream of a known amount of placental emulsion. The indication would be the reaction noted in the rise or fall of the lymphocytes, the rise indicating the maintenance of bodily resistance to carcinoma with no metastasis and hence operability. On the other hand a reduction in the percentage of lymphocytes would indicate a fall in the body resistance and metastasis and hence lowered operability. His observations were made in a large series of cases, with a

high percentage of positive findings at operation. The end results in the treatment of large bowel carcinoma were only slowly increasing along favorable lines. He felt that we should impress upon our minds the sentiment that success was the child of courage and reason, and that failure was usually sired by pessimism and damned by everybody. Dr. Erdmann had made very frank statements concerning the end results, and from these it was to be hoped that his next series of cases would show a still greater percentage of satisfactory results, and that he would be able to state that his cases were coming to operation at a much more favorable time.

Radium Treatment of Carcinoma of the Bladder. Illustrated by Lantern Slides.—Dr. BENJAMIN S. BARRINGER of New York City presented this communication, in which he stated that the treatment of carcinoma of the bladder at the Memorial Hospital had been divided into two periods, namely, that prior to June, 1919, when they were testing what could be done with radium applied through the urethra and without opening the bladder and that period since June, 1919, when they had added to the intraurethral treatment the application of radium through the bladder, opened suprapubically. The object of the latter phase was to destroy extensive bladder carcinomata which they had not been able to cope with through the urethra. During a period of 5½ years ending January, 1921, 142 cases of advanced carcinoma, four of small carcinoma, nine of extensive papilloma, and two borderline cases were treated. Their observations led them to believe that many bladder tumors ran true to their original histological structure. However, one must not forget that malignant degeneration might take place in a papilloma and therefore papillomata were potentially malignant. As was usual the fifth and sixth decades showed the greatest incidence of carcinoma. Tables were presented which emphasized the fact that most patients with carcinoma of the bladder had symptoms for a year or more before their condition was seriously considered. If they could be seen earlier very many more could be cured. Of the 153 cases, 119 were male and thirty-four female. This preponderance of males might signify that inflammation might be a causative factor in carcinoma of the bladder, since prostatitis and trigonitis have no analogue in the female. Loss of weight and strength, commonly supposed to be accompaniments of malignant disease, generally appeared late in carcinoma of the bladder. Hematuria was the most important symptom, being the first symptom in seventy cases in this series and the second symptom in sixty cases, appearing in 130 out of 138 cases. Other symptoms were frequent urination, dysuria, polyuria, retention, and incontinence. Usually cystoscopic diagnosis was not difficult. A raised thickened base meant carcinoma. All sloughy tumors were carcinomatous. The following method was used at the Memorial Hospital to show the tumor graphically and the infiltration of the bladder wall. The patient was placed flat on his back, the bladder catheterized, then with a large syringe blown up with air until the patient felt discomfort. The radiograph was immediately taken without withdrawing the catheter from the bladder. In most cases the results shown by the cystogram corresponded accurately with the findings on opening the bladder. Small urethral tumors accompanying or following malignant bladder tumors were often overlooked; it was safe to consider them malignant as the bladder tumor. If the tumor was confined to the bladder it might be suitable for removal by radium. Radium fairly consistently controlled hemorrhage, and might be used for this purpose even though the tumor had gone beyond the bladder. The question was often asked "even if there is no hope of cure, will not radium retard the tumor growth so the patient may live longer and more comfortably?" Undoubtedly this was true now and again. The cases in which radium did this were few, however, the failures so many that it was unwise to give radium therapy in those cases in which there was no hope of removing the tumor from the bladder. Papillomata and papillary carcinomata reacted variously to radium, although as a rule papillary carcinoma seemed to be more sensitive to radium than papillomata. Indurated carcinomata were best destroyed by implanting throughout the indurated area small bare tubes of radium. These bare tubes were very caustic, and very local in their action, extending over an area of about 1 cm. In using them even with great accuracy it was possible to miss some carcinomatous area. Therefore they used a combination of the bare tubes (in the depth) and the screened radium (on the surface) in every case of indurated carcinoma. Radium treatment was applicable to *intravesical growths* confined to and around the bladder neck, papillomata, pedunculated papillary growths, carcinoma of pedicle that could be reached, infiltrating sessile growths of no more than 2 cm. in diameter; to *suprapubic growths* other than the above and without metastasis and extensive infiltration of bladder wall. Large and multiple tumors offered an indication for section, to which all doubtful cases were submitted. By means of a flexible spring holder used through the sheath of the Brown-Buerger operative cystoscope a hundred or more millicuries of unscreened radium might be held up against the tumor for the period of half an hour while the tumor was being observed through the cystoscope. This might be repeated every two weeks or less often if the tumor was disappearing satisfactorily. If the tumor looked solid or hard or had a base which appeared indurated a radium needle screened simply by the steel of the needle might be thrust into its base. Needles of from 50 to 200 mg. might be used for a period of time up to forty minutes. After describing other methods of applying the radium to meet the different types of intravesical growths mentioned above, Dr. Barringer discussed the suprapubic application of radium in extensive carcinoma. Because they were unable to cope with extensive carcinoma of the bladder by the intraurethral method, in June, 1919, they began to open the bladders of selected cases and implant radium directly into the carcinoma. The technique of opening the bladder was described in detail. When the tumor was exposed it was sponged as little as possible to prevent bleeding and spreading of tumor cells. Any protruding portions of the tumor were snared off, using a simple wire snare. Indurated parts of the tumor were implanted with radium by means of needles thrust into them with bare tubes (0.5 mc.) of radium, using two of these to the square centimeter. These bare tubes were not put in the normal mucous membrane, but within about a quarter of a centimeter of the edge of the tumor. Finally surface radiation by means of tubes of radium screened by a half millimeter of silver and two millimeters of rubber and attached to a string were packed over the surface of the tumor and held in place either by gauze packing or little hooks on the silver tubes or both. A string was attached to these tubes, and they were pulled out after an appropriate time. Before introducing the tubes a can of ether was emptied into the bladder to kill any stray tumor cells. The bladder was closed with plain catgut, the strings of the radium tubes and the packing coming out through the small opening left in the bladder. Two cases operated on in this manner were reported.

Radium Treatment in Carcinoma of the Uterus.—Dr. HAROLD BAILEY made this presentation, which consisted of a lantern slide demonstration of the technique employed at the Memorial Hospital in the application of radium in uterine cancer together with a comparison of the results of radium treatment of carcinoma of the uterus by the methods employed in 1915 and 1916, when only small amounts of radium were used, and those in use at the present time, when massive doses of radium were employed. When they began to use the radium treatment in 1915 they thought their results were fair, but there were not living to-day 10 per cent. of those treated at that time. Massive doses were very much more efficient as shown by the statistics for 1920 and 1921. Unquestionably with the introduction of further refinements in technique there would be a still greater improvement in results.

Significance of "White Bile."—So-called white bile has been variously interpreted. It has been seen in obliteration of the common duct with dropsy of the gall bladder. Products are present which are unrelated to any of the normal biliary constituents. It is thought that a fluid produced by degeneration of the epithelium dialyzes with the blood, thus adding new substances to the contents of the bladder.—*La Medicina Ibera.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June, 1921.

(*Concluded from page* 921.)

OBSTETRICS

1. What bones form the anterior, lateral, and posterior walls of the true pelvis?
2. At what period of pregnancy do abortions usually occur? What are the paternal causes?
3. What is eclampsia? Describe the treatment.
4. What are the causes of prolonged labor?
5. What are the causes of rupture of the uterus? What are the indications in the treatment of rupture?

GYNECOLOGY

6. Describe both the round and the broad ligaments.
7. Give the gross anatomy of the ovaries.
8. Differentiate pelvic hematocele from fibroid tumor of the uterus.
9. Give the etiology of amenorrhea and its symptoms.
10. Give the pathology of carcinoma uteri and the etiology.

SURGERY

1. Give signs and symptoms of popliteal aneurysm.
2. Give differential diagnosis of dislocation of hip (femur) from fracture of surgical neck of femur.
3. Give signs and symptoms of intestinal intussusception.
4. Give etiology and symptoms of cerebral abscess.
5. Give symptoms of acute osteomyelitis.
6. What conditions demand amputation of an extremity?
7. What are the sources of wound infection?
8. Define entrocele; epiplocele.
9. What are the causese of hemorrhoids?
10. What are the causes of nonunion in simple fractures?

HYGIENE

1. How would you prevent the spread of smallpox in a hotel?
2. What directions should a practicing physician give to prevent the spread of whooping-cough?
3. What conditions of ill health make residence in high altitudes dangerous? Why?
4. State physical condition that makes the practice of taking a hot bath inadvisable.
5. What diseases are communicable to man through cow's milk?

MEDICAL JURISPRUDENCE

6. State causes for which a license to practice medicine can be revoked.
7. Describe the Harrison Act as it applies to the practice of medicine.
8. What do you understand by "Vital Statistics"? Their scope and purpose.
9. State what you understand by the term quarantine.
10. State method for post-mortem for death following abortion. How would you determine if criminal abortion?

ANSWERS.

OBSTETRICS.

1. The *true pelvis is bounded* in front and below by the symphysis pubis and the superior rami of the pubes; above and behind, by the sacrum and coccyx; laterally by the ischium and ilium.

2. Abortions occur most frequently at about the second and third months. *Paternal causes of abortion:* Syphilis, old age, precocity, debility, tuberculosis, alcoholism.

3. "*Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death.

Preventive treatment: Every pregnant woman should be under the observation of a physician; her general health, hygiene, diet, and exercise must be supervised; the urine must be regularly examined every week or even every day, if necessary; the quantity of urine voided, the amount of solids, and the presence of albumin and casts are to be noted; the woman should report at once any headache, disturbances of vision or digestion, or edema; her blood-pressure should also be observed.

Treatment of pre-eclamptic toxemia: Hot baths, diuretics, calomel or salines, plenty of water to drink, irrigation of the colon, elimination from the diet of meat (the patient should be fed on milk, fish, green vegetables, chicken, etc.), the blood-pressure may be reduced by the use of veratrum, chloral, or nitroglycerin.

Treatment after convulsions have developed: Administration of an anesthetic, and emptying the uterus as promptly and safely as possible.

4. *Causes of prolonged labor:* Defect in the uterine muscle or its innervation, exhaustion of the uterus, twin pregnancy, hydramnios, hemorrhage, premature rupture of the membranes, uterine inertia, obstruction.

5. RUPTURE OF THE UTERUS. *Etiology:* Pathological conditions of the uterus, cicatricial tissue in the uterus, obstructed labor, contracted pelvis, malposition of the fetus, and violent operative procedures.

Treatment of rupture of the uterus: "After rupture has occurred, especially if it be 'complete' and extensive, and the child should have escaped, wholly or in great part, through the rent into the abdominal cavity, laparotomy should be done at once, child, placenta, blood clots, etc., being removed through the abdominal incision; then, peritoneal cavity cleansed with hot saline solution; the rent in the uterus repaired by suture; or in case of an infected uterus, or one that will not contract, or in which the rupture cannot be well secured, the entire uterus should be removed."—(King's *Obstetrics.*)

GYNECOLOGY.

1. The *broad ligaments of the uterus* are formed of a double layer of peritoneum passing from the surfaces of the uterus to the sides of the pelvis. Between the two layers of this ligament on each side are the Fallopian tube, the round ligament, the parovarium, the ovary and its ligament, uterine and ovarian vessels, nerves and lymphatics.

The *round ligaments of the uterus* are two cord-like bands, one on each side of the uterus, attached to the body of the uterus just below and in front of the entrance of the Fallopian tubes. Each ligament runs forward and outward, between the layers of the broad ligament to the side of the pelvis. It turns round the inferior epigastric artery and passes through the internal inguinal ring, into the inguinal canal, and out at the external inguinal ring, to become inserted into the labium majus.

2. The *ovaries* are two in number, and correspond to the testes in the male; they are of a flattened ovoid form, vertically placed in the posterior part of the broad ligament. By its anterior border the ovary is connected to the broad ligament, and by its lower pole to the uterus by a proper ligament, extending to the superior angle of the uterus, and called the *ligament of the ovary.* The lateral surfaces and posterior borders are free. The superior pole and posterior border are embraced by the Fallopian tube; on its inner surface it is in relation with small intestine in Douglas' pouch, and externally lies in a peritoneal fossa between the external and internal iliac vessels as they diverge. The vessels enter the hilum at the attached anterior border.—(*Aids to Anatomy.*)

3.

SUBSEROUS UTERINE FIBROID.	HEMATOMA AND HEMATOCELE.
1. No history of recent pregnancy.	1. Frequently history of previous pregnancy.
2. Slow, continued development.	2. Sudden development.

SUBSEROUS UTERINE FIBROID.	HEMATOMA AND HEMATOCELE.
3. Consistency, firm, rarely soft.	3. Consistency at first fluctuating, later doughy.
4. Sharply circumscribed tumor.	4. Ill-defined tumor.
5. Exploratory puncture negative.	5. Exploratory puncture —blood obtained.

—Findley's *Diseases of Women.*

4. *Amenorrhea* is absence of menstruation. It is *physiological:* Before puberty, during pregnancy and early-lactation, and after the menopause. It may also be due to: Absence or imperfect development of the generative organs; also to stenosis, obstructions, or atresia of the genital tract; also to operative removal of the uterus or its appendages. Other causative factors are: Acute infectious diseases, anemia, chlorosis, obesity, drug habits, alcoholism, overstudy, lack of exercise, exposure to cold, and various emotional causes.

5. CARCINOMA OF UTERUS. *Pathology:* Cancer of the body occurs in less than 2 per cent. of all cases. It is more frequent in nulliparæ than carcinoma cervicis, and tends to occur rather later in life than cancer of the cervix. The disease begins superficially or deeply in the mucosa. Epithelioma, malignant adenoma, adeno-carcinoma, and pure carcinoma are found, the latter being of the scirrhous or medullary type. In the malignant adenoma there is an atypical proliferation of the glands; they become folded up irregularly; the intervening connective tissue may be very scant, and the gland spaces may touch at points. They are lined with a single layer of columnar epithelium. In the adeno-carcinoma, parts may show the structure of the malignant adenoma, and parts that of the ordinary cancer where the loculi are filled with epithelial cells. These growths form swellings in the wall. When near the cavity, the mucosa may ulcerate over them. Gradually the uterus becomes excavated. Adhesions may form with adjacent structures, and secondary deposits develop in the peritoneum, ovaries, tubes, vagina, etc. The epithelioma may grow diffusely through the whole cavity, or as an isolated fungoid growth, which may become polypoidal. Metastatic nodules may form in different parts of the uterine wall. These tumors are covered with layers of polyhedral cells; very rarely pavement epithelium is found like that in ordinary epithelioma. The mucosa of the body gets thinned."—(*Webster.*)

Etiology of cancer of the uterus: "The causes of cancer are unknown; the predisposing or favoring conditions are as follows: (1) *Age*—the disease occurs most frequently between forty and fifty. The extreme limitations are between eight and seventy-six. (2) *Heredity*—an apparent predisposing cause. (3) *Social state*—more frequent among the poor and ignorant. (4) *Race*—relatively rare among negroes. (5) *Trauma of labor*—laceration of the cervix a possible predisposing cause. (6) *Endometritis* and *endocervicitis* are said to be favoring conditions."—(Dudley's *Gynecology.*)

SURGERY.

1. *Popliteal aneurysm* "occurs almost invariably in men, constituting a pulsating tumor in the ham, rendering the knee painful and stiff, and so much do the symptoms resemble those of chronic rheumatism that in every such case the popliteal space should be examined. The limb is usually kept semiflexed, and the aneurism often increases rapidly in size. If the main swelling is situated to the front of the vessel, there is some likelihood of the knee-joint becoming implicated, and neighboring bones carious; when it extends posteriorly, diffusion is not uncommonly followed by gangrene, on account of the pressure exercised, not only upon the vein, but also upon the articular branches of the popliteal artery, which are most important factors in maintaining the collateral circulation. The *diagnosis* has to be made from chronic enlargement and abscess of the popliteal glands, but in these there is less disturbance of the circulation in the foot; from bursal tumors, by their want of mobility and pulsation; or from solid tumors, *e.g.* pulsating sarcoma of the femur or tibia, by attention to the general principles already enunciated."—(Rose and Carless' *Surgery.*)

2. In the fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, e.g., on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture. In fracture there is shortening and outward rotation.

3. Acute intussusception is most common in children. It begins suddenly with severe abdominal pain and vomiting. Blood-stained mucus is passed, perhaps with tenesmus. Collapse soon comes on, and may be fatal in twenty-four hours; otherwise death occurs in a few days from peritonitis. In most cases a "sausage-shaped" tumor can be felt, usually along the course of the colon, but lower down, or just above the pubis. The right iliac fossa feels empty. A natural cure may follow, but rarely, from sloughing of the intussusceptum, whilst the peritoneal cavity is protected by adhesions uniting the entering and ensheathing layers.—(*Aids to Surgery.*)

4. CEREBRAL ABSCESS. — *Etiology:* "Pyogenic infection is the cause in all cases, and the commonest method is by spreading from chronic otorrhea. Other cases are traumatic in origin, as in septic compound fractures and penetrating wounds, the frontal and parietal lobes being then chiefly affected. The commonest seat of abscess in the brain, due to middle-ear disease, is the cerebellum. The next most common seat is the temporo-sphenoidal lobe. The suppuration may extend directly through the tegmen tympani, the membranes and brain becoming first adherent to it; but usually there is a healthy area of brain intervening, so that the extension of infection has been along the course of vessels and lymphatic sheaths running between the brain and the middle ear. Similar abscesses rarely follow suppuration in the frontal, sphenoidal, and ethmoidal sinuses, and thrombosis of the cavernous sinus. Pyæmic and chronic tuberculous abscesses also may occur. An abscess in the brain is usually chronic, but terminates in compression, either from the onset of spreading œdema or rupture into one of the lateral ventricles.

"The *symptoms* in traumatic cases are acute and, as there is usually diffuse meningitis, there is intense pain, fever, and rigors, coma quickly supervening. In the more common chronic cases the symptoms are often vague in the early stages, but when well marked consist in signs of intracranial pressure. 1. The *headache* and tenderness are severe and localized to the site of the abscess. 2. The *temperature* is subnormal, unless there is associated meningitis. 3 The *pulse* is markedly slowed, even down to 30 or 40. 4. The patient is quite intelligent, but *cerebration* is very slow; vomiting and optic neuritis are usually present. 5. *Motor symptoms* may occur if the abscess is in the anterior part of the temporo-sphenoidal lobe, either irritative or paralytic. If the cerebellum is affected, there is giddiness both while walking and lying down, together with weakness of the hand grip and increase in the knee jerk on the side affected. Lateral nystagmus often occurs.—(*Aids to Surgery.*)

5. ACUTE INFECTIVE OSTEOMYELITIS.—"*Symptoms:* The disease begins with a rigor, high temperature, and severe pain. The part becomes swollen, infiltrated, and congested, with distended veins over it. The pulse is rapid and small and the tongue dry, and delirium soon comes on. It should be distinguished from acute rheumatism by the fact that the interarticular and not the articular region is affected. Fluctuation can be detected if the bone be superficial, or the abscess may burst on the surface. The bone is then found to be bare over the extent of the abscess cavity. When the bone is deeply seated or the disease confined to the medulla, the swelling is later in evidence, but the pain and toxemia are very severe, and the child may die from this before local signs show themselves. When the epiphysis is attacked, septic arthritis often quickly follows, and a loose flail joint may result."—(*Aids to Surgery.*)

6. *Conditions which justify amputation of a limb* are: "Any injury, disease, or malformation rendering reten-

tion of the limb incompatible with life or comfort; avulsion of limb; compound fracture; compound dislocation; fracture with great comminution of bone; laceration of important vessels; extensive contusion; extensive laceration; gunshot injuries; aneurysm; effects of heat and cold; gangrene; extensive bone disease; tumors; elephantiasis; tetanus; snake bite; deformities."—(Bickham's *Operative Surgery.*)

7. *The sources of wound infection*, are: The clothes, skin, hair, and sweat glands of the patient; the hands of surgeon, nurse, or friends; the dressings and instruments which come in contact with the wound; the mouth, teeth, intestinal, respiratory, and genital tracts of the patient.

8. An *enterocele* is a hernia which contains a part of the intestine.

An *epiplocele* is a hernia which contains omentum.

9. *Hemorrhoids are due* to dilation of hemorrhoidal veins, pressure, constipation, pregnancy, pelvic and abdominal tumors, stricture of rectum, cirrohosis of liver.

10. *Nonunion of fracture is caused by:* Ill health, want of approximation of the end of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility.

HYGIENE.

1. *To prevent the spread of smallpox in a hotel:* The patient should be isolated and strictly quarantined. All who have been in contact with the patient since the eruption must be vaccinated unless they have been vaccinated within one year. Those who refuse to be vaccinated must be quarantined for 20 days. The case must be reported to the Board of Health, and its orders must be carried out.

2. *To prevent the spread of whooping cough:* "The prevention of the disease consists in keeping the sick at least five feet away from the non-immunes. There is only a slight chance of infection after a patient has been isolated three weeks. The disease is not extremely infectious, and less than a third of exposed children catch it. The complete prevention depends upon the recognition of all cases before the whooping stage, for the bacilli are expelled for days before the whooping begins. When whooping cough is epidemic, it is necessary to isolate every child with a cough or apparent cold in the head."—(Overton and Denno's *Health Officer.*)

3. *"The contraindications to the high altitude resorts* are: (1) Advanced age; (2) the septic state, in which the disease is active and pyrexia constant; (3) double cavities with or without pyrexia; (4) cases in which there is great irritability of the nervous system; (5) diseases of the liver, kidney, or heart; (6) diabetes; (7) great loss of pulmonary tissue; (8) emphysema." (*Reference Handbook of the Medical Sciences*). The atmospheric pressure is diminished, and the air is rarefied.

4. *Physical conditions that make the practice of taking a hot bath inadvisable:* Organic diseases of the heart and brain, aneurysm, acute inflammations, and tuberculosis.

5. *Diseases which are communicable to man through cows' milk:* Typhoid, tuberculosis, scarlet fever, diphtheria, and septic sore throat.

MEDICAL JURISPRUDENCE.

6. *Causes for which a license to practise medicine can be revoked, in New Jersey:* "Chronic and persistent inebriety, the practice of criminal abortion, conviction of crime involving moral turpitude, or for publicly advertising special ability to treat or cure chronic and incurable diseases, or where any person shall present to the board any diploma, license, or certificate that shall have been illegally obtained or that shall have been signed or issued unlawfully or under fraudulent representations."

7. *The Harrison Act, as it applies to the practice of medicine*, provides that physicians must keep a record of all drugs dispensed or distributed which contain opium or coca leaves or their salts or compounds or derivatives or preparations; this record must show the amount dispensed or distributed, the date, the name and address of the patient, except in the case where the physician is personally attending such patient at the time; these records are to be preserved for two years; and the physician must be specially registered under the Harrison law.

8. *Vital statistics* is the science of figures applied to the health history of countries, and the study of the laws that govern the physical conditions of mankind. It deals with births, marriages, and deaths, the diseases from which people die or suffer; and it takes into consideration age, sex, and occupation of individuals. It gives information as to the health of the people and the good or evil conditions affecting them; it shows the fatality of different diseases at different ages; and it indicates the influence of professions, trades, locality, and age on the well being of a community.

9 By the term *Quarantine* is understood "the adoption of restrictive measures to prevent the introduction of disease from one country or locality into another."

10. It may be impossible to determine whether the woman had died from the effects of a criminal abortion. The vagina and uterus should be examined for marks of injury by the use of instruments. Wounds on the walls of the vagina would indicate the use of instruments, most probably by an inexperienced hand; while perforations of the neck of the womb, and sometimes of its fundus, indicate the use of pointed instruments, very possibly in the hands of a professed abortionist. In some instances a blunt instrument, such as a catheter, is employed; and the instrument may pass up between the membranes and the uterine walls, and tear the placenta, producing internal hemorrhage, and ending fatally. In cases of instrumental violence there will frequently be discovered marks of metritis and peritonitis. The stomach and bowels should likewise be carefully inspected for signs of irritant poisons (abortives), such as redness and the remains of the various reputed abortives, as powdered cantharides, savin, ergot, etc.; also for the oils of savin, tansy, pennyroyal, etc.; the latter may sometimes be recognized by the odor, or they may be separated by distillation or by ether.—(From Reese's *Medical Jurisprudence.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

MIKROMETHODIK. By LUDWIG PINCUSSEN. 116 pages. Price M. 28. Published by Georg Thieme, Leipsic.

DISEASES OF THE SKIN. By RICHARD L. SUTTON, M. D. 1132 pages with 969 illustrations and 11 colored plates. Price, $9.50. Published by C. V. Mosby Company, St. Louis.

ASMA BRONCHIALE. By PROF. CESARE FRUGONI. 88 pages. Published by G. Devoti, Salò, Italy.

MODERN ITALIAN SURGERY By PAOLO DE VECCHI, M. D. 249 pages with 15 illustrations. Price, $5.00. Published by Paul B. Hoeber, New York.

SELF-DEVELOPMENT. By H. ADDINGTON BRUCE. 346 pages. Price, $1.50. Published by Funk & Wagnalls, New York.

SURGICAL AND GYNECOLOGICAL NURSING. By Drs. E. M. PARKER and S. D. BRECKINRIDGE. 435 pages with 134 illustrations. Price, $3.00. Published by J. B. Lippincott Company, Philadelphia.

OM BLODNING VED PLACENTAS LOSNING. By TRYGVE HESSELBERG. 180 pages with illustrations. Published by Steenske Boktrykkeri, Kristiania.

SKILOPERFRAKTURER. By OLAV USLAND. 75 pages. Published by Steenske Boktrykkeri, Kristiania.

BISMARCH, NIETZSCHE, SCHEFFEL, MORIKE By Dr. A. MULLER. 102 pages. Price, M. 19. Published by A. Marcus & Webers, Bonn.

NOUVEAU TRAITÉ DE MÉDECINE. Fascicule VII, Avitaminoses: Maladies par Agents Physiques; Troubles de la Nutrition. Edited by Dr. G. H. ROGER, FERNAND WIDAL, P. J. TEISSIER, and M. GARNIER. 522 pages. Published by Masson et Cie, Paris.

Medical History.

NEW BOOKS AND OLD.

XIX. MISS BRIGHTWELL'S LIFE OF LINNÆUS.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

ALL of us, I suspect, have our intellectual Yarrows yet unvisited. I have many, but up until late two in particular obsessed me. One, Linnæus, whose abbreviated name is so familiar to everyone doing any scientific reading whatever, and the other Plimsoll, not a physician at all, but the originator of the loading lines so fascinatingly displayed on the sides of freight-carrying vessels and so familiar to all travelers by sea. Of the second gentleman who was not a physician I shall have nothing to say, but concerning Linnæus my curiosity got the better of me and I turned to a short biography written by Miss Cecilia Lucy Brightwell of Norwich, and published in 1858. This little volume was written for the layman rather than the physician, and it is small enough to be read in an hour or a little more. It gives one a very good idea of the botanist-physician whose name is well-nigh imperishable through the many plants which he named during his long years of botanical investigation.

Carl Linnæus descended from a line of peasant ancestors whose name is reputed to have its origin in the name of a remarkably fine linden tree growing near their native place. His father was a minister in Stenbrohult on the banks of Lake Möklen. Carl was born in 1707 and was destined for the ministry, but his strong love of botany, which developed in early childhood, led him to prefer scientific studies. While still a student of the gymnasium he started a library on his favorite subject, and he mentions owning at this time *Chloris Gothica* of Bromelius and Rudbeck's *Hortus Upsaliensis*. His father was in despair and was on the verge of placing him as an apprentice to some tailor or shoemaker when a conversation with Dr. Rothman, the provincial physician and also a lecturer in physics, led to young Carl's entering the doctor's house for the remaining year of his studies.

In 1727 Linnæus entered the University at Lund, where he lodged in the house of Dr. Stoboeus, professor of medicine, where he was soon accorded many favors. During the summer vacation his former benefactor, Rothman, persuaded him to quit Lund for Upsala, much to the disgust of Dr. Stoboeus. Without a protector and always very short of funds, he was reduced to great poverty. Chance led to an acquaintance with Dr. Olaf Celsius, who soon after offered him board and lodging in his own house and allowed him the full use of his library, which was very rich in botanical books. When he was about twenty-two the idea of a systematic botanical classification dawned upon him and gradually was worked into a state of high perfection. An essay on the sexes of plants led to his being appointed to lecture in the botanical garden as an assistant to Dr. Rudbeck, who afterward engaged him as a tutor to his children. Here he began his *Bibliotheca Botanica*, *Classes Plantarum*, *Critica Botanica*, and *Genera Plantarum*. These works were completed some seven years later and published during his stay in Holland.

His way, while smoother, was not without its difficulties, and certain enmities and rivalries led to his undertaking a journey into Lapland. Rudbeck, his benefactor, had made one scientific expedition into Lapland, but the results of his work were destroyed in the fire at Upsala in 1702. Early in 1732 Linnæus started on his perilous journey, traveling over the greater part of Lapland, following the boundaries of Norway and returning to Upsala by the eastern side of the Gulf of Bothnia. This was a journey of nearly four thousand English miles, which he covered chiefly on foot, suffering untold hardships and privation, but from a scientific standpoint it afforded him most satisfactory results in that he collected about one hundred plants which he described for the first time. He gave an account of this expedition in a work entitled *Lachesis Lapponica*, which was subsequently translated into English and which contains graphic accounts of some of his adventures.

Linnæus had a habit of affixing the names of his friends to various plants. His own name he gave to a modest little flower found in great abundance in West Bothnia, which he called "Linnæa borealis."

On this journey he learned the art of assaying from a chance companion and on his return to Upsala started a private course of lectures on this subject which secured him a number of pupils.

His old enemy, Rosen, again used his interest to thwart the endeavors of Linnæus, so that he later turned his attention to mineralogy with such zeal that he was chosen by the Governor of Dalecarlia to head a commission to investigate the products of that province.

About this time, when he was twenty-nine, he became betrothed to the daughter of Dr. John Moroeus. The young lady's father made the young couple wait three years rather than have the girl marry a penniless student.

He now decided to study medicine, and, having procured about £15, set out on his way to the University of Harderwyck. He journeyed through the southern provinces of Sweden, thence to Lübeck and to Hamburg, thence to Amsterdam and he finally reached Harderwyck, and, after undergoing the necessary examinations, he obtained his degree on June 23, 1735, at which time he published and defended a thesis on the "Causes of Intermittent Fever." This he dedicated to his friends, and, remarkably enough, added among the names that of his old enemy, Rosen. While in Holland he met Gronovius, who was so delighted with his *Systema Naturæ* in manuscript that he had it printed at his own expense. On the advice of Gronovius, Linnæus called on Boerhaave, who, in showing the botanist his garden, was so struck with his knowledge of botany that he advised him to remain in Holland. Through Boerhaave he met Burmann, professor of botany in Amsterdam, and remained as his guest until the following year. During this period he printed his *Fundamenta Botanica*, thirty-six pages in the form of aphorisms. While the guest of Burmann he met Clifford, a wealthy banker, who possessed one of the finest gardens in the world. He employed Linnæus to arrange and describe his collection, and during the period which he remained with this patron he lived, as he himself

stated it, "like a prince." In 1736 Linnæus, still in the employ of Clifford, paid a visit to England for the purpose of securing botanical novelties for the collection. At Oxford he met the botanist Dillenius, with whom he spent a month, after having first met with scant courtesy.

Linnæus possessed singularly agreeable manners and a personality which enabled him to make friends. It is a mystery how he managed to get along so well, for he knew only his own language, did not learn Dutch, though he lived in Holland three years, and had to depend upon Latin for his intercourse with his scientific friends. But, despite this fact, he had a large circle of friends and correspondents, including Miss Jane Colden of America.

On his return to Holland he superintended the production of *Hortus Cliffortianus*. This was a magnificent work, describing the Clifford possessions. During this time he also saw some of his other works through the press. Overwork so undermined his constitution that he was taken with homesickness and decided to leave for Sweden, but before returning he paid a visit to Paris and on his journey he traveled through various parts of Germany and paid a visit to Haller at Göttingen. He went to Stockholm in September, 1738, and there he started the practice of medicine and underwent the usual painful period of probation, but soon, through a fortunate cure, he was introduced into a remarkable practice which kept him busy from four in the morning until late in the evening. During this time he was made a member of the Upsala Academy, the only one then existing in Sweden, and he was one of the founders and first president of a literary society in Stockholm. Through the interest of Count Tessin a salary of two hundred ducats per year was given him, with the understanding that he was to give public lectures on botany and mineralogy. This same generous person obtained for him, as Linnæus himself states, "a salary from the states, the appointment of physician to the Admiralty, the professorship of botany at Upsala, the title of dean of the college of physicians, the favor of two kings, and recommended me by a medal to posterity." Emboldened by his unusual success, he now persuaded Moroeus to consent to his marriage, which took place in 1739.

With Haller he had had some correspondence and he learned that this worthy scientist was about to oppose his new system. Linnæus, therefore, wrote to Haller, begging him to desist. Part of his letter ought to be placed on the desks of all the medical controversialists:

> What man (he asks) was ever so learned and wise, who, in correcting others, did not now and then show he needed correction himself? Something always sticks to him. I dread all controversies. Who ever fought without some wound or hurt? Time is too precious; and can be far better employed by us both. Besides, the serious contentions of our time may, fifty years hence, seem to our successors no better than a puppet-show; let there be peace between us!

Shortly after his marriage the death of Rudbeck vacated the chair of botany at Upsala. Linnæus was a candidate for the position, but it was given instead to his former rival, Rosen. Shortly after, however, Linnæus was appointed to the chair of medicine in the same university and made a private arrangement with Rosen by which he obtained charge of the Botanic Garden and the whole department of natural history. The Botanical Garden had fallen into decay. Formerly it had been in the most flourishing condition, but the fire of 1702 had almost entirely done for it. Under Linnæus it became the equal, if not the superior, of any botanic garden in Europe, and it was here that Linnæus lived in the old house that had been built by the Rudbecks. In 1745 he published the first edition of his *Flora Suecica* and in the following year the *Fauna Suecica*.

Linnæus as a lecturer attained great success; his hall before many years was filled to overflowing. He lectured on natural history, the medicinal properties of plants, dietetics, and, of course, botany. He attracted large numbers of students to the university, and its fame spread throughout Europe and even to America. During the period preceding his residence the average number of students was 500. This was increased to 1,500, but subsequently, after the death of Linnæus, the number gradually fell off to the usual 500. Through his interest a large number of young men started out on scientific expeditions, but misfortune and death attended almost all of these adventurers. His fame now spread through the entire scientific world, and he was made a member of most of the learned societies of Europe. In 1746 a gold medal of him was struck by some of his friends, and the year after he was made Dean of the College of Physicians.

His medical writings consist of a *Materia Medica*, published in 1749 for the use of his students, and two other works, the *Genera Morborum* and *Clavis Medicinæ*. An attack of gout, which he attributed to fatigue from overwork, led him to write the *Philosophia Botanica*. He believed he was going to die, and dictated this volume to a pupil who sat by his bedside ready to write down whatever the master had to say between his attacks of pain. He recovered, however, and continued his work in a most indefatigable manner.

In 1754 he published a large folio volume containing descriptions of rareties from the king's collection, which led to his being given the Order of the Polar Star, the first time such an honor had ever been conferred for literary merit. Shortly afterward the King of Spain invited him to Madrid, with the offer of pension for life, letters of nobility, and the free exercise of his religion. After he received his patent of nobility in Sweden he changed his name to Von Linné. The helmet which surmounted his crest was adorned with a spray of his own flower, *Linnæa*, and the motto on his coat-of-arms was "*Famam extendere factis*."

His masterpiece, the *Species*, was published in 1754, a remarkable work which contains a description of every plant known at the time it was published, arranged according to his own classification.

During the last fifteen years of his life he resided in summer time on an estate which he purchased at Hammarby in the environs of Upsala. In many ways a modest scientist, as Miss Brightwell says: "Linnæus's foible was vanity and inordinate desire of fame. This is nowhere more strikingly seen than in the pages of his diary . . . drawn up by him for the use of his intimate friend, Dr. Menander, Archbishop of Upsala, to serve as materials for a history of his life."

In 1764 he had an attack of pleurisy for which he was treated throughout by his old enemy, but now friend, Rosen, but he recovered from this, though he gradually began to fade, and some years later, in 1772, he resigned his office of rector of the university. On this occasion he gave an oration "On the Delights of Nature." In the spring of 1774 he had an attack of apoplexy, while lecturing in the Botanic Garden, which led to his giving up all active duties. Two years later a second attack paralyzed his right side and left him very much impaired as to his mental powers, but he lingered on until January 10, 1778, having rounded out a little more than the three score and ten.

His library and museum were eventually sold as a whole by his widow to Sir J. E. Smith for the sum of £1,029. This happened while the King of Sweden was away, and it is recorded that a vessel was dispatched by the Swedish Government to intercept the ship which was carrying away the treasures. The collection, however, reached England in safety, where it was eventually turned over to the Linnæan Society.

Such is the story of the father of botany, a life that is a record of great achievement and an inspiration for all followers of science.

The "Vinegar of the Four Thieves."—Boinet gives a brief account of this ancient remedy in *La Presse Médicale* for July 30, 1921, xxix, 61. Attention had recently been called to it in connection with the anniversary of the plague of Marseilles in 1721 which destroyed 50,000 citizens. Despite this fearful mortality the vinegar obtained considerable repute as an antipestous remedy. The formula given by the author of the article in question was not authentic. He took it from the Codex of 1758 which gives a formula entitled *"Acetum antisepticum vulgo des quatres voleurs."* This comprised wormwood, rosemary, rue, lavender, and numerous other aromatics. But this is not the true and original formula. Boinet is able to quote the earlier and authentic one as used in the Marseilles epidemic. It is indeed not so dissimilar to the one already given; some ingredients are identical while others belong to the same general class. The authentic formula orders a handful each of wormwood, queen of the meadow, wild marjoram, and sage, fifty cloves, two ounces each of elecampane, angelica, rosemary, and hoarhound, and one ounce of camphor. These are digested for 15 days in three pints of strong white wine vinegar, strained, and tightly bottled. When one is about to be exposed to the plague the vinegar should be rubbed on the temples, neck, ears, and hands. The Codex of 1758 modified the formula, adding rue, garlic, and other substances and omitting some. The name was derived from the fact that four thieves as a result of the use of this preparation, became immune enough to steal right and left from the houses of the plague-stricken. While they originally might have sung "we are four," their numbers were soon greatly augmented. It is quite obvious that the benefit was obtained by keeping away the infected fleas which are now known to transmit the disease. The formula was officially made public at the time of the epidemic by the alderman of Marseilles.

Ancient Lyons Surgeons.—The city of Lyons was during the Middle Ages the gateway between Southern France and Italy, and as such became a good town in which to practise medicine, despite the absence of a university. When the great Lanfranc was banished from Milan in 1280, he went first to Lyons where he practised surgery for a considerable period. Two hundred years later, or soon after the invention of printing, his book on surgery was first translated into the French idiom by a local surgeon, Maitre Yvoire.

The justly celebrated successor of Lanfranc, Guy de Chauliac, practised medicine and surgery in Lyons for the greater part of his life. He only left, in 1348, to accept the appointment of first physician to Pope Clement VI, at Avignon. He died in his home town in 1368, leaving the reputation of being the "Father of French Surgery," a title also conferred unofficially two centuries later on Ambroise Paré. He fought always for the betterment of surgery.

The barber-surgeons were most contemptuously regarded by the physicians of the day, and the latter cunningly saw an opportunity for nonattendance on plague cases by throwing the work upon the barber-surgeons. During the epidemic of bubonic plague in 1628 the physicians stated in substance that since the victims required venesection and the lancing of buboes, it was clearly a case for the barber-surgeons, who normally attended to these minor interventions. The result was that of the 150 barber-surgeons of Lyons at least 70 perished from the disease during the space of two months. In the same year the master surgeon Louis Panthiot, performed a cesarean section and saved mother and child. In doing this operation he faced excommunication, but seems to have escaped it. The other surgeons of the day, even Paré, had pronounced the operation invariably fatal.

This case did so much to raise the status of the surgeon that it was not long before the position of chief surgeon to the Hotel-Dieu came to be regarded an honor.—*Le Progrès Médical.*

History of the Paris Medical Faculty.—Charlemagne originated a movement for medical instruction, evidently on a very small scale, and the original faculty was established in 1270. Originally both teachers and pupils were ecclesiastics. The dissociation of Church and State was not complete until 1452 when medical men were for the first time allowed to marry. For centuries there were no special buildings. Students sat on the ground or on bundles of straw while the teachers interpreted Hippocrates and Galen. In the XVIII century arose the College of Surgeons, a body of workers which was a distinct advance over a body composed of mere rhetoricians. A fierce quarrel arose between these factions and persisted until the King gave the precedence to the medical faculty by lowering the grade of the surgeons, the latter having the status of "demonstrators" and being forbidden to wear the gown. In the Revolution both bodies were suppressed and the *École de Santé* was created, which included both medical and surgical professors. Napoleon changed the title of the school to Faculty of Medicine. The 12 chairs of 1808 have now increased to 42.—*Gazette des Hôpitaux.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 24. Whole No. 2666. | NEW YORK, DECEMBER 10, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

CASES OF GALL-BLADDER LESIONS STIMULATING OTHER AFFECTIONS OF THE DIGESTIVE TRACT.*

BY MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF MEDICINE AT THE NEW YORK POSTGRADUATE MEDICAL SCHOOL.

GALL-BLADDER lesions have been of late more frequently recognized than formerly. This is due to our advanced methods of diagnosis.

In gallstones a typical history (short severe attacks of pain in the upper abdomen, usually radiating to the back and the right shoulder with long intervals of freedom) is of prime importance and frequently sufficient to make a probable diagnosis. An *x*-ray picture of the gall bladder and discovery by it of shadows in this region is of great assistance. The newest aid is the direct examination of the bile as obtained from the duodenum in the fasting condition. In most instances of a pathological gall bladder abnormal conditions will be discerned in the bile bearing testimony of disease. The main features are turbidity of the fluid and (microscopically) mucus, pus corpuscles, bacteria, numerous cholesterin and calcium bilirubin crystals.

Some of the gall-bladder lesions run in disguise and simulate other affections. In this paper I shall describe three cases, one that resembled cancer of the stomach, another that typified duodenal ulcer, and a third in which a diagnosis of intestinal obstruction had been made, by competent physicians. In all these cases the correct diagnosis had been established before the operation by the direct examination of the duodenal contents, showing the importance of this method of examination.

I may be allowed to describe these three cases which I have observed within the last six months:

CASE I.—March 20, 1921. Mrs. Louise C., 50 years old, complains of epigastric distress and vomiting. The previous history is as follows: In November, 1920, the first symptom was rather sudden vomiting of food almost immediately after taking it. There was very little nausea preceding the ejection of everything that was taken. After the stomach was empty the patient could return to the table and eat food which at times was retained. At the beginning the patient was awakened frequently with a sudden desire to vomit—liquids only, but not food. The patient usually vomited a tumblerful of liquid. This brought immediate relief and the patient went back to sleep at once. After being placed upon a diet for two to three months, the symptoms were alleviated somewhat but vomiting persisted at intervals. Later on the patient developed a gnawing sensation when hungry, which was relieved by drinking hot milk (hunger pain). At times there was a feeling as though the food was not passing down properly, and a sensation of a lump in the chest. These symptoms persisted until the patient was admitted to the hospital. The loss in weight was 30 pounds in five months.

Present condition: The examination of the abdomen reveals a somewhat dilated stomach and slightly enlarged liver. The swallowing sound is absent. Examination with a bougie (43 F.) reveals a resistance at 16 inches from the lips.

A diagnosis of stricture of the cardia was made, and it was necessary to ascertain whether we had to deal with a neoplasm or with a spasmodic contraction of the cardia.

In order to elucidate this point the duodenal bucket was given after previous administration of atropine. The bucket passed the cardia and pylorus, showing bile at the string from 24 inches downward and no blood stains.

Patient was put on belladonna medication and subjected to the routine examinations.

The gastric contents, after an Ewald-Boas test breakfast, revealed: HCl =0; acidity = 4; rennet absent, no blood, no lactic acid; in the fasting condition the stomach was empty.

The duodenal contents obtained in the fasting condition on April 9, were dark yellow and slightly turbid; they contained cholesterin and calcium bilirubin crystals, mucus, bacteria, and all the pancreatic ferments.

The *x*-rays showed a dilated stomach and a filling defect in the pyloric portion.

The urine was negative and the blood showed a secondary anemia.

Taking into consideration the comparatively short period of disease about 4 or 5 months, the steady persistence of symptoms, and the great loss of weight (30 pounds), the possibility of malignancy had to be thought of. The dysphagia, although due to cardiospasm, did not exclude a neoplasm of the stomach—which is rather a frequent occurrence in the latter condition. The *x*-ray, likewise, did not exclude malignancy. The duodenal contents examination and the gastric analysis rather pointed toward a benign condition, namely: cholecystitis with the possibility of stones and achylia gastrica and cardiospasm as secondary conditions.

An operation for the removal of the gall bladder and a thorough exploration of the abdominal cavity appeared to be the correct procedure to pursue. After a consultation with Dr. Hynes, who kindly referred the patient to me and Dr. Willy Meyer, we all agreed on the above procedure.

Dr. Willy Meyer operated upon the patient April 9, 1921. The gall bladder was found adherent to the liver and duodenum, and contained very turbid bile and innumerable small, black stones of poppy-seed size. The latter could not be discovered by palpating the bladder with the fingers.

After opening the vesicula fellea these tiny stones were discovered (see Fig. 1). No neoplasm was found, and patient made an uneventful, smooth recovery. She enjoys perfect health now.

CASE II.—July 2, 1921. Fred. K., 51 years old, complains of epigastric pain.

Previous history: Had "inflammation of the bowels" fifteen years ago; otherwise no serious illness or operation.

Present illness began two years ago. Patient has

*From the Lenox Hill Hospital, New York.

had since then attacks of pain two or three hours after meals. These attacks would come periodically, varying from once a month to two or three times a week. The pains were located in the epigastrium and were relieved by taking food or bicarbonate of soda. The past three months the patient has been getting worse and

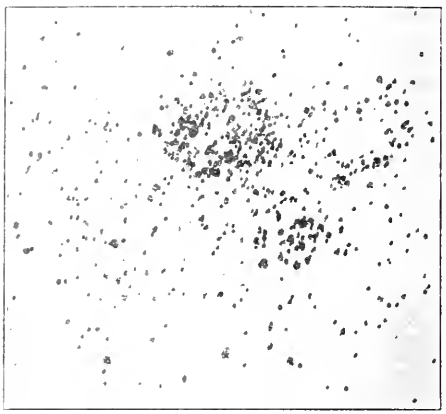


Fig. 1.—Small black poppy seed-sized concretions found in the gall bladder of Mrs. Louise C. 1½ natural size.

the attacks became more frequent. Patient was usually awakened at night by the pain. He never vomited, but belched gas continually. No blood was ever seen in the stools. The patient noticed his skin was yellow tinged before having the pain.

Physically the man was very well developed. Examination of the head, neck, heart, and lungs was negative. There was slight rigidity over the abdomen. There was no mass palpable and there was no tenderness over the gall-bladder region. The liver was slightly enlarged. At times McBurney's point was painful on pressure.

Gastric contents: HCl-; acidity =30; duodenal bucket test negative. There is bile on the string

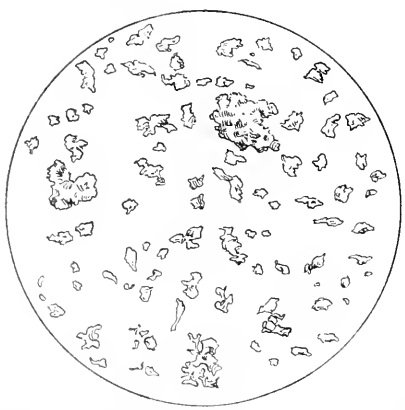


Fig. 2.—Harry B., March 24, 1921. In the fasting duodenal contents were found numerous cholesterin crystals of small and large sizes.

below 23 inches and no blood stains, indicating permeability of the pylorus and no signs of ulceration. The duodenal contents were examined on August 18, 1921, in the fasting condition, with the following result: Dark green, yellow, turbid; fatty acid and cholesterin crystals, mucus and pus cells; alkalinity =25; A = 6; S = 1; T = 2. The blood showed a leucocytosis of 10,000 white blood cells and 79 per cent polynuclears. The patient has lost considerably in weight (about 25 pounds).

Before he consulted me a diagnosis of duodenal ulcer had been made by his previous physician, principally

Fig. 3.—Big stone found in Harry B. on March 23, 1921, tightly closing up the cystic duct. Natural size.

based on the symptoms of hunger pain a few hours after meals. Taking into consideration the severity of the cramps at definite long intervals, and the result of the direct examination of the bile, a diagnosis of a severer form of cholecystitis, with the possibility of stones, was made. A chronic appendicitis was also assumed to be present.

Dr. Semken operated upon the patient August 22, 1921. The stomach and duodenum were thoroughly explored, and no evidence of ulcers or any other gross pathology was found.

The gall bladder was small, walls thickened, neck strictured; the mucosa showed a few superficial ulcers covered in places with yellowish looking dots of poppy-seed size, which were soft in character; in other places the mucosa was covered with mucus. The appendix was strictured and contained a few fecal concretions. Both appendix and gall bladder were removed.

A particle scraped with forceps from the roughened surface of the mucosa of the gall bladder showed cholesterin and calcium bilirubin crystals and mucus.

The patient made a good recovery.

Case III.—March 9, 1921. Harry B., 39 years old, was taken ill seven days ago with a severe attack of abdominal pains, accompanied by nausea. The attack lasted ten hours and was followed by vomiting for a whole hour. The pain was cramp-like in the abdomen and radiated posteriorly. There was also constipation, and the abdomen was considerably distended. There were repetitions of these symptoms extending over the seven-day period. The patient had never had any similar attacks before. The physician in charge made a tentative diagnosis of intestinal obstruction and sent

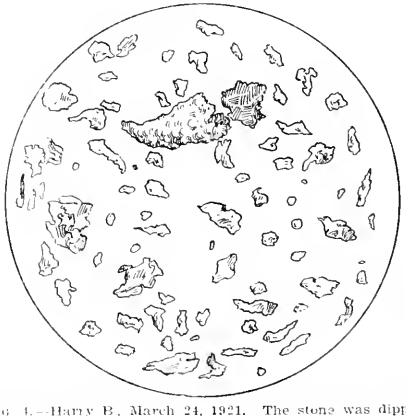


Fig. 4.—Harry B., March 24, 1921. The stone was dipped in water and drawn under some pressure over an ordinary slide. Microscopically big and small cholesterin crysta's were found resembling in detail those shown in Fig. 2.

the patient with this diagnosis to Dr. Willy Meyer's ward at the Lenox Hill Hospital. This eminent surgeon was not satisfied with the above diagnosis, and asked me to investigate the gall bladder and the gastro-intestinal tract.

I found the following: Abdomen slightly distended;

liver somewhat enlarged; lower border painful to pressure; McBurney's point likewise was tender to pressure; no muscular rigidity. The gastric contents revealed: HCl=46; acidity =81. The blood count did not show anything abnormal.

The duodenal contents were obtained in the fasting state on March 21, 1921: Pea soup appearance, yellow, turbid; alkalinity =10; 20 c.c. Microscopically, numerous cholesterin crystals of small and large sizes were found (see Fig. 2).

A diagnosis of cholecystitis, most probably due to stone, and chronic appendicitis was made. The patient was operated on March 23, by Dr. Willy Meyer. The cystic duct was tightly closed by a big stone (see Fig. 3), so that nothing could leave or enter the gall-bladder. After opening the latter the contents were found to have a reddish appearance and consisted of pus and red blood corpuscles mixed with mucus, without any bile.

A cholecystectomy and appendectomy were performed.

The pathological diagnosis was: Chronic hemorrhagic cholecystitis, cholelithiasis, chronic appendicitis. Culture of the bile was sterile.

The solitary stone was dipped in water and then drawn under some pressure over an ordinary slide. The microscopical examination showed big and small cholesterin crystals (see Fig. 4), resembling in almost every detail Fig. 2.

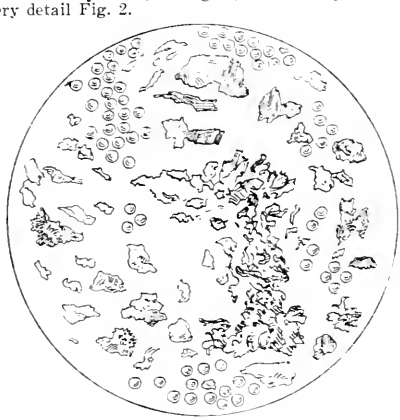


FIG. 5.—In the fasting duodenal contents of Morris E., March 3, 1921, were found numerous small and big cholesterin crystals and some pus corpuscles.

This shows the great importance the microscopical examination of the bile occasionally has with regard to diagnosis.

Although already mentioned in another place' I would add here that this particular case furnished a direct proof of the incorrectness of Lyon's theory that the dark bile frequently appearing after magnesium sulphate injection into the duodenum is "gall-bladder" bile. For in this particular case on March 21, two days preceding the operation the magnesium sulphate had been instilled into the duodenum and after a while a very dark bile was obtained, which looked characteristic of "gall-bladder bile." As it is evident from the findings at the operation the gall bladder did not contain bile at all, and was filled merely with pus, mucus, and blood. The dark reaction, therefore, was not due to the gall bladder but to the liver.

I speak of it here again, as it shows the importance of the examination of the fasting specimens, in preference to magnesium sulphate instillation.

Remarks.—Case I, Louise C., resembled cancer of the stomach in a great many aspects. The examination of the bile, however, in conjunction with the duodenal bucket string test pointed toward a gall-bladder lesion, which proved to be correct.

A few years ago I observed a similar case in whom in one of the best hospitals in New York City a diagnosis of cancer of the stomach had been made. A renewed examination under my care in the Post-Graduate hospital showed, however, that we had to deal with a gall-bladder disease and probably stones, which an operation by Dr. Willy Meyer revealed as correct. The gall bladder was found filled with over 200 small stones. No other disease was discovered at the operation, and patient made a good recovery and is still enjoying good health, five years after the operation.

Although cancer of the stomach is pretty easily recognized, the possibility of gallstones masquerading in disguise must be thought of, especially if there is no distinct tumor present and other signs of a neoplasm of the stomach are lacking.

Case II., F. K., resembled a case of duodenal ulcer; recurrent pains a few hours after meals, "hunger pains"; frequent attacks of gastralgia at midnight; the pains frequently of a severe character; long periods of intermission. Both the string test and the direct examination of the bile pointed to a diseased gall bladder. The operation fully confirmed this diagnosis.

Case III., H. B., likewise, did not present any distinct symptoms of gall bladder disease. As mentioned above, intestinal obstruction had been diagnosed by the family physician. The direct examination of the bile, however, indicated that the gall bladder was the seat af the trouble, which the operation confirmed.

All three cases then show the great importance we must attribute to the direct examination of the bile. The essential points are, if I am permitted to repeat it again, turbidity of the fresh bile, and the finding microscopically of mucus, pus corpuscles, numerous bacteria, and considerable quantities of cholesterin and calcium bilirubin crystals.

The presence of numerous large cholesterin crystals seems to indicate the presence of stones. In some of the cases slight scraping of the stone found at the operation gives a microscopic picture resembling very much the results encountered in the duodenal contents.

The question arises, are these numerous and considerably large cholesterin crystals a positive proof of gallstones or can they be met with without the actual presence of stones?

Before answering this question the following case may be briefly sketched:

CASE IV.—Maurice E., about 45 years old, was troubled with recurrent attacks of pains in the epigastrium, late after meals, relieved by the ingestion of food, for periods of four to six weeks' duration, with intervals of euphoria extending over six months, for the last six years. In addition he would also be seized about once every few months by very severe abdominal cramps radiating to the back and right shoulder, lasting six to twelve hours, and requiring hynodermics or morphine.

The examinations during the month of March, 1921, revealed a dilated stomach, hyperchlorhydria, a swollen liver, and very turbid bile, with numerous small and large cholesterin crystals, an exact sketch of which is given in Fig. 5.

A diagnosis of probable duodenal ulcer and cholecystitis with stones was made, and the patient was first treated with duodenal alimentation. When, however, after the course of treatment a new attack of cholecystitis appeared he was advised to be operated. Dr. I. F. Frost of Morristown, N. J., who kindly had referred patient to me, performed the operation. The findings I give in Dr. Frost's own words:

"Yesterday morning we operated on Mr. Maurice E. and found the following: Exposing the gall bladder, we found it to be firmly adherent to the duodenum by adhesions which were well organized, and extended to the extreme tip of the gall bladder, kinking the latter, as well as binding it to the duodenum. No gall stones were found, but the foramen of Winslow was completely blocked. A thorough investigation of the posterior surface of the duodenum revealed the site of an old ulcer entirely healed. After the adhesions had been separated we transferred a piece of omentum which entirely covered the raw area, thus separating gall bladder from stomach. The appendix was chronically inflamed and was therefore removed. Mr. E. is doing nicely."

It is evident that the above picture of numerous cholesterin crystals can occur in a case of cholecystitis without stones. The probability is that in the latter instance the concretions are small (sand like) and constantly leave the gall bladder and form again, so that they do not reach the dignity of a stone.

The last case mentioned is also of importance in showing the coexistence of duodenal ulcer, cholecystitis and appendicitis, an association not so rarely met with.

REFERENCES.

1. The Action of Various Salts and Other Substances on the Liver, After Their Introduction into the Duodenum, *N. Y. Med. Journal*, September 7, 1921.
2. On Gallstones, MEDICAL RECORD, April 2, 1921.

20 EAST 63RD STREET.

WRITERS' CRAMP AND ALLIED AFFECTIONS: THEIR TREATMENT BY MASSAGE AND KINESITHERAPY.

BY DOUGLAS GRAHAM, M.D.,

BOSTON, MASS.

PRESIDENT OF THE MASSACHUSETTS THERAPEUTIC MASSAGE ASSOCIATION.

"A damn'd cramp piece of penmanship as ever I saw in all my life. I can read your print hand very well, but here there are such handles, shanks and dashes that one can scarcely tell the head from the tail——

"It's very odd I can read the outside of my letters where my own name is well enough, but when I come to open it—it's all buzz. That's hard, very hard for the inside of a letter is always the cream of the correspondence."—*She Stoops to Conquer.*

OVERUSE of any group of muscles and nerves, especially in fine work requiring a high degree of delicate coordination of individual movements and voluntary impulses, as in writing, sewing, knitting, watchmaking, playing the piano, harp or violin, etc., gives rise to similar disturbances. So does also, but less frequently, excessive use of muscles in heavier occupations, such as painting, telegraphing, tailoring, shoemaking, blacksmithing, milking, etc., occasion like troubles of motion and sensation. Predominance of symptoms may be of spastic, tremulous, or paralytic form, with extreme fatigue pain, formication, hyperesthesia or anesthesia, and thrills like electricity. There may be total inability to perform the accustomed movements, or if they be attempted for a few minutes, the symptoms just named appear. The spasms may be of flexors or extensors; there may be rigidity or contraction of the muscles, local or general tremor. No two cases are exactly alike, as these symptoms are variously combined and usually only called forth on attempting the work that has brought them on, while for all other purposes the hands and arms are well. As I predicted some time ago, we can now add another form of cramp to the list, namely, manipulators' cramp, as the penalty for those who try to do massage without knowing how, and the sufferer supposes that the trouble in his arms is owing to his having imported so much "magnetism" out of them to his patients—his conceit not allowing him to think that he is only suffering from an unnatural, constrained, and awkward manner of working.

We see but few cases of writers' cramp nowadays and hear very little about it. Sufferers from this consider it a foregone conclusion that nothing can be done for it, and some learn to use a typewriter or hire someone who can. Physicians by their disbelief in the efficacy of any treatment whatsoever have done much to foster this state of mind in their patients. We read in Scripture that on one occasion even Jesus Christ himself could not work many miracles on account of the unbelief of those around him; while in the absence of this unbelief we find no less than six references in the Bible to the devil and his emissaries working miracles. Saints or devils, we would all like to be able to cure writers' cramp and allied affections, and it is no miracle to do so in the absence of what is called organic disease of the central nervous system.

First and foremost, as to the predisposing causes of writers' cramp: It usually occurs in those who are somewhat neurasthenic, and who write in great haste from the wrist, using the hand and fingers almost entirely for this purpose, and not combining the forearm and upper arm in the side-to-side movements as they ought to. The fingers, hand, and arm are generally perfect and powerful for every other purpose, sometimes unusually so, and objective symptoms are said to be lacking. Are they? The writer has seen quite a few cases of writers' cramp, and in every one the space between the lower end of the bones of the forearm and the carpal bones has been unusually large—in other words, there has been too long a neck to the wrist. This favors the pernicious habit of moving the hand alone from side to side, thus obviating the healthful combination of fore and upper arm in these side-to-side movements.

In order to get a case of writers' cramp well, it is largely a question of removing the fatigue, the overexcitation, the irritability which accompany it, as well as are education in proper ways of writing. This involves a careful consideration of many things: the method of holding the pen, of forming the letters, the height of the desk and the position of the patient thereat, the state of the eyesight, of the nerves and muscles, etc. With some patients a long period of rest would seem to be necessary before commencing treatment; others can be kept at their writing and improve by the following methods: They should be taught how to hold the pen easily and not to grasp it tightly,

and be shown how to vary the methods of holding the same, if they have not already found out for themselves. Holding the pen between the fore and middle fingers is one of the best methods for relief. The pen holder should be of as large a size as will afford a comfortable grasp, and may be of cork or surrounded by a rubber pneumatic appliance at the lower end. The pen should be neither too soft nor too hard, the point of medium size, and the paper neither too smooth nor too rough in order that a proper resistance may be offered, so that the patient's attention may not be distracted thereby. The height of the desk should be on a level with the forearm when the upper arm hangs free by the side. It is often advantageous to change the angle of the paper from time to time, so that the patient may not get tired out from being too long in one position. Writing on a large book on the knee is sometimes easy as it forms a good automatic tip-table instantly adjustable in any direction. The light should fall upon the paper in such a way as not to cast a shadow, either from in front or on the right side.

Fine complex movements that are the last acquired are soonest lost. Therefore reeducation leading back to these should be gradually begun by teaching the patient to make long parallel lines from left to right and sometimes also from right to left. This is a good preparation of the upper arm for free-hand writing. After this the patient should be taught to make whole lines continuously of large *l*'s with wide interspaces, and also the reverse of these with equally as large spaces, *m*'s. These may be done either slowly or rapidly so as to break up the habit that the patient may have acquired. With improvement and facility in execution they should be gradually decreased in size. The advantage of this is that it trains the upper arm and forearm to cooperate with the hand in these movements that are so necessary for easy writing. Later a combination of letters and words must be devised to get the patient over any special "hitches" he may have. The word *legacy* offers a good combination for this purpose. After having made *l*'s for a while the patient can then practise *lelele* until it becomes easy; then *legleglegleg* continuously until this can be done with great ease, and so on to the end of the word.

When the patient has become somewhat proficient in writing, an excellent exercise is to write the capital letters of the English alphabet connectedly as far as he can. He can usually go from *A* to *I* without a break. The writer, after having devised and employed this combination for years, found that Professor Zabludowski of Berlin had independently and unknown to either of us been doing the same thing. Exercises of flexing and extending and separating the fingers, gradually increasing in vigor and frequency, should be done three times daily, and for any one predisposed to writers' cramp these exercises form a good preventive measure.

Careful and skillful massage of the fingers, hand and fore- and upper arm, and also of the upper part of the back, should be done daily for a while at first, and later every other day. It should not be that kind of massage that is so prevalent and consists mainly of allowing the hand and fingers to slip on the surface, but deep and searching and gentle, without chafing the skin or bruising the muscles. Alternating with the massage every five minutes should be given resisted movements of supination of the forearm, of extension of the hand and of each finger separately. Much tact, skill, and practice are required to adapt these resisted movements to the strength of the patient and no novice had better undertake them. When done properly they are restful and invigorating in place of annoying and fatiguing.

The writer, in an article on "Writers' Cramp and Allied Affections" in the MEDICAL RECORD of April 28, 1877, said of these movements that they tend to restore a harmonious distribution of will, nerve, and muscular effort by counteracting the motions that have produced the trouble. Dr. George W. Jacoby said of this suggestion that it was of more real value than all that Julius Wolff, the so-called inventor of the cure of writers' cramp, had ever done. It was in 1882 that Mr. Wolff and the distinguished Drs. Schott of Nauheim got into an unseemly squabble as to priority of the use of massage and exercises in the cure of writers' cramp, five years after the publication of my article on the same subject. Wolff had the best of the argument.

The indications for the use of massage in these or any other cases could not have been better laid down than has been done in the following words: "really effective treatment of scriveners' palsy must be an agent which is at the same time both tonic and sedative in its neural effects, which must have the power of restoring the circulation of the blood in the suffering parts to its proper condition, which is capable of promoting the absorption of serous effusions, and will thus cause the nutrition of the maimed ganglia to be raised to a normal standard." "By stirring up the nerves and muscles of a limb you may, says Russell Reynolds, "to a certain extent, act upon the other ends that are in the brain and spinal cord and so improve the nutrition of the brain and spinal cord."

CASE I.—F. K. A., aged twenty-four years; weight, 138 pounds; in good general health, and has excellent muscles; came to me on the 3rd of May, 1915. For about five months he had suffered from almost total inability to write, which came suddenly after a hard day's work of eight or nine hours at his profession as assistant editor on one of our large monthly magazines. His usual day's work was four or five hours of writing, often stopping to think between times. After signing his name a few times he had pain in the interosseous spaces between the metacarpal bones. He had no cramp, no tremor. Tried writing with his left hand, which soon brought on pain in the region of the musculospiral nerve and insertion of the deltoid. Playing the piano or using the typewriter soon brought on the same disagreeable symptoms. Hands and arms were perfect for every other purpose. A few days of rest afforded him temporary relief. His physician had told him that he was suffering from neuritis, and that it would take him a year to get over it. Under the plan of treatment above outlined the patient made a good recovery with variations. Sixteen days after he began treatment he wrote 300 words with ease, and two months after he started he could write 1000 words without any difficulty, and no more fatigue than any one might feel.

May 19, 1917. This patient returned to Boston from another city, where he had been practising his profession for the past two years. He reports that he had continued well for writing in spite of the fact that before—six weeks—he had the grip, which was followed by hives, acute indigestion, and jaundice. He still

writes all he wishes, 1000 or more at a time if necessary, even though his general health is not yet to par. He came to me again for neuromuscular pains in back and legs, which are so common after the grip, and for which massage is so beneficial.

CASE II.—H. W., aged twenty-five, enjoyed good health and had strong muscles; by occupation a pianist and astronomer. For a year his wrists had been weak and lame, which he attributed in great part to the frequent and forced efforts required in elevating and changing the direction of his large telescope, which strained the extensors of his hands very much. He could play but fifteen or twenty minutes on his piano before his fingers and wrists gave out from fatigue and ache. No visible or tangible defect could be found save a somewhat constrained stiff-bent position of the fingers, making voluntary extension difficult and disagreeable.

The treatment for several months had been half a dozen layers of bandage wound around each wrist and rubbing with liniments, without any improvement. These were left off when massage was begun. The first four visits were devoted solely to manipulation of the fingers, hands and arms. I find my notes quote Mr. A. as saying that his hands and arms felt stronger after the first handling. At the fifth and subsequent massages I added percussion and resisting motion to all the natural movements of the fingers, hands, and arms, but more particularly to extension of the fingers and of the hands on the forearms, and this was carefully kept within the limits of the patient's strength, so that at no time should he be made painfully conscious of his disability, as this would have frustrated the object of the treatment. In thirteen days from his first visit to me he had eight massages, at the end of which time I again find my notes quote him as saying that "If anyone had told him that his wrists and hands could have been made so much stronger as they now were in so short a time, he would not have believed him." He could then elevate and move his telescope about with ease, and play on his piano for an hour at a time before fatigue came on. Massage was continued for a few weeks longer and the patient got quite well, so that he could use his upper extremities ad libitum for any mortal length of time. He continued well, and for his scientific attainments was employed by the United States Government in a situation requiring a man physically perfect.

He had been suffering from muscular asthenopia (fatigue of vision) for a long time, which is quite analogous to writers' cramp. Under massage of head, face, and eyelids, he recovered so that he could read whole pages of the Beecher trial in the newspapers, and see stars in the daytime without falling on the sidewalk.

CASE III.—Mr. A. J., thirty-one years of age, was referred to me by Dr. George W. Gay. He was in good general health, and his muscles were well developed. It was two years before this that he first observed that he was not writing with his usual ease and accuracy, as if out of practice. He is a professor of writing in a commercial college. He gradually grew worse, so that he had to use a larger penholder and grip it harder and harder. Occasionally there were days when he could write well and easily. It was just after doing some very fine writing that had to be reproduced, and which he first outlined in pencil that his difficulty began. When he first came to me he could write a few lines well and naturally, then the hand and arm became tired, the hand jumped and trembled, he grasped the pen more firmly, and as the fingers contracted he lost his grip altogether; so that he presented three phases of writers' cramp—tremulous, spastic, and paralytic—in one or more of which it usually occurs. When well he wrote with his hand in the so-called regulation position, resting on the tips of the little and ring fingers, but gradually he had to let his hand descend so as to write while resting it on the whole of the middle phalanx of the little finger, and using the muscles of the forearm rather than those of the hand and fingers. At times the forefinger alone would jump from the penholder, and then he would hold it down with the thumb and endeavor to continue writing.

Examination of the hand revealed almost nothing—apparently slight stiffness of motion in the interossei between the metacarpal bones of the index and middle finger, but not more than is often met with in those not troubled with writers' cramp. There was, however, not full strength in extending the fingers, which would point to overuse of the flexors and the need of the extensors to counteract this.

It was not till after I had seen the patient a few times that he told me that nine years previous he had sprained his back by attempting to shut a heavy trap-door in a steamboat. He was beneath it, with his hands and arms extended over his head, when the boat gave a lurch and he was suddenly thrown backward. For this he had constantly worn a corset which enveloped his whole trunk in order to support his back. With this he was comfortable, and did not require to lie down to rest during the day, but without it he drooped and sagged down and soon a burning spot appeared about the middle of the dorsal region. Examination proved that there was nothing at all the matter with his back unless it were muscular weakness, due to having worn the corset too long. After two massages the patient felt as if he had a new back and could go for half a day without his support, and in the course of two or three weeks it was laid aside entirely. If the condition of his back had anything to do with his trouble in writing, the latter ought to have appeared much sooner. Neither do I think that imagination had anything to do with his writing, for he did not know what was the matter with him until the day he was sent to me.

To keep the patient at his work, and at the same time attempt to get him well was the problem to be solved. For home exercises I prescribed at first active extension and separation of the fingers, and later the same against resistance by means of rubber bands and tubes, so many movements at stated times, in order to bring into greater action the less used extensors, and also to give a change of exercise to the interossei, and thus help to restore the lost equilibrium of will, nerve, and muscle. But to prescribe writing exercises for a patient whose chirography was like copper-plate did not seem so easy a matter. However, I had no difficulty, for it was evident that he was painfully slow and particular, and when fatigue came on after a few lines he had hitches in rounding the backs of left lower curves of his *l*'s and *e*'s and in making the upward stroke of the leg of his *g*'s. Therefore, for home exercises in writing I directed large *l*'s made quickly and continuously, followed by the reverse of these, making *u*'s, so as to compel him to write from the upper arm and shoulder. As time went on we gradually reduced these in size, so as to bring more into play the muscles of the forearm and hand. When he had become proficient in these, the next exercise was a little more difficult, and consisted of *lelelelel*, large and rapid at first, then gradually diminishing; and later the exercise was *legleg*, practised in the same manner, many lines at a time, and in this way he soon got over his hitches and halts.

But calisthenics and elementary writing exercises, though helpful, have never been known to cure a case of writers' cramp without other assistance. For this purpose I gave the fingers, hand, and arm massage, deep manipulation, almost daily for four weeks. After the first two massages the patient wrote with unusual facility, but tired as soon as usual. After the third massage he was fatigued at the end of the first line, and it is a wonder he did not give up treatment then, as these cases are apt to do. After four massages he wrote with greater ease, and made delicate movements of fingers and thumb which he had not been in the habit of doing, and he was but slightly fatigued with ten lines. After the third massage, which included the back, he was almost faint with hunger, though he had just had dinner before coming to me. I have observed the same effect in other cases, in one a physician, from percussion alone for a few minutes on the back. At the fifth visit there was some lameness of the muscles of hands and arms from the manipulation, which had not been rough, and this is generally a good omen. He thought the writing exercises which I prescribed were excellent practice to train his boys at the com-

mercial college to write a free, easy, and rapid hand, so he used them for that purpose. After the fifth and sixth massages he wrote still more easily, and for an hour and half each time, stopping occasionally to explain to his students. At the end of nineteen days he had no difficulty in grasping his penholder, and he could write with ease for three hours, and at the end of twenty-eight days he wrote with ease and fluency and animation. And thus he improved with variations, but all the time making a better average.

At times we had to call a complete halt for a few days in his home exercises, when it was evident that he was overdoing and getting his nerves and muscles into an irritable condition, which was relieved by massage alone. But when this condition has arisen of its own accord or from writing, in other cases, it might be an indication to urge them on with exercises in order to tire out the affected nerves and muscles and their central connections, and thus allay overexcitability. The same means incite nerves and muscles that are inactive, but here, in order to be of benefit, must stop short of overexciting them.

Our patient might have been discharged at the end of four weeks, but this was not in accordance with his wishes, for he did not then feel safe without the aid of massage, so he continued to visit me two or three times weekly for several weeks longer. At the end of six weeks, though he was generally fatigued from sickness and death in his family, he had not the slightest difficulty in giving his writing classes full instruction from 9 to 12 o'clock, and it was during the last ten days of this time that I thought it well for him to have a tonic, consisting of 5 minims of tincture of nux vomica, 20 minims of cascara cordial, with 35 drops of elixir of calisaya, three times daily. He called upon me again ten weeks from the time I first saw him to report that he had attained perpetual motion, for the longer he wrote and the more he exercised, the easier it became and the better he felt. I have heard from him recently and he has continued well. Without the patient's hearty cooperation he would doubtless have sunk into the slough of despond.

From 1877 to 1882 Julius Wolff, of Frankfort-on-the-Main had treated by massage and gymnastics in all two hundred and seventy-seven cases of writers' cramp and such troubles. Two hundred and forty-five were writers' cramp and one hundred and thirty-two of these were said to be radically cured, twenty-two improved, and ninety-one without result. Thirty-two were pianists', violinists', telegraphers', and painters' cramp, and of these twenty-five were said to be cured. In all, one hundred and fifty-seven were cured, twenty-two improved, and ninety-eight not cured. Of the one hundred and thirty-two cases of writers' cramp cured, one hundred and eight were men, twenty-four women; eighty-eight of the men were married and twenty single. Most of the women with writers' cramp were widows. Wolff usually gave his patients two séances a day for a month.

The advantages of massage and gymnastics in the majority of cases of writers' cramp and allied affections would seem to be removal of painful fatigue, spasm, tremor, weakness, incoordination of motion, feelings of constriction, of tension, and disturbances of sensation. Hence, so far as we can judge, this method is capable, in many cases of fulfilling therapeutic indications of the utmost importance, such as removal of increase and decrease of resistance in the paths of conduction, excitation, and motion; restoration of harmonious coöperation of individual movements, of natural conductivity and excitability, as well as of muscular sense and muscular effort; in a word, correction of underaction and overaction of muscles, nerves, and their central reflex apparatus. Impalpable trophic disturbances of the coordinating machinery in the central nervous system are regarded as the origin and predisposing cause of writers' cramp and such maladies. If massage excels galvanism in correcting these disturbances, as would seem to be the case, it must indeed be a remedy of rare value and worthy of being used by the most skillful physicians.

It is astonishing how well patients suffering from Parkinson's Disease (paralysis agitans) can sometimes write, notwithstanding their tremor; thus showing how voluntary motion can be made to control involuntary, and passive motion has a still greater inhibitory effect even permanent. These facts are often overlooked and not even sought for.

A patient of mine suffering from paralysis agitans, who was improving under massage, passive motion, and resisted exercises, parathyroid extract, and home baths, consulted the best known neurological surgeon in Boston, who did not take the trouble to inquire what treatment he was under nor the effects of the same, and who after an hour's examination told him he had Parkinson's disease and that there was no cure for it; thus throwing a *wet blanket* over the progress of the case, and stopping subsequent procedures in the strait and narrow way of orthodox medicine. A year later this patient wrote to me telling me he was having treatments twice a week from a "magnetic healer," and he thought he felt better for a time, thanks to the good surgeon for shaking his confidence and throwing him into the broad road that leadeth unto the everlasting destruction of legitimate medicine.

A glance at Shakespeare's signature will convince anyone that he never could have written the plays ascribed to him, thus throwing the balance of the argument in favor of those who claim that Bacon was the author of them.

520 Boylston Street.

REPORT OF A CASE OF TUBERCULOSIS OF THE SPINAL CORD.

By CHARLES C. BROWNING, M.D.,

Los Angeles, Cal.

Professor of Diseases of the Chest, College of Medical Evangelists; Professor of Medical Diagnosis College of Dentistry, University of Southern California.

THIS case in which there also existed tuberculosis of the adrenals and of the mitral valve, and the left kidney was congenitally absent, is reported because of the comparative rarity of similar instances in the literature examined.

The most exhaustive report which I have found is that of Dr. Peter Bassoe[1] of Chicago. He had collected 74 cases and added two to that number, bringing the total to 76. Apparently Dr. Bassoe had not seen the report of the case by Dr. Elsberg[2] of New York, and of the one reported by Dr. Starr.[3] The addition of these two would make the total number reported to this time 78. Dr. Herman Kretschmier[4] of Chicago has since reported one case of what was apparently multiple tuberculous foci of the spinal cord. This, with the case herewith reported, makes the total of 80.

Diagnosis.—Signs of progressively developing tumor of the spinal cord with clinical history and

differentiation from other than tuberculous conditions.

Prognosis.—The prognosis is very grave, in part, at least, because of the extensive tuberculous activity in other parts of the body. I find reported four cases operated upon, with encouraging results in three.

Treatment.—The only treatment which offers hope for this condition is surgical. Two of the cases so treated are reported in the paper by Bassoe,[1] one by Drs. Veraguth and Brun, and one by Drs. Krauss and McGuire, to which article I would refer those interested in this subject.

The following are brief reports of the other cases:

Dr. Harry L. Elsner, writing in "Monographic Medicine," under Diseases of the Spinal Cord, dismisses the subject with the statement:

Starr[2] reports a case in which a single tubercle nodule was easily removed from the cord by McBurney. The patient developed general tuberculosis and spinal meningitis two months after the operation.

Dr. Elsberg[3] presented a patient who had been operated upon two years before on account of loss of power in the lower extremities; bladder and rectal disturbances and severe pain in the abdomen. At the operation the arches of the ninth, tenth and eleventh dorsal vertebræ were removed. A small tumor measuring 1½ by 1 centimeter was easily extirpated from the substance of the cord, after incision. The pathological report was tuberculoma.

On account of the spastic paraplegia, posterior root section was done three months later. The patient had improved markedly, had regained control of the bladder and was able to walk around without any support. There has been only one similar case in the literature—the case of Veraguth and Brun, in which a conglomerate tubercle was removed from the substance of the cord.

Dr. Herman L. Kretschmier[4] of Chicago presented a case of a patient who had been ill about three weeks with symptoms of meningitis. Tubercle bacilli were not found in the spinal fluid. In the autopsy inquest it is stated that: "In the section from the lumbar portion of the cord there was a dense, small round cell infiltration of the meninges and large areas of caseation, surrounded by epitheliod cells. In the sections stained for acid bacilli there were found a few typical acid fast bacilli in the sections of the cord. No bacilli were demonstrated in the sections from the brain."

REPORT OF CASE.—The patient was a white male, aged 30, who entered hospital October 9, 1919.

The history was similar to that of many advanced cases of ambulatory tuberculosis, with the additional history of gradually increasing weakness of the left leg.

Physical examination revealed a well advanced case of pulmonary tuberculosis, with cavities in both upper lobes. The sputum examination was negative to tubercle bacilli on the 9th, positive on the 10th, and again on the 22nd of October. The temperature on admission was 101.4°.

On October 11, 1919, the physical examination revealed the left lower limb paralyzed. Sensation normal. Left knee jerk exaggerated. Right side normal. Babinski positive both sides, more so on left. No ankle clonus. Abdomen very rigid and tender. Questionable nodular mass palpated in umbilical region, extending toward right and left iliac fossae. A diagnosis of beginning peritonitis, with spinal involvement, was made.

On October 13 there was paralysis of the right limb similar to that of the left. Bladder palpable. Patient catheterized regularly thereafter. Radiograph of spine negative. Ten cc. of fluid, which was under considerable pressure, was withdrawn by lumbar puncture. The laboratory examination of the *spinal fluid* was as follows: Clear, 3 cells to the field; Nogouchi negative; no tubercle bacilli found; Wassermann negative, and remained negative after administration of 0.6 gm. neosalvarsan.

The *blood count* was as follows: Hemoglobin, 90 per cent.; erythrocytes, 4,900,000; leucocytes, 11,800. Differential: Small mononuclear, 2 per cent.; large monoculear, 12 per cent.; polymorphonuclear, 86 per cent. Blood Wassermann was negative.

October 14.—Abdominal rigidity has entirely disappeared. Patient passed urine involuntarily, notwithstanding catheterization, which continued until the end, November 7, twenty-seven days after the patient entered the hospital. A bed-sore began to develop on the back. Both lower limbs were completely paralyzed until October 25, when a slight return of motion was noted. The bed-sore at this time had greatly increased in size, and the patient's heels were becoming gangrenous. The temperature gradually rose from 101.4°, on admission, to 104.8° on the 17th, and gradually dropped to subnormal with a final rise the day before death.

The patient died on November 7, 1919.

The autopsy was performed forty-eight hours after death by Dr. H. E. Butka, White Memorial Hospital, Los Angeles.

The microscopic examination was by Dr. Newton Evans and Dr. H. E. Butka, Loma Linda.

Abstract of Findings: Only those conditions are

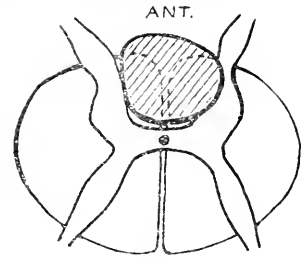


FIG. 1.—Cross-section of the spinal cord at the level of the tumor.

mentioned which are applicable to the subject under consideration.

The *peritoneal cavity* contained about 300 cc. of dark fluid. There were numerous recent adhesions about the bladder and loops of intestines adjacent. There were numerous enlarged glands in the mesentery. The left *adrenal* contained two small nodules, white in color, firm in character, with no marked degeneration or necrosis of central portion. The left *kidney* was congenitally absent. The right weighed 330 gms. Cortex was wide, vessels injected. One area extending from cortex to pelvis near the lower pole, about 2 cm. in width, was filled with numerous gray tubercles of moderate size.

Vascular System.—The pericardium contained about 30 cc. of clear fluid. The heart weighed 240 gms. and was flabby, the walls being rather thin. The mitral valve contained three small white hard nodules resembling tubercles. The aortic valve showed fibrous changes about the bases of the cusps.

The head was closely examined. No tubercles revealed. Section of the brain tissue revealed marked congestion. The choroid plexuses were also markedly congested and contained several small crypts.

The *spinal cord* was exposed and removed from the seventh cervical to the twelfth dorsal vertebra. Upon external examination there was found to be an enlargement at the level of the 8th dorsal vertebra, covering about one segment of the cord. The cord was removed and exposure of the enlargement revealed the cord at that level to be destroyed, and for some distance above and below to be in a semi-fluid condition. However, a grayish nodule about the size of a small navy bean was found compressing the cord substance, just

beneath the meninges anteriorly, extending further to the right of the midline than to the left. This tumor was firm, hard, and shelled out easily from the cord, and resembled very closely the tumors found in the left adrenal body. (Fig. 1.)

Microscopic Examination.—Sections of the tumor

FIG. 2.—Showing the tubercle bacilli among the cells. From a drawing by Dr. Newton Evans.

from the spinal cord revealed tuberculous granulation tissue, with much fibrous tissue, and cells about the periphery of growth composed of numbers of lymphocytes, fibroblasts, plasma cells, and polynuclears.

There was complete absence of typical giant cells usually found in tuberculous granulation tissue. However, upon staining for acid-fast organisms, numerous well stained tubercle bacilli were found, interspersed among the cells. (Fig. 2.)

The tumors of the adrenal body were identical, except that central necrosis was present. Appropriate stains demonstrated tubercle bacilli to be present.

REFERENCES.

1. Bassoe, Peter: *Archives of Internal Medicine*, April, 1918, pp. 519-521.
2. Elsberg: Transactions of the New York Surgical Society, Nov. 8, 1916.
3. Starr: Monographic Medicine, Vol. vi.
4. Kretschmier: *Journal of the American Medical Association*, Jan. 24, 1920.

700 MERRITT BUILDING.

PRINCIPLES OF THE PIRQUET METHOD OF FEEDING.*

BY CHARLES F. FISHER, M.D.,

BROOKLYN, N. Y.

ASSOCIATE ATTENDING PHYSICIAN, DEPARTMENT OF MEDICINE BROWNSVILLE AND EAST NEW YORK HOSPITAL; CHIEF OF DEPARTMENT OF PEDIATRICS, BIKUR CHOLIM HOSPITAL, BROOKLYN.

I HAVE been asked to read a ten-minute paper on the Nem system, or Pirquet's method of feeding. To cover this subject in so short a time is a physical impossibility, and to attempt to crowd the subject-matter into a few minutes would neither do justice to Pirquet nor leave you any wiser than before. This method as applied to infant feeding alone could not be described in the few minutes allowed me, so I thought it best to limit myself to an explanation of the subject and to omit answering any objections which may have already been raised.

*Read at a meeting of the East New York Medical Society, June 22, 1921, and of the Williamsburg Medical Society, November 14, 1921.

This subject is practically unknown in this country, and in order to master the details one must have a speaking acquaintance with the principles involved, and these I will attempt to explain to-night. If the topic interests you enough, and you will permit me, I should be very glad to go into details and show you its application in everyday practice at some time in the near future.

The subject-matter of this paper is based upon (1) the Lehrbuch der Volksernährung by Mayerhofer and Pirquet, (2) Das Pirquetsche System der Ernährung by Schick, and (3) the personal experience I have had with the system under Pirquet in the Kinderklinik in Vienna, in the American Convalescent Home for Vienna's children, and in private practice.

I wish to emphasize this point about the Nem system of feeding, notwithstanding any objections which may have been raised against it, and that is that the Nem system, as it is called, is neither a theory nor an experiment, but a method of feeding which has been in operation for over five years in Vienna, and has proved both practical and scientific, and has shown wonderful results. This method of feeding was considered to be of such great value by the American Relief Administration that Mr. Hoover consented to supply food to Austria for another year when relief by this Government was discontinued to all other European countries; and this was done for no other reason than because of the great esteem in which the Pirquet method of feeding was held by it.

One of its greatest advantages is its simplicity as applied to infant feeding. By Pirquet's method of feeding the general practitioner can in a few minutes and without hesitation prescribe a formula which would give the desired results. When applied to feeding large numbers, as in schools or other institutions where cost is a great factor, it is found most economical. Above all, it is exact, and one can figure out mathematically just how much food the individual requires, whether in health or disease, and whether he is fed correctly, underfed, or overfed.

The Pirquet method of feeding was born during the war. At that time there was the greatest necessity for utilizing all available food and eliminating all possible waste, because the cost of food was excessive, and also because it was difficult to obtain. Pirquet also realized that there was the greatest necessity for popularizing a scientific system of infant feeding to insure for each infant a quantitatively and qualitatively adequate food supply. This was made necessary because there was an insufficient supply of milk available, and it was not generally known at that time what foods could be substituted for milk, nor the quantities of such substitutes needed.

The caloric system could not be used, because it was too difficult to understand, and cooks and housewives would not adopt it. As a result of all this, Pirquet set his fertile brain at work and the Nem system of feeding came into being.

The main points of Pirquet's method of feeding are, first, the calculation of the daily food requirements of an individual from the sitting height—sitzöhe, as he calls it—and, secondly, the conception of the idea of a calory, through an easily

understood physiological measure of the value of milk.

I wish to explain in detail what is meant by this sitting height, and easily understood physiological measure of a calory. The sitting height is the measure from the crown of the head to the end of the spine, the patient being in the sitting posture. In other words, you measure the patient as you would any animal, from head to tail. Pirquet uses this measure in computing the daily quantity of food necessary in feeding an individual, and does not take into consideration the age, weight, or any other factor. This does not mean, however, that there is no relationship between body weight and length, for there is, as we shall see later. But this sitting height is the criterion in determining the daily quantity of food needed. By Ruebner's method the individual's daily food requirements were calculated from the external surface area of the body. By the Vierordt-Meeh formula the external surface area was calculated from the body weight. This, as you can readily see, is rather complicated and not practical.

In 1881 Henning, in his most interesting work, showed that the absorptive portion of the gastro-intestinal tract—that is, that part of the gastro-intestinal tract in which absorption of food takes place—always bears a definite relation to the sitting height, or "sitzhöhe." This absorptive tract is ten times the length of the sitting height, or vice versa, the sitting height is one-tenth the length of the absorptive tract. Pirquet went further and demonstrated that the square of the sitting height is also equal to the square area of the absorptive tract. For example, if you were to split open the bowel and lay it out flat like a tape, the width multiplied by the length of this tape would equal the square area of the sitting height. He proved, further, that the cube root of ten times the body weight of normal individuals also equals the sitting height. So because of these facts—the relation of the absorptive tract to the sitting height, the relation of the body weight to the sitting height, and that it is logical to measure man, like other animals, from head to tail to determine their length—Pirquet decided that this sitting height must be the only measure for determining the daily food requirements in any system of feeding. That it is logical we can readily understand. The methods previously mentioned are too complicated and impractical. To use the body weight as a guide in order to determine the daily food requirements of a person, as is still the case in this country, is illogical because of two given children of the same age, the one weighing more would get the greater amount of food. But in reality which one needs more?

Now, the second point upon which this system depends is the conception of a calory through the physiological measure of the value of milk. In other words, Pirquet uses mother's milk of a definite composition which has a physiological caloric value of 667 large calories per liter as a standard by which the caloric value of all other foods is measured. For all practical purposes Pirquet considers mother's milk and cow's milk as having the same utilizable caloric value. The caloric value of one gram of mother's milk he calls a Nem—and for this reason this system is called the Nem system. The word nem is formed by taking the initial letters of the words Nahrung-Einheit-Milch, meaning in English the nutrition-unit-milk.

The Nem, then, is the utilizable caloric value of one gram of mother's milk of a definite composition, and is the standard of measure for comparing all other food values. In short, one nem equals the caloric value of one gram of milk. Based upon this, Pirquet has worked out a table of the nem value of the most important foods.

He has also devised a table of measure for this method of feeding, based upon the metric system and using the word nem for gram or c.c. For instance, one-tenth of a nem equals a decinem, 10 nems equal a dekanem, 100 nems equal a hektonem, 1,000 nems equal a kilonem, etc.

In considering the relative value of the proportions of fat, protein, and carbohydrates necessary in feeding, Pirquet, contrary to all other teachings, denies the existence of a fat minimum. He has come to this conclusion after feeding infants for twelve months on skimmed centrifugalized milk—fat-free milk — without causing any deleterious effects. He contends that fat is only a fuel food elaborated by nature for the sake of compactness, and is not an essential article of diet. It can be replaced by carbohydrates without injury to the organism. It is, however, necessary in the art of cooking and in the flavoring of foods.

With protein, on the other hand, it is quite different. Protein is not only necessary to supply material for new tissues to replace worn-out tissues, but it is also necessary in supplying an adequate amount of digestive ferments. So that there must be a protein minimum. This minimum must be not less than 10 per cent. in order to sustain an individual. Pirquet considers this amount sufficient because in mother's milk there is only 10 per cent. protein; this is sufficient for all the needs of an individual during its greatest growth, and so it ought to suffice in later life. Too much protein is harmful and can cause disturbances of metabolism, such as gout, etc. He considers 20 per cent. as the maximum.

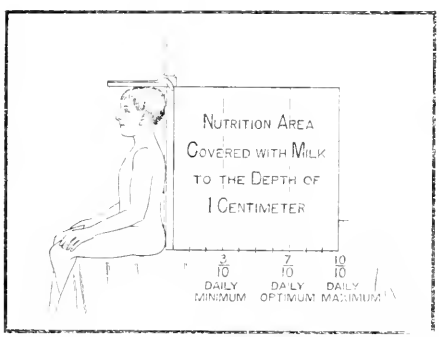
I wish to emphasize this point a little more—that is, the protein minimum. You can feed your patient fats, carbohydrates, and some protein, but if there is less than 10 per cent. of protein your patient will not gain; on the contrary, he will lose weight and strength. I have in mind a case in the medical service of one of our hospitals—a cardiac with polyarthritis. This patient has been in the hospital for several weeks, and, besides the occasional relief of pain in the joints, is getting weaker, more anemic, and the heart, to say the least, does not improve. This patient gets no meats; eggs are also restricted, and the total protein allowed is too small. In our eagerness to do something for the disease we are forgetting our patient. We forget that the heart cannot improve without general body improvement, and this cannot be accomplished by starving the patient—as you do if you give less than the required protein minimum. I do not mention this in the light of a criticism, but to call your attention to the fact that the proper understanding of feeding is absolutely essential and plays a most

prominent rôle in successful therapeutics. You do greater harm by treating the disease than by treating both the patient and the disease. That we must keep up the patient's resistance we know, but this fact is lost sight of in our eagerness to treat the disease. It must be remembered that there is a protein minimum which cannot be ignored if our patients are to be treated intelligently. As soon as this patient was allowed a greater amount of protein she began to show marked general improvement.

Carbohydrates cannot be replaced by other foods, and are essential in the body economy. They can be given in rather large amounts without gastric disturbance. This fact is corroborated by many observers in this country, especially Faber of San Francisco. He has given infants as much as 14 per cent. carbohydrates without causing any ill effects.

To go back to the sitting height and its application in feeding. Older children and adults are measured by an upright scale—while infants are measured in a sort of crib with a slide working on a scale.

The square of the sitting height represents the



largest number of nems that can possibly be required during the most strenuous physical exercise and is called *maximum*. For example, if the sitting height of an infant is 40 cm., its maximum would be 1,600 nems. This means that the greatest amount of food that this child could possibly require under the most strenuous kind of work could not exceed 1,600 nems.

This maximum is divided into tenths, and (according to the metric system) each tenth is one decinem, or one-tenth the total number of nems (of maximum). Three-tenths of maximum, or three decinems, is called *minimum* and represents the least number of Nems that the body requires when in absolute rest, not even digestion taking place. This is the number of Nems that the body requires for internal combustion. To compute the number of nems required in feeding a given case, besides the three decinems allowed for internal combustion, that is minimum, two decinems are added for exercise, one decinem is allowed for growth, and one decinem is allowed for storing up glycogen —reserve force. This gives a total of seven-tenths of the maximum, which is called the *optimum*, and represents the total number of Nems that the body requires for all normal functions and to sustain a normal individual.

Five decinems will sustain life, but the body does not gain on that amount. A healthy newborn baby requires only five decinems for the first two weeks of life, but after that and until the end of the sixth month it requires six decinems. From then on a normal individual requires seven decinems, which is optimum. In disease the number of Nems necessary in feeding a given case varies from minimum to maximum. Thus in myxedema, where metabolism is retarded, only three decinems, minimum, is sufficient. But when thyroid is administered we all know that a loss of weight takes place due to increased metabolism, and to allow for this increased body activity the number of Nems must be decreased accordingly. I have watched myxedematous children in Pirquet's Klinik keep their weight for a long time on three decinems, but upon the administration of thyroid this had to be increased to optimum—seven decinems—in order to make the weight curve go up. On the other hand, in hyperthyroidism where there is a great increase of metabolism, due to increased heart rate, tremors, etc., seven decinems, or optimum, is insufficient. Here we hade to increase the decinems to eight or nine and in some cases even up to maximum. In fever where there is much oxidation the patient needs plenty of food. Thus in typhoid, dysentery, etc., food should be given in large quantities but of a kind easily digested and of high caloric value. So that instead of cutting down the number of Nems you can give optimum or even more. However, in fevers of short duration, such as measles or diphtheria, five or six decinems will be sufficient to keep up the body weight and can be increased to optimum when the disease is over.

Now I would like to say one word about the relation of body weight to the sitting height. If you recall, Pirquet brought out the fact that normally the sitting height was equal to the cube root of ten times the body weight. This relation of body weight to sitting height he calls the "pilidisi." A pilidisi of 96 or over means a well-nourished person, while a pilidisi of less than 96 spells malnutrition. This computation is done very quickly in the fraction of a minute by using a slide rule, and no one need be a mathematician or need paper and pencil to do it. This fact is of very great importance in determining the status of individuals for armies, industrial plants, etc.

Because of the lack of time I cannot now show you the practical application of this method of feeding, but if you have grasped the meaning of the terms nems, minimum, optimum, maximum, etc., you have acquired the fundamentals and are in a position to master the practical side easily.

In conclusion, I wish to say that Pirquet's method of feeding is (1) scientific and practical, (2) the simplest and most rational system of feeding so far devised, (3) based upon two factors: (*a*) the sitting height is used as a basis of measure for determining the daily *amount* of food required in feeding a given case, and (*b*) milk is used as a standard of measure of the value of a calory, with which all foods are compared.

315 Pennsylvania Avenue.

TUBERCULOSIS: ITS CLIMATOLOGY AND SOCIOLOGY.

C. OWEN PAGET, M.D.,
PERTH, WEST AUSTRALIA.

THERE is a cynical humour in nature paraphrased by the itinerant showman's remark, "What's lost on the rounds is made up on the swings;" or again by the fashionable physician who considered death due to a single cause, for his private patients died from overeating, and his hospital cases as a result of starvation.

The incidence of tuberculosis is dependent upon the existence of tubercle bacilli and the efficiency of the nose. In other words on the attacking force and the capacity for defence.

Although tuberculosis is a universal endemic disease, its local potency must vary considerably from time to time. In the open air, conforming to other forms of vegetable life, it is checked in growth by excessive cold, aridity of soil, and glaring sunshine. Warm, shaded and moist places favor its development. Cultivated for instance in ill-ventilated, gloomy, dirty, and heated rooms it is likely to be more virulent in character than in clean walled lofty chambers exposed to the sunlight. Again, though other factors must be taken into account, its malignancy in a hot dry climate like that of West Australia is probably somewhat lower than in many other parts of the world. This is confirmed by general experience, Alps and deserts being regarded as localities beneficial to tuberculosis.

The tubercle bacillus is capable of periodical enhancement of virulence. This phenomenon is common to many varieties of vegetable life all over the world. For example in England mushrooms are some years very prolific. In Australia periodically large areas of country are invaded by such growths as Scotch thistles. In India and the East, bubonic plague and cholera are endemic. At times they assume not only epidemic proportions locally, but spread far beyond their usual confines, in vast waves of devastation.

In a former paper (MEDICAL RECORD, March, 1919), I pointed out some reasons for my belief that the European influenza epidemics of 1918-1919, of which I had considerable experience, were in fact no other than epidemics of tuberculosis. My opinion was strengthened by experience on my return to Australia in 1919, which was then suffering from an epidemic similar in character. The lengthy West Australian summer (8-9 months) of sun and cloudless skies causes a general lowering of tone in the health of the community. The first rains, often light and intermingled with further sunshine, are succeeded by violent winds and in some places by vast clouds of dust, which seem to fill the streets and houses. The dryness and the sandy nature of the soil are further climatological contributory causes. Under these conditions a low form of epidemic pneumonia springs to life. This disease commonly called "influenza" is, I am now convinced, an epidemic of tuberculosis of slight virulence. The lack of malignancy is probably due to the tone of the bacillus being lowered by the lengthy summer, aridity of the ground, and all pervading sunshine.

The clinical features of this disease, when it assumes the pneumonic form, are debility, vague physical signs, occasional hemoptysis, low temperature, slight mortality if any, but frequently remarkable subsequent asthenia; often not recovered from for months, and requiring a change of environment, such as a sojourn in the hills or a sea voyage. So far as physical signs are concerned, its exact counterpart was found in the acute epidemics of "Spanish influenza" in 1918-1919.

In the gold fields, too, with large mining dumps, a longer, hotter, and drier season than on the coast, and with winds producing vast and sometimes constant clouds of dust, pneumonia is very prevalent. It is evident that the natural physical, botanical, and biological laws governing the incidence of tuberculosis are intricate, interwoven, and probably to a considerable extent, unstudied and unknown.

The social fabric of civilization is dependent on production, transportation, manufacture, and exchange. Of these factors, production and manufacture have a considerable influence on tuberculosis.

In certain forms of mining, where rock is drilled and a fine hard dust is produced the disease pneumonoconiosis or miner's phthisis arises. The action produced by such dust is different from that produced by coal dust, inasmuch as it excites pulmonary catarrh and fibrosis. In my opinion the original catarrh, by irritating and causing exfoliation of the bronchial epithelium, diminishes the resisting power to tuberculous infection. For the existence of a pure pulmonary fibrosis, without tubercle infection, is open to grave doubts. That it is usually low in virulence is probably due to the general aridity of the surroundings in the neighborhood of mines.

Writing without personal experience, I yet believe myself correct in saying that the conditions as to mortality, physique, longevity, and incidence of tuberculosis in the cotton and woolen districts of Yorkshire and Lancashire are very bad. An insufficiently ventilated factory, full of light and floccose dust, with air warm and moist, and employees underfed, produces the ideal conditions for the spread of tuberculosis.

The world, except in savagery supporting itself by artificial expedients, expressed by the term civilization, is always confronted by difficulties, economic, hygienic, and social. But such troubles must be faced, and cannot be overcome by ranting philosophy.

To those with war experiences, or who have seen the hardships and vicissitudes of opening up new countries, and who have had practical knowledge of conditions under simple civilizations, native and otherwise, the shortcomings of our social system, though admitted, are not so apparent as they are to the armchair pedants, jaundiced too often by feeble health or inactive existence.

Even as steam and oil engines made possible the emancipation of slaves, so must science by discovering new truths inaugurate eras more cheerful, kindlier, and healthier for mankind.

In so far as tuberculosis is concerned, nature has forestalled our wishes, by providing us with an organ, the nose, amply capable of protecting us from the attacks of the tubercle bacillus. To elaborate fully all the causes of the nose's inefficiencies would require a text-book. It will be sufficient to indi-

cate a single condition, common amongst the white races, and dependent on false ideals and faulty doctrines.

As a student in London, we were taught that adenoids were due to the dampness and mugginess of the atmosphere, associated with the effects of poverty and want of good food. Yet 20 years ago adenoids were as common in West Australia as in London, and that in spite of the dry and sunny climate; whilst poverty and hunger amongst children were unknown. On investigation it was found that many West Australian and London babies were bottle fed, brought up largely on patent foods, and kept on soft foods during their early infancy.

In the Australian *Medical Gazette* (January 31, 1914), I pointed out that the effect of these factors is to produce (1) Adenoids, (2) poorly developed teeth and jaw, (3) a laterally compressed nose with weak cartilages; a sure precursor of tuberculosis.

The reasons for these mothers artificially nourishing their children, for they were poor people or of moderate means only, were as follows: In England the mothers were exposed to the blighting effects of overcrowding under poverty-struck conditions. Whole families lived and slept in a single room. Food was poor in quality and small in quantity. Parents were too often of stunted growth, of tuberculous and syphilitic stock and were engaged in monotonous and unhygienic employment. Such mothers are unable to furnish milk of sufficient quantity or proper quality for any length of time.

The exact converse existed in the case of the West Australian mothers. These were largely pioneer women, who helped to build the houses, nursed husbands and children with typhoid fever, and worked hard all day in a climate which, however salubrious, causes abundant perspiration. And although meat, bread, and tea were abundant, fruit and vegetables were difficult to obtain and often prohibitive in price. Such women either broke down in health, or became wiry; and usually their milk dried up very early. Both sets of women had their natural breast development compressed, and often their nipples malformed and stunted as a result of mid-Victorian corsets.

Thus neglect of the welfare of women, either by the too strenuous life of pioneering, or the too confined life of overcrowded poverty, ultimately has an enormous effect on the general welfare of the community, and is a primary factor of the utmost importance in diminishing our natural capacity to resist tuberculosis.

To this must be added the adherence to fashions and customs, often originally esthetic, but degraded into foolish fetish worship by our inability to appreciate the sensible and the beautiful. This is no fantastic chimera, for most practitioners have seen a binder tightly wound round a baby's stomach, strong enough to hold on the saddle of the wildest bucking horse; and are acquainted with the frail and peevish children of the conscientious Mrs. A., who is always making pap food; and the sturdy youngsters, playing in the gutter and scrapping for a crust, of the neglectful Mrs. B.

The man who does not use his arms and legs develops a liver and a flabby heart. The baby who eats soft foods develops weak jaws and inefficient nose and dies of tuberculosis. How well this is shown in nature! The too finely bred and delicately nurtured racehorse becomes at best a five-furlong sprinter.

Perhaps one of the most extraordinary developments of modern times is the worship of the cow.

Physicians, priests, and women vie with each other in extolling the virtues of milk. Even at military messes it has in some places become *de rigueur*; and, well, I remember feeling almost an outcast on refusing this beverage at a neighboring medical mess, to which I had been invited.

To those suffering from the glamour of delusions, I suggest a walk along the country lanes of merry England, where the chilly evening is ushered in by the distant coughing of tuberculous cows. If the charms of city life are preferred, then in a London bun and milk shop watch the lugubrious countenances quaffing their brimming goblets of solutions of tubercle bacilli.

Apparently the word "milksop" is no longer a term of contempt as in Shakespeare's time, but is emblematic of virtue. Hippocrates, the father of medicine, advocated in tuberculosis the milk of the goat, freest of all animals from disease. The modern "sanatorium cum milk" physicians prefer the tuberculous cow. There is only one time in life when a man should drink milk, and that is when he is too feeble to be capable of anything better.

The accusation of iconoclasm or heterodoxy cannot be made against the advocate of the reasonable use of wine and beer in cases of tuberculosis. Able physicians of all ages and climes have shewn the inhibitory action and increased tendency to fibrosis, produced by gout in tuberculous cases. With a reasonable knowledge of the clinical side of the disease my experience has never discovered a case of tuberculosis brought on by drinking or even drunkenness. But unquestionably patients with tuberculosis have harmed themselves by drinking, especially spirits. And this occurs in the following manner: Large numbers of people suffer from tuberculosis which is not diagnosed by physicians for times varying from two to seven years. I have treated cases not diagnosed after 15 years.

These patients, during the period that their disease is unrecognized, suffer from all the accompaniments of tuberculosis, such as anemia, fatigue, want of balance, loss of appetite, and general capriciousness. Many find that alcohol, temporarily at all events, relieves their symptoms. With complete rest it is usually in proper quantities distinctly beneficial, but if, on the other hand, work is continued, and the spirit merely employed as a stimulant to further exertion, then truly it is a bad remedy, and the final breakdown, by being postponed, is probably worse and more difficult of treatment than if the disease had been allowed to take its natural course. Nevertheless, more human beings have been maimed and killed by drinking the milk of tuberculous cows than ever died from alcoholic poisoning.

Though the poor by their surroundings are more exposed to infection, they are, on the other hand, by the rigour of their upbringing, more likely to develop good resisting powers in the form of a stalwart nose.

The child fortunately born into healthy surround-

ings, but pampered by soft food, an indulgent mother, and taking insufficient physical exercise for his general development, is liable, when exposed to severe infection, to succumb through inadequate resistance.

The pretentious title of this paper must be excused. At best it is indicative of various intricate issues, with which such a disease as tuberculosis is entwined.

34 St. George's Terrace.

THE BOSTON DISPENSARY HEALTH CLINIC;*

A REVIEW OF THE FIRST 400 CASES.

By LESLEY H. SPOONER, M.D.,

Boston, Mass.

This clinic was instituted in the fall of 1919 to provide a routine physical examination by a group of four specialists—the internist, nose, throat, and ear, eye and laboratory specialists—to working people of rather scanty means, who were presumably well. The fact that this work is performed in the evening renders the economic saving a great feature for the working people. Although these four departments are used as a routine, consultation is afforded, when additional information is required, by other evening clinics at the dispensary: namely, the genitourinary, the dermatological and syphilis, and the gynecological departments, without additional cost to the patient. Assistance from other and larger clinics of the dispensary, which bear the brunt of overhead expense, enable us to offer a most complete examination which costs the dispensary less than the admission fee of $5. The *x*-ray and the more complicated laboratory investigations are carried out when required at a minimum fee fixed at the cost of such work.

Other organizations providing routine physical examination have been in existence for many years, but the outstanding feature of ours lies in the utilization of specialists for the purpose of group diagnosis and in the personal review and advice by the internist who is the natural referee, whose judgment should be unbiased by diseases of special organs.

Since the aim of the work lies in diagnosis, it is essential to render no treatment to the individual, but to refer him to his own physician, who receives a carefully prepared personal letter detailing the diagnosis and the more intricate matters of treatment advised. When no physician has been in attendance, as is found in 48 per cent. of our first 400 consecutive admissions, the individual is referred either to a competent physician, or, where finances do not permit, to the proper departments of our evening clinic.

The great danger to be avoided is a change from the original purpose to the establishment of a Diagnostic Clinic. Such an organization as the latter fills a perfectly well-recognized need, but is quite apart from the object of this project. To show that such a change has not taken place to any appreciable degree I have taken as a criterion of health the time the individual loses from his work during a given period.

Although most of our patients admit some symptoms, not necessarily of organic disease, but at least causing mental anxiety, 71½ per cent. showed a maximum loss of time from work of one week during the two years prior to consultation and 78¼ per cent. were incapacitated for two weeks only over the same period. From this I conclude that almost four-fifths of our patients are, in their own opinion, well. This is a fact of importance in showing that the original purpose of our work is being maintained, but also should be borne in mind later when the physical findings are to be discussed.

Mention of the scope of the work should be made. Although the Boston Dispensary is considered a local institution—only 46½ per cent. of our cases came from within the city—50½ per cent. from Massachusetts outside of Boston, ¾ per cent. from without the State, and one from without the country. Twenty-two per cent. were foreign-born.

In considering our findings, to be mentioned later, age is a matter of importance. Twenty-five per cent. were under 31 years of age, 53 per cent. under 41 years, and 79 per cent. under 51 years of age.

As one would expect, the intelligence of our group is far above the average of that of the ordinary dispensary case. A review of occupations bears out this point. The more miportant, expressed in percentages, are as follows:

Housewife (occasionally housework)	23
Clerical	19
Skilled labor	17
Professional	11
Business	9
Unskilled labor	7
Public service	4
Scattering	10

From a public health viewpoint a brief review of the patient's history might be of interest. In regard to previous diseases, measles is, of course, the most prevalent, being found in 78 per cent. A history of tonsillitis was encountered in 37 per cent. The other more common affections occur in the following order, expressed in percentages:

Scarlet fever	20
Pneumonia	13
Gonorrhea	13
Rheumatism (acute articular)	11
Malaria (often unsubstantiated)	10
Typhoid fever	10
Suppurative ear	8
Influenza	8

Of the operations, tonsils and adenoids had been removed in 7 per cent. and the appendix in 6 per cent. The remaining operations were well scattered and of little interest.

Our statistics seem to show that heredity of degenerative disease of the cardiorenal and vascular system is often over-estimated, since we found such history in 47 per cent. of the series; a figure far out of proportion to our physical findings. A similar conclusion might be drawn between heredity of tuberculosis and the incidence of the disease, although the difference is not so striking when the matter of contact is considered in addition.

Errors in Hygiene.—Excesses seem to be relatively infrequent in this group. Only 7 per cent. indulged to an excessive extent in tea, 5 per cent. in coffee, and only 3 per cent. in tobacco. A very

*Read before the Medical Section of the New York Academy of Medicine, Oct. 18, 1921. (See page 1053.)

small number admitted a previous over-indulgence in alcohol, which has stopped in every instance, presumably in large part because of the difficulty of securing it.

Although such a good record would indicate a model life, such optimism is dispelled by a review of other personal habits. Meat was taken in excess by 31 per cent. and fluids in diminished quantity by 37 per cent. The latter no doubt accounts in considerable degree for the constipation which is encountered so frequently.

Indigestion in its various forms was found in 40 per cent. Forty-one per cent. were found to be rapid eaters, and 45 per cent. were constipated. Of the cases showing indigestion, the last two factors played an important part, for of the 40 per cent. giving a history of indigestion, 85 per cent. were either rapid eaters or constipated, or suffered from both complaints.

Many conclusions in regard to disturbed bodily functions can be drawn from a review of these and other figures, but it is sufficient to state that 18 per cent. indulged in an insufficient amount of exercise and 26 per cent. in inadequate recreation. The latter seems of great importance as a predisposing factor of bodily as well as nervous disorders. It is a regrettable fact that in this group of 400 seemingly very intelligent people, 50 per cent. bathed inadequately.

Factors Predisposing to Organic Disease.—The two important factors in this group are the excessive features of weight. Malnutrition, often to the extent of emaciation, was found in 26 per cent. and obesity in 20 per cent. This reduces the normal fat disposition to only 54 per cent., a rather surprising fact. Slight differences from the normal scale are not rated in either of the first-mentioned classes. Caries of the teeth, substantiated in the majority of instances by the *x*-ray, was found in 25 per cent. and pyorrhea in 13 per cent. Either or both of these conditions were encountered in 30 per cent.

Organic Disease.—General or constitutional diseases were found in the following proportions: Goiter, simple, 3 per cent., associated with hyperthyroidism, $1\frac{1}{2}$ per cent.; syphilis, 8 per cent.; secondary anemia, $3\frac{1}{2}$ per cent. Single cases of the following were discovered: Acromegaly, dwarfism, anatomical elephantiasis, and myxedema.

Cardiovascular disease (including nephritis): Valvular disease of the heart was discovered in 7 per cent. Arterial degeneration appeared in 11 per cent. Hypertension was found as an entity, often, of course, associated with other conditions, in 18 per cent. Renal disease appeared in 3 per cent. On the other hand, functional cardiac murmurs were discovered in 12 per cent. This figure shows the importance of careful study in all cases suggesting cardiac disease. Three-quarters of these functional murmurs were found in females. Hypertension, arteriosclerosis, and chronic nephritis are considerably more prevalent in males, and the other cardiovascular changes about evenly distributed between the sexes. Of the venous diseases hemorrhoids were found in 9 per cent. and varicose veins in 13 per cent. Strangely enough, the latter were found more frequently in males.

Diseases of the respiratory system are far less common in this group. Phthisis, arrested or active, was found in $3\frac{1}{2}$ per cent. and emphysema, generally of the senile type, associated with arteriosclerosis and other degenerative changes, in 4 per cent. Asthma was seen only twice. Chronic bronchitis and chronic pleuritis appeared each three times among the 400 cases.

The gastrointestinal tract seems even less frequently involved. The incidence is as follows:

Gastric ulcer	3	
Duodenal ulcer	1	total 4
Gall-bladder disease	6	
Visceroptosis	3	
Fissure in ano	2	
Fistula in ano	1	
Carcinoma of Liver	1	
Mucous colitis	1	
Appendicitis	1	

Those conditions less closely associated with the intestinal tract are as follows:

Hernia—Inguinal	6 cases
Umbilical	6 cases
Into scar	3 cases

The routine examination demonstrated palpable kidneys in 38, or $9\frac{1}{2}$ per cent.; three-quarters being found in women. In only two instances was the left kidney demonstrated, and in only one of these the left kidney alone. It was impossible to show any organic significance in any of these findings. The liver was found palpable in 7 per cent. and an organic basis was discovered in only half of the cases.

Disease of the urinary organs (exclusive of nephritis) and of the male genitals shows, among 400 cases:

Varicocele	11
Phimosis	6
Atrophied testicle	3
Hypertrophied prostate	3
Hydrocele	2
Renal calculus	2
Epididymitis	1
Hypospadias	1
Cystitis	1
Tuberculous kidney	1
Pyelonephritis	1

Acute gonorrhea was never observed.

The female genital organs were involved in the following order:

Retroversio uteri	3
Menopause pathological:	
Natural	2
Artificial	1
Fibroid uteri	2
Chronic salpingitis, atrophic vaginitis, gonorrheal vaginitis, gonorrheal urethritis, tumor of breast, procedentia uteri, and lacerated cervix	1 each

Diseases of the bones and joints are far more prevalent. The total represents 38 per cent. of our cases. They fall under the following classifications:

[illegible]	[illegible]2 cases
[illegible] disease	4 cases
[illegible]	15 cases
[illegible]	12 cases
[illegible] disease	2 cases
[illegible] not included above	26 cases

These figures are even more striking when one considers that the orthopedic examination was conducted by an internist. For fear of repetition of figures, the following are not included in the above group:

Faulty [illegible]	20 cases
Valgus	23 cases—the latter most often associated with pronation.

Diseases of the nervous system were not com-

mon. Tabes and epilepsy occurred each in three cases, cerebral syphilis in two cases, and general paresis, psychosis, sexual neurasthenia, masturbation, chorea, hysteria, flaccid paraplegia, and occupational neurosis each once.

Diseases of the skin were as follows: Acne, 17 cases; eczema, 8 cases, and pruritus ani, epidermophyton, pedidulosis capitis, and psoriasis each one case.

Affections of the special systems, the nose, throat, and ear, and the eye were the most prevalent. Of the former chronic infection of the tonsils, of any degree of severity, and deviated septum were found each in 36½ per cent. of the cases. Chronic rhinitis appeared in 15 per cent., spurs in 10 per cent. and hypertrophied turbinates in 5 per cent. Chronic catarrhal ears were found in 26 per cent. Those presenting no pathological process in ear, nose, or throat amounted to only 21 per cent.

A review of the eye condition shows the bulk of pathology lying in errors of refraction. They are divided as follows:

Astigmatism	90 cases
Hyperopia	73 cases
Hyperopic astigmatism	33 cases
Myopia	24 cases
Myopic astigmatism	19 cases
Presbyopia	22 (6 counted previously)
Anisometropia	2 (2 counted previously)
Amblyopia	3 (2 counted previously)
Refractive error (unclassified)	30 cases

The following diseases of the eye were noted:

Conjunctivitis	21 cases	Vitreous opacities	2 cases
Corneal scars	6 cases	Choroiditis	1 case
Cataract (mixed)	10 cases	Chororetinitis	1 case
Optic atrophy	3 cases	Scleritis	1 case
Retinitis	3 cases	Others	7 cases

The cases presenting normal external eyes, fundi, and refraction represented only 25 per cent. of this group.

Fully as important as the detection of organic disease is the recognition that certain pathological findings have no organic bases. Albumin in the urine was detected in 116 cases, or 29 per cent. Of this large number definite organic basis for the albumin could be demonstrated in only 43. A pathological sediment of pus, possibly due to urethritis, prostatitis, or vaginal secretion, might be considered as a cause for 33 others. In 40 instances, or nearly 35 per cent., no possible explanation could be found for the albumin, which was transient in a large majority of cases. Of the unexplained cases almost twice as many occurred in women as men.

A general survey of the laboratory findings, in addition to this consideration of albumin, is of interest. Sugar was detected in the urine of seven; of these a true diabetes was demonstrated in only two cases.

Positive Wassermann reactions were considered diagnostic of syphilis only when subsequent tests substantiated the findings. Eighteen cases showed such reactions, representing 4.5 per cent. of all cases examined. Secondary anæmia was demonstrated in 14 and a distinct eosinophilia in 8, six of the latter being unexplained. A positive gonococcus fixation reaction was found in one case. When the clinical findings and the history of the patient are considered, the following survey represents the incidence of syphilis in the 400 cases:

	Cases	Positive Blood W. R.
Neurosyphilis	6	3
Syphilitic history	15	4
Persistently positive W. R without history or signs	11	11
	32 (8 per cent)	18 (4½ per cent)

A summary of these findings shows that definite organic disease, exclusive of that of the eye, ear, nose, and throat, was demonstrated in 79 per cent. of all of this group. In the case of the cardiorenal and vascular diseases marked increase in economic efficiency can be expected from proper supervision and treatment. The same may be said of the affection of the respiratory system. Those of the gastrointestinal, urinary, male and female genitals are most amenable to, if not curable, by appropriate treatment. Considerable improvement results from proper management of the diseases of the nervous system. The affections of the skin were, for the most part, curable. The greatest benefit from an economic standpoint would be found following systematic treatment of the diseases of the bones and joints. Including the diseases or affections of the special senses only 4 per cent. of this group are normal men and women.

Conclusions.—1. A health clinic, conducted along the lines of group diagnosis, can operate without great expense to the individual and, in our case, none to the institution.

2. Such a clinic can cooperate with the family physician to the benefit of him and the patient.

3. It reaches well beyond the limits of the city where it is established.

4. The second, third, and fourth decades appreciate best the need of such service.

5. The occupations indicate a high grade of intelligence of this clientèle.

6. Physical defects, exclusive of the eye, ear, nose, and throat, were demonstrated in 79 per cent. of a group of 400 individuals, of whom nearly 80 per cent. were presumably well.

7. Faults in habits and hygiene were shown in percentages ranging as high as 50.

8. Factors well recognized as predisposing to organic disease were shown in as many as 30 per cent.

9. A large percentage of cases showed signs which might erroneously be considered of organic significance. Rectification of such errors is of nearly the same value to the individual as the demonstration of positive facts.

10. The faults in habit and hygiene can be eliminated, the factors predisposing to disease almost entirely corrected, and the organic disease nearly always modified and in the majority of instances definitely cured.

520 Commonwealth Avenue.

Sympathetic Algia in a Melancholic.—Laignel-Lavastine and Delmas relate that a woman of 35 with melancholia tried suicide by strangulation. She was prevented but thereafter was wont to constrict her neck with any convenient object at very short intervals, stating that this act relieved her anxious state. In this way she induced what appeared to be a vasomotor neuralgia of the left arm and hand, which subsided under the use of vasodilators.—*La Presse Médicale.*

HYOSCINE AND MORPHINE AS A PRELIMINARY TO LOCAL ANESTHETICS.*

BY LEE M. HURD, M.D., F.A.C.S.,

NEW YORK.

IN 1914, after using this method for nearly two years, I made a report (*Laryngoscope*, Nov. 1914). Now, in the eighth year, stimulated by the findings of your Committee on Local Anesthetics reported before this Section last year, I am prompted to take up this subject for a second time. Anything that adds to the comfort of the patient, lessens, shock, and reduces risk of local anesthetic intoxication, is surely worth while.

In the report of your Committee on Local Anesthesia the answers received to the question "What toxic effects have come under your notice?" thirty-seven in number, detail the symptoms of syncope or phrenic irritation. I consider all were shock except two or three. The fatalities, excluding the mistakes in dosage and those in which the anesthetic was injected into a vein, appear to me more like mental shock death and not like fatality from local anesthesia.

The experiments on lower animals except for toxic dosage are of no help, because animals experience no apprehension or fear. In the human, especially the nervous type which are in the great majority, apprehension and fear play a very important role in shock, even more important than the shock of operative trauma. For this reason not only should the operative field be anesthetized, but the contact ceptors and the special sense ceptors should be blocked.

I wish to state again that the preliminary administration of hyoscine hydrobromate and morphine sulphate has eliminated the unpleasant features of local anesthesia which I experienced in the past, and given me a confidence that, no matter how nervous or apprehensive patients may be, there will be no trouble with them at the time of operation.

The operations of otolaryngology usually done under local anesthesia are expanded by hyoscine and morphine to the major group, such as mastoidectomies, laryngectomies, resections of jaw, etc., when general anesthesia is not desired.

Though nearly all cases are ready forty-five minutes after receiving hyoscine and morphine, some require a longer time to settle down and some require two or three doses. This makes it impossible to appoint a definite time for the operation, as is required in reserving the operating room in a busy hospital. I have had a delay of over two hours in some instances.

The routine dose is morphine 1 4 grain, hyoscine 1 100 grain. This is usually given after a light meal, administering a second dose, if necessary, after forty-five minutes, usually half of the first dose, though this depends upon whether the patient reacts to one drug more than the other. If so, less of the drug to which the patient reacts more readily, and more of less active drug is used in the second dose. In 300 consecutive cases a second dose was given in 42 cases, a third dose in 5 cases, and a fourth dose in 2 cases. The third and fourth doses were usually given for long major operations. One of my first patients, a woman, became suddenly very hysterical when I was half way through operation and was noisy, laughing and crying, but mainly laughing, for several hours. In this case I had been forewarned of the hysteria and the next day she did not remember the hysterical outburst, or any part of the operation. Four other women showed some hysteria when the first tonsil was removed, but made no complaint when the second came out. I had misjudged my patients and had not given enough hyoscine and morphine. They probably would have been all right after a second dose.

Of my early cases, two which were mentioned in my previous report, while I was using the sitting position, had marked drop of blood pressure to 90 mm. systolic; otherwise their condition was good and the operation was finished. In the first case I gave a hypodermic of adrenalin and placed the patient in a recumbent position. In the second case after operation, the recumbent position promptly raised the blood pressure. For the past three years all cases have been kept recumbent during the operation and, even if the dose is not sufficient, syncope and lowered blood pressure do not occur.

Previous to three years ago, the hyoscine I was using did not act as consistently as that which I am using now. There were more cases of delirium, coma, prolonged effect, etc. The hyoscine must be pure; especially, it must not contain apoatropine as an impurity. For the past three years the action of the hyoscine which I am now using is quite as consistent as is the action of morphine. The tablets must be kept dry and fresh solution made at the time of operation, as hyoscine in solution will break down into impure and poisonous by-products in twenty-four to forty-eight hours.

The patients were nearly all good risks, though the poor surgical risks did equally as well. When patients are ready for operation, their pulse rate is reduced, they are sleepy or sleeping and do not want to be disturbed, speech is slow and somewhat thick, cerebration is slowed, they may be somewhat confused, and in moving from bed to operating table they have a staggering gait. The pupils may be contracted (morphine), or dilated (hyoscine). The ideal is midway. The face usually itches; the color is good.

The pulse is taken at time patient enters office for operation, again when the operation begins, and immediately after it is finished. The average pulse rate in 50 cases was 99 at the time of entering office, 85 at the beginning of operation, and 85 at the end of operation. This, however, does not show the whole picture, for example, 128-88-84 in a highly nervous patient, and 76-76-72 in a phlegmatic one might be taken as extremes.

The blood pressure taken in a few cases a day or two before operation, at the beginning and at the end of operation, showed:—

Before Operation		Beginning of Operation		End of Operation	
Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic
122	76	110	70	124	74
170	100	180	100	200	110
150	100	150	100	162	84
132	84	120	80	150	100

*Read before the Section on Laryngology, Otology, and Rhinology at Boston, June 8, 1921.

The age groups are:—

11 to 20	50 cases	16+ per cent
20 to 30	75 cases	25 per cent
30 to 40	93 cases	31 per cent
40 to 50	50 cases	16+ per cent
50 to 60	18 cases	6 per cent
60 to 70	14 cases	5 per cent

Hyoscine and morphine work well at all these ages.

Having had the usual run of syncopes and varying degrees of psychic shock before I began the use of hyoscine and morphine, I now have none with its use. The patients have a steady pulse which tends to pass the anesthetic which is being absorbed, on to the liver for elimination, preventing intoxication.

Morphine can be used in larger doses if cocaine is used in conjunction with it, and the reverse is true. Hyoscine has the same physiological action as atropine plus blocking of the mind. Blocking the sensory nerves with morphine and hyoscine prevents shock and, though more local anesthesia can be used, as a matter of practice less anesthetic is necessary.

In the production of local anesthesia I have used novocaine hypodermatically, cocaine and alypin topically,

Cocaine	29 times
Novocaine	41 times
Alypin	223 times
No anesthesia	2 times

Alypin and novocaine are quickly eliminated and are, therefore, better than cocaine. Alypin which is equally as anesthetic as cocaine and much less toxic, I prefer, though it is unobtainable at present.

Patients are kept in the office two or three hours after operation during which time they are asleep. They are awakened then and are usually in condition to be taken to their homes or a hotel.

Since the previous report, I have extended the use of hyoscine and morphine to all cases operated upon under local anesthesia except very minor and short operations regardless of age or surgical risk. Whether the patient appears nervous or phlegmatic, I feel confident that, if this method is used, you will not have the symptoms attributed to anesthetic intoxication, and fatalities with the proper use of the local anesthetic will be greatly reduced.

39 East Fiftieth Street.

WERE THEY WRONG DIAGNOSES OR NATURE CURES?

By C. A. BRYCE, M.D.,

Richmond, Va.

Most of us who have seen long service in the profession can recall mistakes in diagnoses, and even worse ones in unfavorable prognoses. Some of my experiences with supposed cases of cancer of the stomach and hopeless prognoses are interesting to me now that time has proven my mistakes.

Case I.—Many years ago I was called to attend an old lady between sixty-five and seventy years of age, who presented every symptom of cancer of stomach. She had fallen off to a mere skeleton, had long standing aggravated dyspetic symptoms, pain after taking any food, a flaming glazed red tongue, and a big hard lump near the pyloric end of the stomach as well as I could make out from external manipulation. With her age and these symptoms I made out a case of cancer of stomach, and concluded that her days were numbered. My dear friend and able physician, the late Dr. R. A. Lewis, saw the case with me and fully agreed with my diagnosis and unfavorable prognosis. We advised the old lady to "go to the country" for a while. This is a very convenient procedure for getting hopeless cases off a doctor's hands. The old lady took our advice, went to a niece's in the mountains, got a complete change of environment, water and diet, and cheerful company. In six months she returned home absolutely well and without having used any medicine of any kind whatever. I was surprised to see her once more, and more surprised to see her looking so well; indeed, at first I failed to recognize her. She said to me: "You thought I was going to die and that is the reason you sent me away, but you doctors don't know everything, and I thank God that you quit the case and gave me a chance for my life." She shook herself and looked so "sassy" about it I almost wished my prognosis had been right.

Case II.—Twenty years ago a gentleman of about thirty-five years, a farmer, came to consult me about a chronic stomach trouble that had persistently resisted all measures employed by two very good physicians of his neighborhood. He was very much emaciated, vomited almost everything he ate almost as soon as it entered the stomach, and he had lived on small quantities of milk and other semi-liquid diet for months. He had much pain after the ingestion of anything. He was seen by several good surgeons, and all of us feared malignant disease of the stomach. It was finally agreed that we would operate upon him for supposed cancer and if such did not exist, to find out what was the trouble. He went home to arrange his affairs, promising to return in two weeks to undergo the operation. The weather was warm, and before leaving town he went into a restaurant and ate a pint of ice cream. It felt good in the stomach and was retained without giving him any pain. He was surprised at its retention and at the comfort it gave his stomach, and just before taking his train he ate another pint, which behaved as the first did. He shipped the best freezer he could buy to his farm, and being a man of means, his fine herd furnished him abundantly with the best cream. His wife kept a good supply of ice cream in that freezer all the time, and for two months he lived absolutely on nothing but ice cream—not a mouthful of anything else. Within the two months he gained twenty pounds, had no trouble with his stomach and cautiously returned to his usual diet without any inconvenience, and has remained well ever since. He was in my office this summer and looked well and felt fit—twenty years after his cure.

Case III.—Within the past five years a lady about forty-five years of age, consulted me after having been x-rayed and pronounced suffering with an inoperable cancer of the stomach, by a leading surgeon of this city. She was told that nothing could be done for her through surgery, and she drew the inference that she could live but a few months. She was placed upon a milk diet principally, and as she did not get worse she kept on and gave up the idea of dying from cancer, and today is looking and feeling as well as she ever did in her life.

It is bad to make a diagnostic mistake. It is infinitely worse for patient and physician to labor under an unfavorable prognosis, which may not be correct, and always lessens the chances for recovery.

516 North Tenth Street.

Acute Miliary Tuberculosis Mistaken for Typhoid Fever.—Caussade and Doumer describe a case which had all the symptoms of Landouzy's classical picture—fever curve, dissociation of pulse and temperature, pronounced leukopenia, enlarged spleen, etc., slight bilateral serous pleurisy being a complication. The patient was a diabetic, but sugar left the urine during the acute disease. Autopsy showed no Peyer's patches or other lesions of typhoid, but instead miliary tuberculosis. There is no mention of negative serodiagnosis or hemoculture and it is not to be inferred that a mistake in diagnosis was made.—*Le Bulletin Médical.*

A CASE OF CHRONIC ERYTHEMA NODOSUM, WITH RECOVERY.

BY WILLIAM W. CADBURY, M.D.,

PHYSICIAN TO THE CANTON HOSPITAL.

CANTON, CHINA.

ERYTHEMA Nodosum is one of those clinical entities whose etiology is still very obscure. Most authorities believe that it is rheumatic in nature, while others claim that it is generally associated with tuberculosis. According to Stelwagon in his "Diseases of the Skin," the disease is more common in females than in males, and at from ten to thirty years of age.

The inflammatory swellings usually do not last more than two weeks, and the patient generally makes a good recovery in a month or so. Sodium salicylate and quinine are recommended for treatment.

The following case of unusual severity and prolonged course will be found of interest:

T. T. S., Chinese, male, aged eighteen, a farmer by trade, was admitted to the wards of the Canton Hospital January 28, 1920. (Hist. No. 20,209.) The patient complained of painful swellings on the face and four extremities. The family history was negative. Patient is unmarried, neither smokes nor drinks alcohol, and has had no serious previous illness.

The present illness began five years ago. Tumors first appeared on the face and then on the forearms and legs. Occasionally the thighs and upper arms were the seat of the lesions and rarely the trunk.

A tumor begins as a small hard swelling of the skin. It gradually enlarges and becomes exceedingly painful and tender. The color becomes dark red and the surface is hot. If several swellings mature about the same time the patient has chills and fever. The swellings gradually decrease in size; the entire cycle of development and recession of one lesion is about a month. At the maximum there is generally fluctuation, but the tumor seldom breaks down. If this does occur a small amount of fluid escapes. The sites of the old lesions remain pigmented after the removal of a small scab. Sometimes the skin is also pitted at the site. Lesions are generally round, but sometimes elongated. New ones tend to appear at the margins of old ones. There is no itching and no numbness, only tenderness and pain.

Physical examination: The boy appears no more than fourteen years of age, though he says he is eighteen. There are numerous swellings on the face and four extremities. The anterior surface of both legs is smooth and shiny, the result of many tumors. They have always been more numerous on the legs.

The appetite was fair. The heart, lungs, and liver appeared to be normal. The spleen was enlarged and palpable.

July 29, 1920: Hemoglobin, 60 per cent.; leucocytes, 23,600; red cells, 4,750,000. Urine, dark yellow, acid. Sp. G., 1,020, no albumin no glucose. Feces: Ascaris ova present.

The temperature on admission was 38.7° C. the pulse 108, and respiration 18.

The treatment consisted in calomel and saline purgatives as required, and a course of santonin for the ascaris. Yeast was given for the first week and also chloride of iron solution with Fowler's solution. An antiphlogistic paste was applied to the most painful lesions. Quinine was given for three or four days.

Stock typhoid vaccine was injected intravenously as follows: January 30, 20,000,000; February 11, 10,000,000; February 23, 20,000,000.

The temperature fluctuated from 36.9° to 38.7° C. for the first three days until the vaccine was given on the 30th. This was followed by a severe chill and a temperature of 40.6° C., which fell to 38.7° the next day, and fluctuated between 38° and 40°, but gradually falling until the 10th of February, when it did not rise above 37.6°. After the second dose of vaccine on the 11th there was a milder reaction, after which the temperature varied from 37° to 38° until February 20th, after which it remained normal. The injection on the 23d was followed by a more severe reaction and a return to normal the next day. The course of the lesions was as follows: Slight decrease of pain by February 4; February 13, condition still better.

Patient was discharged on February 25. The temperature was normal. No new lesions were developing, and the old ones had healed and were painless.

On February 7 the leucocytes were counted again and there were but 10,500.

Considering the protracted course of the disease, the marked improvement during one month of treatment was considered quite remarkable.

Medicolegal Notes.

Evidence as to Death from Ptomaine Poisoning—Invading Province of Jury.—In an action on an accident policy where it was claimed that the insured's death was caused by ptomaine poisoning, the defendant objected, on appeal, that physicians were permitted to state what caused the deceased's death, as this was invading the province of the jury. The court found no testimony in the record where the doctors were asked or permitted to state in positive terms what caused the deceased's death, except where the defendant's counsel asked a medical witness, on cross-examination, if he was certain as to what caused the deceased's death. It was held that if defendant's counsel asks questions of this character, or makes no proper objections to those asked by counsel for plaintiff, he cannot be heard to complain on appeal.

Three doctors testified that there is such a thing as ptomaine poisoning, and that, in their opinion, this caused the deceased's death. Two doctors testified that under the facts disclosed at the trial this would be almost impossible. It was held that this made a disputed question of fact for the jury, and there being substantial testimony to support their finding that the deceased came to his death by ptomaine poisoning, the court would content itself with "refusing to disturb the verdict of the jury, rather than to declare as a matter of law that deceased could not have died from ptomaine poisoning, and thereby settle judicially this disagreement between members of the medical fraternity."—O'Connor v. Columbian Nat. Life Ins. Co. (Mo. App.), 232 S. W., 218.

License to Practice—Right to Adjourned Hearing.—The Colorado Supreme Court holds that, under Laws 1917, p. 359, § 11, providing for thirty days' notice to an applicant for a license to practice medicine after an adverse finding by the board, to appear before the board in person, an applicant who has appeared in person and introduced his evidence on the hearing four months after the filing of his application is not entitled to have a further hearing on thirty days' notice or otherwise.—State Board of Medical Examiners v. Brown (Colo.), 198 Pac., 274.

Privileged Communications — Prohibition Surviving Patient's Death.—In a suit to set aside a will on the ground of undue influence and mental incapacity, the Mississippi Supreme Court holds that the prohibition of the Mississippi statute against the disclosure by a physician or surgeon of communications made to him by a patient, except at the instance of the patient, survives the patient's death, and cannot be waived by the patient's heir, executor, or administrator.—McCaw v. Turner (Miss.), 88 So., 705.

Province of Medical Witnesses and of Jury in Injury Cases.—In an action for benefits under a health and accident policy, where the plaintiff's finger was accidentally injured by being mashed in turning a wagon, resulting in blood poisoning, a physician who subsequently attended the plaintiff testified that he found him suffering from diabetes, which might have been, and, in his opinion was, the direct result of the injury to the finger and the resulting blood poisoning. It was held that the question whether the diabetes was the result of the accidental injury was for the jury.—Anderson v. Mutual Benefit Health & Accident Ass'n (Mo. App.), 231 S. W., 75.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, December 10, 1921.

BOWEN'S DERMATOSIS.

DESCRIBED for the first time by Bowen, of Boston, this dermatosis has given rise to much study in France, especially by Darier. This process is characterized by the insidious appearance somewhere on the cutaneous surface—trunk, limbs, face, genitals—in adults or elderly subjects, of keratotic spots varying in size from a lentil to the palm of the hand, rounded, polylobate or irregular in shape, of a dull pink color, frequently more or less papular or vegetating and invariably covered with thick squamæ or crusts. The lesion may be single at the onset of the process, but usually there are from ten to twenty present. The principal characteristic of the lesions is to persist indefinitely and to resist all therapeutic measures, excepting destructive ones, while pruritus and pain are wanting. They extend slowly, but what is most interesting is that they undergo malignant transformation in a notable percentage of cases, hence they have been placed with precancerous affections, such as senile keratosis, radiodermatitis, nevi, xeroderma pigmentosum and, above all, Paget's disease of the nipple.

Malignant transformation makes itself manifest by the fact that the lesion develops vegetations or ulcerates. Sometimes the ulcer is irregular in outline with excessive granulations, an indurated base, and more or less keratotic edges. At others, a mammillate or papillomatous tumor develops, erosive, bleeding, and covered with a crust, so that the malignant character of the lesion cannot be overlooked. The adjacent lymph nodes are involved, form a bosselated tumor, which in turn ulcerates and invades the surrounding structures. Generalization of the neoplasia to the deep seated lymph nodes, and pulmonary and peritoneal metastases arise.

The gravity of this evolution necessitates an early diagnosis of the lesion. Darier points out that the epidermis of the lesions, which are distinctly limited on their edges, has undergone a profound change. A large number or even most of the Malpighian cells are increased in size, hypertrophied or edematous. The principal changes occur in the nuclei; these are unequal, some being small, others—and these are in majority—are giant, multiple, deformed or monstrous. It is to one of these vitiated processes or keratinization that Darier has proposed to give the name of dyskeratosis. One of the effects of this change is to permit the passage of condensed cells into the horny stratum, which assume the shape of rounded corpuscles, either nucleated or not. The horny stratum occasionally assumes the aspect of a true carapace more or less infiltrated with serum. In its *ensemble* the epidermis is thickened, the papillæ hypertrophied and more or less deformed, and the papillary body is the seat of a distinctly limited cellular infiltrate rich in plasmocytes.

Such are the clinical and histological character of this affection whose only remedy is excision, which should be done as soon as the diagnosis is made. Destruction of the process may be effected by radium, *x*-rays, carbonic snow, or cauterization. The essential is to know that over 50 per cent. of the cases undergo malignant transformation unless thoroughly dealt with, although at the onset the lesions look very benign.

THE PATHOLOGY OF FIBROMATA OF THE SPERMATIC CORD.

FIBROMA of the spermatic cord is usually single, though in one or two reported cases two tumors were present. In most cases the growth will have reached the size of a fist at the time the case comes to operation, but it may be much smaller. The site varies and if the cord be divided into two portions, the first extending from the tail of the epididymis to the external ring—which may be termed the scrotal portion—and the second comprising the entire inguinal course of the cord, it will be found that these growths develop much oftener in the scrotal portion, the ratio being 8 to 1. The tumor develops regularly, but slowly, and takes several years to reach the size of an orange. There is no spontaneous pain and none on pressure. No functional disturbances arise, but coitus may become impossible from the size of the neoplasm. The phenomena of discomfort are due simply to the weight of the growth.

Macroscopically, the tumor is a regularly rounded mass, smooth, hard, non-transparent, and without adhesions, surrounded by a dense thick fibrous capsule completely isolating it from the surrounding structures. The veins of the scrotum are hardly ever enlarged. The testicle and epididymis are intact and are normal in size. They lie against the tumor and often are adherent to it. They may lie in front, to the right or left, or underneath the fibroma. The cord is apt to be enlarged and its elements are spread out over the growth the vas deferens alone is comprised in the neoplasm and is difficult to dissect out. On section the neoplastic tissue is purely white, dry and hard, with concentric or interlaced fibers, while the intervals between the fibrous fasciculi contain a darker colored tissue. Occasionally, some cystic cavities may be met with.

Microscopically, the tumor is found composed of thick connective tissue fasciculi matted together, usually wavy, interwoven together or concentrically placed. This connective tissue contains cell elements in variable number. The vascular supply varies. Besides the vessels, lymphatic canals are found, containing coagulated lymph and leucocytes. Fat vesicles are quite numerous. Like all other fibroid neoplasms, fibromata of the cord may undergo mucous, serous, fatty, or even calcareous transformation. Non-malignant primarily, these growths may undergo sarcomatous transformation; they can also become inflamed and develop gangrene. The microscopic study of fibromata of the spermatic cord shows that there is always an abundance of connective tissue fibers and absence of elastic tissue. The cell elements vary in quantity. They are more abundant in younger growths which have not attained their final development. The vascularization of the growths is at times rich, at others poor, and this likewise applies to the lymphatic spaces. The fat vesicles invariably exist in very large number.

Now what elements of the spermatic cord give rise to these growths? The connective tissue uniting the various component parts of the cord has been supposed to be the starting-point of fibromata and it is beyond any reasonable doubt that this is true. In point of fact, if the envelopes intervened in the formation of the growth it would be quite impossible to isolate them. The fibrous capsule surrounding the tumor is perhaps nothing else but the membrane enveloping the cord, and under the influence of the irritation produced by the development of the tumor this membrane becomes thickened and united to the growth to which it intimately adheres, developing gradually along with the neoplasm.

SUDDEN DEATH.

THE dramatic nature of sudden apparently unmotivated death has made it a subject of perennial interest to medical men and especially to forensic practitioners. There is always a presumption of suicide or homicide until such a possibility can be excluded. The relationship between sudden death and the status thymicolymphaticus involves but one aspect of the problem, which should be dealt with separately. However, the enormous literature on this type of death is rather evidence against than for the existence of such a factor; and it is much sounder to analyze all of the cases of sudden demise without any prejudice in favor of so-called thymic death. This has been done by Thorner in the *Schweizerische medizinische Wochenschrift* for September 8, 1921, ii, 36. The writer first quotes from voluminous statistics which show the considerable predominance of males over females and the frequency of arteriosclerosis in the deceased, even when young. The relation between this vascular condition and sudden death is clear and arteriosclerosis is much more definite than the hazy status lymphaticus. The occurrence of sudden death after sharp physical overstrain can hardly be called a spontaneous phenomenon, although the author includes such in his quoted figures.

His personal statistics comprise nearly 300 cases recorded during a period of nearly four years in a definite area of Switzerland. Many came to autopsy in the Institute for Forensic Medicine of the Basle University. The annual figure is 77 deaths, and the percentage per 1000 of population appears to agree with that of other cities of Central Europe. The author was surprised to find that females predominate over males. Only 105 cases came to autopsy, and the author's analysis is based on this material. He makes three categories, in the first of which there was no discoverable cause of death, while in the second there were alterations which may or may not have been a factor. In the third class the causal factor was apparent in the presence of some lesion. When the cause was undoubted the heart was naturally the organ which had given out. The author lists 40 such cases, comprising 15 of valvular lesions, hypertrophy and dilatation, 7 of coronary sclerosis, 7 of myocarditis, and 7 of mesaortitis luetica, the remainder being scattered. Contrasted with this material there were but 4 cases of sudden death in which all the organs were intact and a number of others which cover deaths of tuberculous, cancerous, and other subjects in which the exact mode of death is not apparent.

In the 41 cardiovascular cases it is important to note that death was not the typical cardiac passing out, which is due to progression of the morbid state up to the point of cardiac failure. In many, if not most of the cases, the condition was at a standstill and death occurred in the midst of apparent health, as in the case of a youth of 20 who died in a game of football.

SPONTANEOUS COLIPROSTATITIS.

NUMEROUS recent writers on prostatogenic focal infection mention infection of that organ with the *Bacillus coli* as the source of one or more lesions in remotely seated organs, notably the joints. In such cases it is not necessary that prostatic abscess forms; on the contrary infection of the gland is usually discovered by milking it and examining the expressed secretion. In all cases there are local evidences of inflammation. Not a few writers ignore coli-infection and attribute practically all cases of prostatogenic infection to the gonococcus. In the *Schweizerische medizinische Wochenschrift* for August 11, 1921, li, 32, Suter presents a monographic study of spontaneous coliprostatitis, which naturally excludes all cases attributable to instrumentation, and relates a number of personal cases, claiming that the incidence is relatively common. Like most Continental writers he seems unaware of the existence of remote secondary foci. Focal infection is well enough known in Europe and infection in certain localities like the pararenal tissues is frequently particularized as a source of

miscellaneous metastases. The silence in respect to focal infection originating in the prostate and seminal vesicles may be explained by the fact that metastases from these structures are regarded as presumably gonococcic, despite the fact that the germ in question can no longer be found. In such a supposition the *Bacillus coli* and streptococcus would only mean mixture of infection. On the other hand in some of the American cases there is no history or evidence of old gonorrhea.

The symptoms of this affection suggest, according to the case, either acute or chronic cystitis and this diagnosis is almost always made when the prostate is not palpated. The urine often shows blood admixture. Palpation reveals an absence of type in regard to the size and site of the swelling, the consistency and tenderness. The amount of expressed secretion varies, as does the consistency. The *B. coli* is only directly in evidence in part of the cases. In the majority it is only brought out by cultural efforts. The posterior urethra is invariably diseased. Cystoscopy cannot be practised in these cases. Chills and fever are very common and are known to be common in all coli infections. No matter how acute the process the tendency is to subside without formation of a true abscess. The latter is very common in coli infection of the kidney and epididymis, so that this point is significant. In some cases pus escapes by the natural passages and in others there is no accumulation of purulent matter. Coliprostatitis is very prone to recurrence. The mechanism of infection is most obscure, and in an analysis of 89 cases of spontaneous prostatitis of all kinds collected by the author little light was thrown on the subject. A few seemed to have been due to influenza. The staphylococcus is the most common offender, followed at a considerable distance by the streptococcus and colon bacillus.

Studies of a Myxedematous Child.

The problem of thermogenesis in thyroidectomized animals has received considerable attention, and it has been ascertained that injections of thyroid extracts will raise the temperature in hibernating mammals. Cori, writing in the *Wiener klinische Wochenschrift*, October 6, 1921, xxxiv, 40, has recently made studies of a myxedematous child 4 years of age as follows: he immersed him in a bath at 25° C. and then in another at 40° C., the exposures being respectively 10 and 15 minutes. These experiments were then repeated with the same subject under thyroid feeding. Comparison of temperature curves shows that in the untreated child the temperature fell to 33° C. and that it did not behave normally until the lapse of 14 hours. Compared with several healthy children the latter showed an initial fall to 36° C. only, with but 1½ hours for readjustment. In the myxedematous child under thyroid feeding the behavior was nearly that of the normal child. Recovery was equally prompt although the initial fall was slightly lower. When the myxedematous child was placed in the warm bath there was no reaction—no reddening of the skin, no sweating nor acceleration of pulse or respiration. The child was then tested for protein fever by injecting milk parenterally. It has long been known that these children can develop fever in acute infections. The temperature promptly rose to over 39° C. and did not become entirely normal for 41 hours. Tests were also made for adrenaline, atropine, and pilocarpine reactions in the untreated and treated child. The administration of thyroid increased the response of the sympathetic and diminished that of the vagus to the action of these drugs.

Surgical Statistics of Mammary Cancer.

Apropos of the general discussion which followed the reading of papers by Forgue and Walther at the recent session of the French Surgical Society (*La Presse Médicale*), Alessandri of Rome mentioned a recurrence 14 years after removal of the breast; fortunately this was readily removed and there has been no second recurrence. Grenade announces 28 per cent. of 5-year survivals in a large operative material. Begoin has 20 5-year survivals in a material of 134 operations, equal to about 16 per cent. Apparently, however, but 78 cases were followed up so that the real percentage of his 5-year survivals is about the same as Grenade's. Delagenière has operated on 413 women in 3 years past and upwards. Only 159 were followed up, with 72 "long survivals"—considerably more than 40 per cent. Hartmann followed up 251 cases out of 331. He gives only his 3-year survivals—36 per cent. Auvray followed up 42 out of 82 operations, and found among them numerous prolonged survivals—one of 16 years, 5 of 10 years, another of 10 years including recurrences, and one each of 8, 7, and 6 years. Faure's Paris figures show 11 5-year survivors in 72 followed up. Lapeyre uses radiation of the ovaries in a sterilizing dose after operation. Reynes performs ovariotomy after Beatson's method. He has numerous cases of protracted survival—10, 15, and 20 years. Jemtel claims in 68 follow-ups no less than 17 10-year survivals. This, if not a misprint, must break the percentage record for protracted survival.

Experimental Yellow Fever in the Dog.

Doctor Lebredo completes his serial article on "Experimental Leptospirillosis" in dogs in the *Revista de Medicina y Cirugia de la Habana* for September 25, 1921, xxvi., 18. The organisms used for inoculation were of the so-called Merida (Yucatan) strain, obtained from Dr. Noguchi, of the *Leptospira icteroides*, which the latter succeeded in isolating. The author sums up the result of his investigation as follows: both pups and adult dogs were remarkably susceptible to this organism. The latter was introduced by the intraperitoneal, oral, and intradermic routes. The former exposure proved rapidly fatal—within 18 to 24 hours or before a typical disease picture could develop. When administered by the mouth the mortality was much less and some of the animals escaped infection altogether. Of most interest, paraphrasing mosquito transmission, was the intradermic method, which gave clean-cut disease pictures, comprising severe and fatal types. The icterus and

hemorrhagic lesions were typical of yellow fever. The author also succeeded in effecting mosquito transmission by means of *Aedes calopus* and he has shown that the dog may be a reservoir of infection, although this may not happen in natural yellow fever in man. In the author's research actual cultures were not employed but guinea pigs were first contaminated with the leptospira and the blood and viscera were then used in the canine experiments.

News of the Week.

St. Luke's International Hospital in Tokio to Be Made Health Center.—Tokio is desirous of creating a medical center like those of the large American cities, and has sent Dr. R. B. Teusler, director of St. Luke's International Hospital, to this country to interest Americans in a project to expand the institution. It is proposed to make St. Luke's Hospital the nucleus of a hospital of 250 beds, a training school for 150 Japanese nurses, a postgraduate department for training Japanese internes and for medical research work, a public welfare and health department to include medical social service, and a medical library for American and British medical literature and magazines. Dr. Teusler says that about $1,000,000 would be required properly to establish the proposed health center.

Health Week for Rotarians.—Rotary clubs are celebrating the week beginning December 5 as health week. During the week special attention has been given to spreading information with reference to tuberculosis. On Sunday, December 11, which is designated Health Sunday as well as Tuberculosis Sunday, instituted in New York State under the auspices of the Committee on Tuberculosis and Public Health of the State Charities Aid Association, there will be special talks in the churches on "Conquering the Great White Plague."

A Medical Unit for Russia.—The People's Commissariat for Public Health at Moscow has given permission to send an American medical unit to aid particularly in the famine regions of Soviet Russia. The unit is being organized in cooperation with the Russian Red Cross, at a cost of $150,000, and will be sent abroad by January 1. It is proposed to send at least twelve American physicians, several motor trucks, three or more motor ambulances, and hospital supplies and equipment.

Traffic Accidents in New York State.—A report of traffic accidents from January 1 to November 30, prepared by the National Highways Protective Society, shows that 1,741 persons were killed by automobiles and motor trucks in this State, as against 1,429 for the entire year of 1920. It is predicted that this year's record will be just short of 2,000 dead. During November 225 persons were killed from these causes in the State; in New York City 66 were killed by automobiles and motor trucks and seven by trolley cars.

The New York Hospital Immunization Clinic.—A clinic is being conducted at the New York Hospital for the immunological treatment of hay fever, asthma, eczema, and poison ivy, which is open Tuesday and Thursday evenings from 5 to 7 o'clock. Preventive inoculations against diphtheria and typhoid fever are also administered.

Suspected Food Poisoning Should Be Reported.—The New York City Health Department requests physicians who meet cases in which a suspicion of food poisoning is justified to report the facts to the Department of Health, so that the Bureau of Food and Drugs may make an investigation. Such illnesses are reportable in California and elsewhere, and as information accumulates in regard to their epidemiology will doubtless become generally notifiable maladies. In reporting suspected cases, physicians are requested to give information as to name, age, sex, occupation, residence, date of onset, symptoms, laboratory findings, treatment, present condition. As regards the food supposed to have caused the illness, information is wanted as to when and where the foodstuff was purchased, when eaten, by how many persons, number made ill, name and address of attending physician. Above all, the department desires to obtain a portion of the article suspected.

Medical Journal to Change Ownership.—The Southern Medical Association, at its recent meeting, held in Hot Springs, Ark., voted to accept the advice of its board of councilors that the *Southern Medical Journal* be purchased from its present owners for $55,000.

Shortage of Ambulances in New York City.—In connection with the campaign being conducted by the United Hospital Fund, Wiliam Fellowes Morgan quotes figures just compiled by the Public Health Committee of the New York Academy of Medicine showing that the ambulance service of the city is in a critical condition. Some hospitals have been forced to drop their ambulance service because of lack of funds, and other hospitals which are facing deficits fear they will be obliged to abandon this part of their work. The figures of the hospital survey of the Public Health Committee show that the ambulances of the city responded to 109,395 calls in the last year. Of this number only 3,100 were unnecessary. During the year ambulance surgeons treated 42,964 victims on the spot, a fact which shows the need of keeping up an efficient ambulance service. Of the 109 ambulances in the public emergency service the large majority belong to private hospitals.

Nursing Situation in New York Improves.—The shortage of nurses, which became acute soon after the war, is being remedied in New York City, according to an announcement made by the New York County Chapter of the American Red Cross. The Red Cross has maintained a traveling recruiting service for nurses for ten months and this, with unemployment which had led many girls into nursing who would otherwise have gone into business, has remedied the situation. The nurses' training schools in the hospitals of the city, which had only half their complement of pupils last year, are filling up, the report says.

Plan to Train Reserve Corps of Nurses.—Agitation is being carried on with the object of starting a nation-wide movement to interest cities in building up a reserve corps of nurses to cope with possible future epidemics. The idea is based on the work accomplished by Dr. John Dill Robertson, Health Commissioner of Chicago, who has developed a training course which not only costs the Chicago government nothing to give, but en-

ables the city to boast a nurse militia, as it is called, of 10,000 trained women ready to step in and aid in the event of an epidemic. Dr. Robertson, in commenting on his plan, says that as an economic problem the desirability of having in every family a trained member able to care for the sick needs no argument, and that is what he has set out to do. The Chicago attendance at the training school for home nursing from the start has averaged 700. It provides an eight weeks' course and charges a fee of five dollars. The Chicago school was financed in the main by a health exhibit, which netted sufficient funds to run a free hospital with twenty beds where the students could receive first-hand training. Graduates of this training school have aided in 12,000 homes besides their own during the past year.

The British Association for the Advancement of Radiology and Physiotherapy, which has been in existence for about four years, held its annual general meeting in London on September 30 last. Announcement was made at this time that the Society had secured its certificate of incorporation. The president, Dr. Robert Knox, in reviewing the work which the organization had accomplished since its foundation, outlined the causes which led to the formation of the Association. At the time of the outbreak of the great war in 1914 London at least was well provided for in radiological matters in so far as the purely scientific side of things was concerned. But when it came to be a question of corporate action, radiologists and physiotherapists found themselves without any organization capable of speaking and acting for these specialties as a whole. The University of Cambridge now recognizes the course of instruction organized by the Society in London as qualifying for admission to the diploma examination. In addition to educational activities, there has recently been initiated the policy of issuing authoritative statements on medical subjects to the daily press. A special committee is engaged on the matter of providing organization and training for lay assistants in *x*-ray and electrical departments. The activities of this committee have resulted in the founding of the Society of Radiographers, the aim of which is to see some day in London an Institute of Radiology and Physiotherapy housed in a building worthy of the extent and importance of these subjects, having its own museum and library, and perhaps its own clinic.

Third Harvey Society Lecture.—Dr. Clemens Pirquet, Professor of Pediatrics, University of Vienna, will deliver the third Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, December 17, 1921. His subject will be "Nutrition Treatment of Tuberculosis in Childhood."

The Radium Institute of New York announces its removal on December 15 to 323 Riverside Drive at 104th Street.

Salvarsan Adulterators Receive Prison Sentences.—The salvarsan adulterations in Germany and other countries were recently taken up by the Criminal Court of the County of Hamburg. After a trial lasting fourteen days, in which many experts were examined, the manufacturer and his superintendent were sentenced to three and one-half years in prison and to five years disenfranchisement. Sixteen defendants received two-year prison sentences each, and sixty-two others who had conducted a flourishing business in adulterated salvarsan were fined 20,000 marks. Six persons were acquitted. Those convicted of adulteration had manufactured a yellow powder from substances which were not only worthless but dangerous to health. It bore a striking resemblance to the genuine salvarsan and the labels and packing were so perfect an imitation of the genuine product that it could easily be mistaken for it even by physicians.

Hospital Notes.—St. Louis is to be awarded a soldier hospital if Secretary Mellon approves the recommendation of the hospitalization committee, which has decided favorably on a hospital for that city.

The Beth Israel Hospital, Roxbury, Mass., has completed plans for the erection of a new building to replace the present institution. The new hospital is to have an out-patient department.

The new wing of St. Joseph's Hospital, St. Joseph, Mo., which was erected at a cost of $300,000, was opened formally on November 14.

By resolution of its hospital commission, the Texas conference of the Methodist Episcopal Church South has voted to raise $300,000 for the building of church hospital in Houston. A campaign to raise this fund will be started early in the next year.

Contract for the alterations and repairs to the out-patient department of the Boston City Hospital has been awarded. The cost of enlarging the building and making repairs will be $496,000. When these changes are made the hospital will be able to care for two hundred more patients.

Ground was broken in Minneapolis on November 16 for the first of the nine hospitals for crippled children planned by the Mystic Shrine. This hospital is to cost about $250,000 and will care for fifty or sixty crippled children.

The Lady of Lourdes Hospital, Pasco, Wash., completed several months ago by the Sisters of St. Joseph, will be formally dedicated on December 21.

A campaign to raise $250,000 for the erection of a new hospital building for the New Rochelle Hospital was recently launched at a mass meeting which was addressed by Dr. George E. Vincent of the Rockefeller Foundation.

Dr. Kenneth M. Lynch of Dallas, Tex., was awarded a gold medal for research and accomplishments in the study of tropical diseases by the Southern Medical Association at its recent meeting in Hot Springs, Ark.

Dr. Russell H. Chittenden, for nearly twenty-five years director of the Sheffield Scientific School, Yale University, has sent in his resignation to take effect next June.

Dr. Virgil Pendleton Gibney, who has just completed fifty years as surgeon-in-chief of the New York Hospital for Ruptured and Crippled Children, was tendered a testimonial dinner at the Hotel Commodore, on the evening of November 22, in commemoration of his long and faithful service to the crippled children of the city.

Dr. Richard A. Poole has been appointed superintendent of the Indianapolis City Hospital.

The American Academy of Applied Dental Science will hold its third annual meeting at the Stacey-Trent Hotel, Newark, N. J., January 9, 10, and 11, 1922. A cordial invitation is extended to all members of the medical and dental professions. Further information may be obtained by writing to the Assistant Editor, American Academy of Applied Dental Science, Yonkers, N. Y.

Vacancies for Physicians.—The United States Civil Service Commission announces an open competitive examination for medical interne to fill vacancies in St. Elizabeth's Hospital, Washington, D. C., at $1,200 a year and maintenance, and vacancies requiring similar qualifications. Applicants must show that they are graduates of a reputable medical college, or are senior students in such an institution and expect to graduate within eight months from the date of making oath to the application. The examination is open to both men and women. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Positions for Dietitians in the Public Health Service.—The United States Civil Service Commission states that there is need for a considerable number of dietitians in the Public Health Service at hospitals throughout the United States and that until further notice it will receive applications for such positions. The basic entrance salary offered is $960 a year with possible promotion to the basic pay of $1,344 a year. To all salaries there is added the increase of $20 a month granted by Congress. In addition, quarters and subsistence are furnished free by the Government. Applicants are not required to undergo a written examination, but are rated upon the subjects of general education, weighted at 30 per cent. and technical training and experience, weighted at 70 per cent. Full information and application blanks may be obtained by communicating with the United States Civil Service Commission, Washington, D. C., or with the secretary of the local board of civil service examiners at the post office or custom house in any city.

Medical Society Elections.—THE OHIO VALLEY MEDICAL ASSOCIATION, at its twenty-second annual meeting held in Evansville, Ind., Nov. 16, 1921, elected the following officers for the ensuing year: *President*, Dr. W. L. Bremerman, Chicago; *Vice-President*, Dr. S. J. Eichel, Evansville; *Secretary-Treasurer*, Dr. Benjamin Floyd, Evansville.

THE SOUTHERN MEDICAL ASSOCIATION, at its annual meeting held in Hot Springs, Ark., Nov. 14-18, 1921, elected the following officers for the ensuing year: *President*, Dr. Seale Harris of Birmingham, Ala.; *First Vice-President*, Dr. W. A. Mulherin, Augusta, Ga.; *Second Vice-President*, W. T. Wootton, Hot Springs; *Secretary-Editor*, Dr. W. L. Dabney, Augusta, Ga.

THE NEW YORK ACADEMY OF MEDICINE, at its stated meeting held Dec. 1, 1921, elected the following officers: *Vice-President, for 3 years*, Dr. Arthur B. Duel; *Recording Secretary, 3 years*, Dr. Royal S. Haynes; *Trustee, 5 years*, Dr. Charles L. Dana; *Committee on Library, one member for 5 years*, Dr. Jonathan Wright; *Committee on Library for 3 years*, Dr. Harold D. Senior; *Committee on Admission, one member for 5 years*, John J. Moorhead; *Committee on Admission, one member for 3 years*, Dr. Samuel A. Brown. The term of the President, Dr. George David Stewart, has not expired.

Obituary Notes.—Dr. FRANCIS D. BUCK died at his home in this city on Dec. 3, after a long illness. He was a son of Dr. Gurdon Buck, one of New York's most famous surgeons, and was born in this city on Oct. 11, 1850. He was a graduate of the Sheffield Scientific School in 1869 and of the College of Physicians and Surgeons in this city in 1876. Owing to failing health Dr. Buck had not been in active practice for several years.

Dr. WILLIAM S. HITCH of Laurel, Del., a graduate of Jefferson Medical College in 1869, died of cerebral hemorrhage on Nov. 11, at the age of eighty-four years.

Dr. NEAFIE RICHARDSON died at Philadelphia of heart disease on Oct. 30, at the age of forty-eight years. He was graduated from the Medico-Chirurgical College in 1906.

Dr. ROBERT WATSON MCCAFFERTY, formerly of Waymart, Pa., died at Montpelier, Ind., on Nov. 14, at the age of forty-three years. He was graduated from the Medical Department of the University of Pennsylvania in 1901. He was at one time physician to the Glen Mills Reformatory.

Dr. HENRY E. APPLEBACH of Philadelphia died on Nov. 16, at the age of fifty-eight years. He was graduated from the Medical Department of the University of Pennsylvania in 1889. He was for many years assistant chief surgeon to the Kensington Hospital for Women.

Dr. WILLIAM F. RUFF died in Philadelphia on Nov. 17, at the age of fifty years. He was graduated from the Medical Department of the University of Pennsylvania in 1893. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the Physicians' Motor Club and a Fellow of the American Medical Association.

Dr. HENRY WILLIAM FOX of Washington, D. C., a graduate of the George Washington University in 1884, died at his home on Nov. 3, at the age of sixty-four years. He was one of the founders of the Episcopal Eye, Ear and Throat Hospital, and one of its senior surgeons since 1897. He was a Fellow of the American Medical Society, the American Ophthalmological Society and the Washington Society of Ophthalmologists and Otologists.

Dr. JAMES F. YORK of Portsmouth, Ohio, a graduate of the Eclectic Medical College, Cincinnati, in 1895, died in Cincinnati on Nov. 2, at the age of fifty-five years. He was a former Mayor of Kenova.

Dr. WILLIAM STEVENS of Cairo, N. Y., a graduate of Albany Medical College in 1875, died on Nov. 7 after a long illness.

Dr. ABRAHAM S. BIENENSTOCK of New York, a graduate of New York University Medical College in 1891, formerly on the staff of Bellevue and of the Lying-in Hospital, died of heart disease on Nov. 27, at the age of fifty-four years.

Dr. WILLIAM H. MURRAY of Albany, N. Y., a graduate of Albany Medical College in 1869, died suddenly of heart failure on Nov. 29.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Nov. 18, 1921.

Post-Graduate Training in London.—I have been informed recently by Miss M. A. Willis, the secretary of the Fellowship of Medicine and Post-Graduate Medical Association, that, with the co-operation of various special hospitals, it has been arranged to hold a series of courses in general and special subjects during the forthcoming year, and the first of these, a six weeks' post-graduate course in general medicine, will be held from January 9 to February 15, 1922. The course will consist of a morning and an afternoon session and the subjects dealt with will include pulmonary affections, heart disease, disease of the nervous system, fever, lunacy, etc., and the program will be so arranged as to entail a minimum amount of traveling each day. The numbers attending the course will be limited and early application for further particulars as to syllabus, fees, etc., should be made to the secretary of the Fellowship, 1 Wimpole Street, London, W. This announcement affords evidence that those responsible for the organization and management of post-graduate training in London are actively bestirring themselves. Some of the progress made is due to the zeal and energy of the secretary. American medical men who are thinking of taking post-graduate courses in Europe will undoubtedly be greatly interested to learn that the scheme is taking coherent shape and that the almost boundless material in London for post-graduate training and study is to be employed to good advantage.

Presentation of the Jenner Medal.—In 1796 Jenner first performed vaccination on human beings and was the pioneer of this method for preventing disease. In 1896 the British Epidemiological Society instituted the awarding from time to time of a bronze medal to be known as the "Jenner medal," to a person who had distinguished himself in epidemiological research. The first to receive the medal in 1898 was Mr. William Henry Power, F. R. S., the then medical officer of the Local Government Board, and the latest is his lifelong friend, Sir Shirley F. Murphy, K. B. G. Sir Shirley Murphy is, perhaps, best known to fame as the first medical officer of health for the County of London, and the manner in which he performed the prodigious task of keeping this large and thickly populated area in a good sanitary condition is sufficiently evident in the state of the metropolis to-day. He has always shown himself to be a capable administrator and an authoritative writer on sanitary matters.

Vital Statistics.—According to the Registrar-General's return for the week ending November 5, 1921, the births registered in London and 95 other great towns numbered 7,439, corresponding to an annual rate of 20.8 per 1,000. The deaths numbered 4,040, equal to a death rate of 11.4 per 1,000, as against 10.4, 10.8, and 11.0 in the 96 great towns in the three weeks preceding. In London 1,813 births were registered, corresponding to a rate of 20.8 per 1,000, and 940 deaths, equal to a rate of 10.8, as against 11.3, 11.5, and 11.0 in the three weeks preceding.

Glasgow Women's Private Hospital.—This hospital was established in 1903, and the demands on it have become so great that larger premises are urgently required. To buy and adapt a suitable building a sum of £12,000 is needed. It is intended later to issue a public appeal for funds, but in the meantime the women doctors of Glasgow and neighborhood are endeavoring by private efforts to raise the first £1,000, and a successful beginning was made recently when £300 was realized at a sale.

A Different Classification of Pain.—At the meeting of the Section of Neurology of the Royal Society of Medicine on November 10, Sir William Thorburn of Manchester referred to the effects of treatment of pain. There was no accurate means by which the degree of pain could be measured. The mental effect of prolonged pain often caused the recurrence of pain sometimes in another part, after the original pain had been cured. Sir William Thorburn had seen recently two cases of pain due to cervical rib which had been cured by operation; the patients returned later complaining bitterly of abdominal pain associated with floating kidney. He divided cases into three classes: (1) Those in which there was a definite lesion, such as pressure on the brachial flexus. (2) Cases where the lesion was less definite and was possibly situated in the posterior root ganglia. (3) Those in which there was no definite lesion, and which he termed neuralgia. In the first class the only question was diagnosis and early diagnosis followed by prompt and adequate treatment was curative. In certain cases, however, where pressure had existed for a long time, a neuritis might be set up which caused pain even after removal of the original cause. This explained the failure in some cases of operation for cervical rib which had been too long postponed. In the second class of case the speaker included certain cases of painful amputation stump. Some of these were cured by removal of end-bulbs, but a percentage of cases remained where pain persisted after removal of the bulb and several inches of apparently normal nerve. These cases were, he thought, due to an ascending neuritis, and in some of them posterior rhizotomy was the only resort. In his opinion these bulbs were due to sepsis and did not occur if the nerves were cut sufficiently short. The discussion was opened by Dr. Wilfred Harris, who said that persistent deep-seated pain, if accompanied by failing health, would always suggest malignant disease. He then dealt with the causes of pain in the peripheral nerve endings, and sketched the various forms of disease of the nerve trunks, posterior roots, and their ganglia, the fillet or thalamus which gave rise to pain.

In the discussion which followed Dr. Gordon Holmes said that it was commonly taught that lesions of the central nervous system did not cause pain, but this was abundantly disproved by war experience. Injury to the tracts in the spinal cord undoubtedly caused pain. As was pointed out in an editorial on the above meeting in the *Lancet* of November 19, 1921, there are forms of per-

sistent pain in nervous disease that are not at all easily amenable to treatment, notably the variety described as central pain, of which at the discussion Dr. Gordon Holmes gave a diagnostic description. He alluded to the kind that sometimes occurred in cord lesions, an account of which he contributed to the Osler Festschrift; in certain types of thalamic lesion, also, it was pointed out central pain is an only too conspicuous feature in the clinical picture. The editorial ends with these true words, "Inability to ameliorate or relieve pain of organic central origin casts no discredit on neurological methods, for there is a limit to their applicability; but once diagnosis is satisfied with the non-organic nature of a particular pain its cure should be a matter of course."

Obituary.—Auguste Sheridan Delépine, professor of Public Health and Bacteriology and director of the Public Health Laboratory, University of Manchester, died on November 13, at the age of 66 years. His father was French and his mother Swiss, and he was educated in Paris, Geneva, and Lausanne. After going through the medical course at Edinburgh University, in 1882, he was graduated at M.D., C.M., with first class honors. After filling positions in bacteriolgy and pathology at Edinburgh and St. George's Hospital, London, in 1891, he was appointed the first Proctor Professor of Pathology and Morbid Anatomy in Victoria University, Manchester. He did excellent work on the bearing of food poisoning on the etiology of summer diarrhea and made valuable investigations into the general conditions necessary to ensure a clean milk supply. After having occupied the chair of pathology for twenty years he resigned and was appointed professor of public health and bacteriology and director of the public health laboratory. Delépine himself did good work during the war, and his only son was killed. It is believed that this tragedy shortened his life.

A QUESTIONABLE UNDERTAKING.

To the Editor of the Medical Record:

Sir:—During the past decade, the course of radium has been turbulent, and most of its tribulations have been due to over-enthusiastic statements of its friends. Of late, however, there have appeared throughout the country several questionable commercial enterprises that are attempting to reap a financial harvest by catering with "radium cures" to the last hope of an army of chronics. One of these, recently established, has issued a pamphlet extending an invitation to suffering humanity to come to the institution, where they will be treated by radium baths, pads, tampons and suppositories, and be relieved of arthritis deformans, various skin diseases, Bright's disease, pleurisy, bronchitis, gonorrhea, and other urinary troubles, high blood pressure, ulcer of the stomach, gallstones, hay fever, and disorders of the menopause. Among the diseases in which relief is promised is diabetes, which is interesting when records clearly show that every diabetic is made worse under radium therapy. Ulcer of the cervix uteri is another trouble to be treated by radium solution and vaginal suppositories. Whether the ulcer be malignant or otherwise makes no difference, apparently, but if it does not cure, evidently the case was too far advanced. The simple statement of such a list of indications suffices to discredit the whole enterprise.

It becomes necessary to warn the medical profession that they may fully understand that attempts to bring before the public the use of radium as a popular remedy may be productive of great danger to the patient. Radium is being studied exhaustively by many authorities, who recognize in it certain possibilities of great promise. Improper usage, however, may cause serious after effects, and therefore it will have but little place for use by the laity. Radium must, for many years, still be kept in the hands of physicians highly specialized in its usage. Its results are not remarkable nor miraculous—they all too frequently spell failure even in the hands of those of wide experience.

Those who are deeply interested in radium will welcome help from the medical profession, and particularly the medical press, in their effort to keep the remedy out of the hands of those who by improper usage will discredit it.

C. Everett Field, M.D.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 24, 1921, clxxxv, 21.

1. Puerperal Sepsis and Its Prophylaxis. L. V. Friedman.
2. Diagnosis and Treatment of Neurosyphilis. Lesley H. Spicer.
3. Good Effect in Convalescence. Herbery J. Hall.
4. Observations on the Effect of *B. Acidophilus* Milk upon Cases of Chronic Constipation. Harry H. Chapin and Alvin I. Wiseman.
5. Measles, the Study of an Epidemic in the City of Watertown, N. Y. Isaac W. Brewer.

1. **Puerperal Sepsis and Its Prophylaxis.**—L. V. Friedman expresses the opinion that the various maternity benefit bills that have been proposed will, if enacted, do little to lessen obstetric mortality. He believes further that obstetric mortality statistics are by no means to be accepted at their face value, since they include deaths from criminal abortions and deaths in the hands of Christian Scientists and other irregular methods of treatment which cannot be attributed to the medical profession. Admitting, however, that there is room for improvement, he discusses means of improving obstetric results. Any attempt to lessen the amount of puerperal sepsis must depend primarily upon prophylaxis, which resolves itself into methods of asepsis. Since obstetric delivery should be organized, as in any well conducted abdominal operation, it is a logical deduction that only the rich can be delivered at home; the poor, if they are to secure adequate service, must be cared for in hospitals. But there is no doubt that hospital service without certain restrictions will tend to increase rather than diminish puerperal sepsis. Such restrictions are the isolation of the obstetric beds, and especially the obstetric operating rooms and the nurses serving them, from the general surgical work. It is not to be inferred from this that every woman is to have an operative delivery. The normal process well conducted does less damage to the pelvic fascia than a forceps or version by skilled hands; and the artificial dilatation of the primiparous os should be regarded as a major operation, requiring definite pathological indications. The decision when to interfere requires highly trained judgment and is to be made on the physical findings rather than on the desire to put an end to the patient's suffering. The writer finds in cesarean section another prolific source of obstetric mortality. The mortality from this operation may be kept down to a low figure by observing the following rules: The cesarean section should not be chosen after the patient has been in active labor more than a few hours. The operation ought to be refused when any considerable delay must occur between the rupture of the membranes and the performance of the operation. The operation should never

be done after a trial to deliver from below has been made, nor should it be done where any vaginal examination has been made. It is of great importance to limit the operation to the delivery of the child, not attempting to remove the appendix or palpate the gall bladder. After discussing the sources of infection he goes into the elementary detail of obstetric technique. He urges the use of properly sterilized gloves and calls attention to an advantage of the use of gloves often overlooked, namely, the diminished opportunity of abrasion or injury of the vaginal and cervical epithelium. There are only three conditions that justify the obstetrician for entering the birth canal after the child has been delivered: These are to repair a cervix torn so badly as to cause hemorrhage threatening the life of the patient; the manual removal of the placenta, which is rarely necessary, and for the purpose of checking postpartum hemorrhage.

1. Observations on the Effect of B. Acidophilus Milk upon Cases of Chronic Constipation.—Harry A. Cheplin and John I. Wiseman described a series of milk feeding experiments which have been conducted for several years at the Sheffield Scientific School, Yale University, on the implantation of *B. acidophilus* within the intestinal tract of both the albino rat and man. Throughout the investigation the favorable effects of the *B. acidophilus* lactose milk feeding on chronic constipation was quite apparent. In most of the cases the response was prompt and daily evacuations are recorded. Although in some cases the influence of the ingestion of the *B. acidophilus* milk in 500 c.c. quantities was less pronounced at the start, quite an appreciable difference in the effect on the bowel movements was noted when the amounts of *B. acidophilus* milk and added lactose were doubled. The *B. acidophilus* lactose milk diet effects a change in the intestinal flora. Within a few days after the ingestion of the sour milk and added lactose, daily stools are obtained and a transformation in the flora takes place in which the usual mixed bacterial types give away to a more simplified flora largely represented by *B. acidophilus*. It is to be assumed that the *B. acidophilus* milk has this influence in virtue of the large number of viable organisms which it contains and of the lactose present. This view is strongly supported by the extensive feeding experiments on clinical cases conducted by Cheplin and Rettger in which similar results were observed.

5. Measles, the Study of an Epidemic in the City of Watertown, N. Y.—Isaac Brewer describes an epidemic of measles, beginning in January and reaching its peak in May, 1921, during which 1,218 cases were reported to the department of health. During the year 1920 fresh importations of measles were frequently brought from a neighboring city, where a serious epidemic prevailed, but without inciting an epidemic in Watertown. He raises the question as to why the disease did not become epidemic in 1920 and whether a few cases in 1920 became carriers and paved the way for the serious epidemic of 1921. With a view of determining what might be done by early isolation of cases before the rash appeared, an effort was made to ascertain the interval between the appearance of the catarrhal symptoms, as observed by the family, and the rash which is the diagnostic symptom with the public. In 38.1 per cent. the interval was one day; in 25.7 per cent. it was two days, and in 10.6 it was three days. That is in 74.4 per cent. of the cases it might have been possible to have isolated the patient before the rash appeared. The writer is of the opinion that there is grave doubt if the measures usually adopted for the prevention of measles are anything but a public nuisance. The serious after-results of the disease demand that something must be done. Until such a time as a satisfactory vaccine is developed and the public educated to its use, the crux of the situation is the control of the "common cold." The isolation of cold will without doubt prevent measles and whooping cough and will also be the means of bringing many cases of tuberculosis under treatment at a time when they have a good prospect of being cured. Brewer is aware that the public will not take kindly to this proposition; he points out that from the economic standpoint the result will surely pay, for during this epidemic the children of the city lost thirty school years, a loss very costly in the long run.

Journal of the American Medical Association.

November 26, 1921, lxxvii, 22.

1. The Control of Communicable Diseases. Allan J. McLaughlin.
2. Laboratory Findings in Early and Late Syphilis: Review of One Thousand and Sixty-Four Cases. John A. Fordyce and Isadore Rosen.
3. Neurosyphilis with Negative Spinal Fluid. Harry C. Solomon and Joseph V. Klauder.
4. A Study of Silver Arsphenamine in the Treatment of Syphilis, Based on Four Thousand Two Hundred and Ninety Injections. Mihran B. Parounagian.
5. The Management of a Diphtheria Outbreak in a Private School. E. C. Fleischner and E. B. Shaw.
6. Review of the Hillsdale, Mich., Typhoid Fever Epidemic of 1920. Richard M. Olin.
7. Toxic Protein End-Products, the Cause of So-Called Inanition Fever. De Witt H. Sherman and Harry R. Lohnes.
8. Venipuncture of the Superior Longitudinal Sinus in the New-Born: Results in Two Hundred and Thirty-one Cases. J. Witlock Gordon.
9. Phenolphthalein Dermatitis. Samuel Ayres, Jr.
10. The Relief of Partial or Complete Anterior Staphyloma: Description of Operation. Arthur S. Tennyr.
11. A Departure in Hospitals: The National Hospital for Speech Disorders. James Sonnett Greene.
12. Report of Committee on Local Anesthetics in Ophthalmic Work.

2. Laboratory Findings in Early and Late Syphilis: Review of One Thousand and Sixty-four Cases.—John A. Fordyce and Isadore Rosen summarize their observations on this series of cases as follows: (1) Not only is thorough investigation of every syphilitic patient early in the disease recommended, but it is as imperative as the use of the dark field in making an early diagnosis of the primary lesion. (2) Probably not more than 25 or 30 per cent. of all secondary syphilitics show infection of the central nervous system. This can in the majority of cases be determined only with certainty by a lumbar puncture, as in the early months clinical signs are often negligible; and to wait until the latter appear usually requires a longer time to bring about negative reactions. (3) These statistics show that the incidence of syphilis of the nervous system is much higher in men than it is in women. (4) The statement is frequently made that neurosyphilis has increased since the use of modern antisyphilitic remedies. This increase, in our opinion, is more apparent than real, and is to be attributed to the more systematic investigation of patients and our more thorough knowledge of the disease. (5) We have no proof that arsphenamine adversely affects the optic, auditory or other cranial nerves. On the contrary, we have very definite data showing arrest of optic atrophy by the proper use of the drug. (6) In considering the problem of neurosyphilis one should always have in mind the general infection and especially the involvement by it of the cardiovascular apparatus and the eye. A persistent negative Wassermann reaction in the blood is frequently found with positive phases in the fluid and with an active process. A patient should never be discharged as cured without the information gained by lumbar puncture. When this has been neglected it has in many cases led to disastrous consequences and incurable conditions. (7) Pupillary anomalies and cranial nerve paralyses are often pathognomonic and are always suggestive of nervous syphilis. In papillitis and optic neuritis occurring in early syphilis, vision may be normal with only slight narrowing of the fields. The necessity for routine ophthalmological examination must, therefore, be emphasized so that the earliest changes may be detected before irreparable damage is done to the eye. (8) The absence of clinical signs and symptoms does not exclude syphilis of the central nervous system. The classical signs and symptoms of tabes may occur with a negative blood and spinal fluid. Likewise neurosyphilis of the vascular, gummatous and other types may present subjective and objective clinical symptoms with an excess of globulin only in the fluid. (9) The colloidal reaction has been employed by us for six years. We consider it of great value. A leutic curve enables us with almost absolute certainty to exclude paresis. A paretic curve is always present in paresis in untreated cases, but may be encountered in meningovascular syphilis and may disappear under treatment. A paretic curve is also found in some types of early neurosyphilis, and disappears as the other phases become negative.

4. A Study of Silver Arsphenamine in the Treatment

of Syphilis.—Mihran B. Parounagian presents this study from the department of syphilology of Bellevue Hospital, in the course of which silver arsphenamine has been administered 4,250 times to 756 patients. The patients received 0.15 of a gram of American made arsphenamine as an initial dose, and this was followed by an injection of from 0.2 to 0.25 of a gram for each succeeding dose, unless smaller doses were indicated by the character of the case. Injections were given every third or fourth day, eight injections constituting a course. A rest of four weeks without treatment, followed by treatment or a further rest as the serology or history indicated. The reactions were few and when they did occur were mild and evanescent. In this series of cases clinical manifestations in all stages of syphilis responded to treatment with silver arsphenamine with gratifying rapidity and thoroughness. The impression obtained is that the response begins more promptly and that the lesions resolve with greater rapidity than is the case with a similar number of treatments with other arsenical preparations. In this opinion Parounagian agrees with Kolle, Ritz, Galewsky, Hauck, and Gennerich.

5. The Management of a Diphtheria Outbreak in a Private School.—E. C. Fleischner and E. B. Shaw.—(See Medical Record, Vol. c. No. 15, p. 609.)

9. Phenolphthalein Dermatitis.—Samuel Ayres, Jr., reports seven cases in which an erupton of the skin has been associated with the oral administration of phenolphthalein for laxative purposes. The eruption in four of the seven cases has been of the same type, corresponding clinically, and in one case in which a biopsy was obtained, microscopically, to erythema perstans. These cases are of interest in view of the fact that most textbooks and most physicians regard phenolphthalein as a laxative as entirely lacking in toxic properties.

12. Report of Committee on Local Anesthetics in Ophthalmic Work.—Albert E. Bulson, Jr., William Zentmayer, Edgar Thomson, H. Maxwell Langdon, and Joel Whitaker, the committee appointed by the Section on Ophthalmology of the American Medical Association to investigate this subject, base the deductions submitted in this report on clinical and experimental observations, an analysis of the literature, and replies to a questionnaire sent to leading ophthalmologists. The conclusions reached are that for surface anesthesia cocaine in 4 per cent. solution, freshly made, possesses distinct advantages over all other local anesthetics, particularly operative work. In all instances the anesthesia is equal to and in most cases it is greater than that produced by any other local anesthetic. The use of stronger solutions than the one recommended is at the risk of seriously disturbing the nutrition of the cornea and interfering with the healing process. The efficiency of cocaine is not impaired by boiling or by the addition of epinephrin. Phenacaine in a 2 per cent. solution stands next to cocaine in efficiency. It has the advantage of producing a quicker effect than cocaine and a slight antiseptic action. It does not dilate the pupil, hence is valuable in producing surface anesthesia for tonometry, therapeusis, and removal of foreign bodies from the cornea. It does not produce desiccation of the cornea, or, so far as known, disturb nutrition. The solutions are not affected by boiling. Epinephrin does not add to its efficiency in any way. Alkalis should not be added to phenacaine solution, as they cause precipitation. Phenacaine offers the distinct disadvantage of producing more or less irritation. The use of glass vessels should be avoided in its preparation and porcelain used instead, as phenacaine is incompatible with the alkalis and their carbonate bases. Procain (novocaine) in 2 per cent. solution is the anesthetic of choice for infiltration anesthesia. Procaine should be injected slowly to aid in the avoidance of toxic effects. The efficiency of procaine solutions is not increased by the addition of alkalis. The committee believes that it is highly advisable to find, if possible, a synthetic anesthesia which will take the place of cocaine, one that will be less toxic, less expensive, nonhabit-forming, and equally efficient. The Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association is experimenting with several new local anesthetics not yet on the market, one of which is especially promising, though it must be tested clinically before expectations are raised.

The Lancet.

[illegible] 1921, [illegible]

2. Mitchell Lecture on Tuberculosis: Its Relation to General Bodily Conditions and to Other Diseases.—E. Parkes Weber states that among civilized communities the mortality from tuberculosis seems to be gradually diminishing, apparently as a result of: (1) Relative immunity to "massive" infection, due to infection during early life with minor forms of the disease; (2) diminished frequency of "massive infection," a result of the modern application of preventive measures; (3) increase of the general standard of health, less poverty, less overcrowding, less overwork, better food and better air. Besides the general conditions of nutrition and specific immunity favoring or opposing tuberculosis, the latter disease may be influenced by other diseases. The condition of the blood in diabetes has been supposed to favor tuberculosis, and syphilis by producing a condition of cachexia is similarly supposed to favor tuberculosis. True syphilitic cachexia, however, is very rare nowadays, and Weber is not at all satisfied that it increases the gravity of tuberculosis when both diseases are present together. Septic counterinfections apparently favor the reawakening and dissemination of old tuberculous foci, and traumatism (contusions, etc.) may also do. In the writer's opinion, the presence of old quiescent pulmonary lesions of moderate degree does not greatly increase the gravity of attacks of pneumonia and the pulmonary complications of epidemic influenza, if the infection does not re-activate the tuberculous lesions. It is probable that tuberculosis, as well as many toxic conditions, especially those directly and indirectly due to alcoholism, favor the development of cirrhosis of the liver. But various forms of hepatic cirrhosis, with or without jaundice, may be the direct result of chronic tuberculous process within the liver itself, associated with tuberculosis in the region of the portal circulation or elsewhere in the body. A tuberculous cirrhosis may result when the tissues are very resistant toward the tubercle bacilli, or when the latter are few in number or of low virulence. In spite of the view that Hodgkin's disease is intimately and perhaps casually allied to tuberculosis, the obtainable clinical and pathological evidence and the ordinary experience of hospital physicians does not point to much real relation between the two diseases. Neither does there seem to be any special relation between tuberculosis and the various forms of carcinoma and sarcomata. The supposition that patients with congenital pulmonary stenosis who reach the age of puberty mostly die from pulmonary tuberculosis is probably incorrect. Active tuberculosis is seldom found in gouty subjects or associated with true granular kidney. In fact, it seems that a genuine antagonism between pulmonary tuberculosis and gout exists. Albuminuria, chronic renal irritation, and actual chronic nephritis may be due to the passage of tubercle bacilli and their toxins through the kidneys. Other results of tuberculosis may be termed "accidents"—for instance, intestinal obstruction due to adhesions or stenosis resulting from past or chronic tuberculous processes in the mesenteric glands, peritoneum, or abdominal viscera; attacks of pleurisy due to miliary pleural tubercles, and nearly all cases of so-called spontaneous or "idiopathic" pneumothorax arising in the apparently healthy, these should be regarded as the price which we may be called on to pay if our struggle against tuberculous infection is, on the whole, effectual.

3. Vitamine Deficiency and Factors in Metabolism Relative to the Development of Rickets.—Amy Hodgson, after having followed the recent controversy of the position of the fat soluble vitamine as a factor in the causation of rickets and having made observations concerning diets, reached the conclusion that while errors of hygiene and dietary and debilitating condi-

tions generally were incidental and probably predisposing to the development of rickets, there must be some common determining factor still to be found. This is probably to be traced to some error of metabolism, such as may be caused—possibly in common with other factors—by a vitamine deficiency in the diet. The hydrogen-ion concentration of the blood has been shown to be normal in rickets, but the assumption is that a compensated acidosis is present, in that there is a lowering of the alkaline reserve of the organism. With the object of deciding whether or no rachitic children were suffering from a lowering of their alkaline reserve, the writer decided to compare the urines of a series of rachitic children with those of normal children of the same age as to the proportion of nitrogen excreted as ammonia relative to total nitrogen excretion, and at the same time directly test the alkaline reserve, by the method of Sellard, Henderson, and Palmore. In all, sixty-five children were investigated, comprising thirty rachitic children, twenty-five healthy children, and ten unhealthy children of the same class not rachitic. In the control healthy children the ammonia ratio was roughly constant, approximating the adult proportion of 5 per cent., the average being 6.2 per cent. In the control list of unhealthy children there was a definite increase in the ammonia ratio, the average of all cases being 14.3. The alkaline reserve was reduced. The ammonia content was less constantly reduced following bicarbonate dosage. This suggests that a high ammonia formation was an essential of the metabolism present, even when additional alkali was supplied. The writer claims that there is sufficient indication of a lowering of the alkaline reserve in cases of active rickets for further work to be undertaken, more particularly on the alveolar carbon dioxide content. The ammonia ratio is a very variable quantity in rickets, according to the amount of reaction to the disease that is going on. Ultimately in healed cases of rickets the alkaline reserve and the ammonia ratio both became normal. The presence of acidosis in rickets calls for careful prophylactic measures, along lines likely to prevent such a condition, as well as the administration of calcium and cod liver oil, and a careful regulation of the diet.

4. **Cardiac Massage.**—A. G. Levy considers the term "massage" in this connection a misnomer and prefers the expression "mechanical stimulus." In the treatment of primary cardiac syncope from ventricular fibrillation cardiac massage finds its most urgent application. In animal experiments the writer has met with consistent success, but he acknowledges that in man the proposition is a somewhat different one and that failures must be expected. He thinks, however, that with a proper knowledge of the principles involved and their careful application, very much better results might be obtained in cases of massage than has hitherto been the case. The rules for performance of cardiac massage in chloroform syncope are as follows: In syncope from overdosage, partial inversion and immediate artificial respiration by the Sylvester method. If recovery does not occur within three minutes, proceed to perform intrathoracic massage with perflation of the lungs. In syncope from primary cardiac syncope, partial inversion for two minutes. If spontaneous recovery does not occur within two minutes, proceed at once to intrathoracic massage. In the interest of the nerve centers cardiac massage should be commenced within five minutes. Success depends upon proper access to, and the efficient compression of both ventricles, and an efficient system of artificial respiration. If continued rhythmic compression is not successful in five minutes, it should be intermitted for periods of up to forty-five seconds' duration. Massage should be continued, if necessary, up to one hour's duration before abandoning the case. It is advisable to rely throughout on massage alone and discard the use of drugs. If the circulation is feeble after recovery, an intravenous injection of pituitrin is desirable.

5. **Investigation of Gastric Function Before and After Gastrojejunostomy.**—T. G. D. Bonar concludes that, no matter what the type of operation, in prepyloric ulcers the curves obtained before and after operation differ in that the free hydrochloric acid is diminished, but the total acidity reaches roughly its previous level; bile enters the stomach during the meal, and the stomach is emptying more rapidly than before. Pyloric ulcers, after gastrojejunostomy, have the same type of curve as before operation. Duodenal ulcers have a highly acid resting juice, with a slightly diminished free hydrochloric acid, and the remaining part of the curve reaches about the same maximum as before, although it may be obtained quicker after operation. Carcinomata have a low free and total acidity both before and after gastrojejunostomy. In all cases the stomach is emptying quicker than before operation, a varying amount of bile gets into the stomach during some part of the meal, and when the gastrojejunostomy has been successful pain has been relieved. In most cases of simple ulcer weight has been put on.

British Medical Journal.

November 5, 1921. No. 3175.

1. **Causes and Prevention of Blindness.**—N. Bishop Harman, on the basis of an analysis of 4,288 cases of blindness studied in three groups—in infants, in school children, and in persons of all ages as ascertained in private practice—states that in infancy the causes of blindness are few, so the percentage of these causes is high. Congenital defects and conjunctivitis account for nearly all cases. Among school children other conditions come into account. First, the death rate of infancy will have reduced the number of cases of blindness in infants. Secondly, other causes of blindness will show their effects, particularly those arising from constitutional disorders. So that the startlingly high percentage due to ophthalmic neonatorum is reduced, and takes second place to the larger number of blind cases due to congenital syphilis. In the third group of persons of all ages, the greater number of adults reduces the infant population to its correct position, and correspondingly the incidence of the several causes of blindness. But other causes of blindness which affect adults mainly—accidents, vascular disease, glaucoma, gross myopia, and senile cataract—swell the total blindness and correspondingly diminish the blindness of infancy and childhood. The latter gives a fair picture of the causes of blindness, as they occur in the population under discussion. Examination of popular literature indicates that wholly erroneous beliefs are held as to the causes of blindness owing to the laxity with which statistics are quoted. Looking at the writer's returns, one would be justified in stating that 50 per cent. of the blindness of *infancy* is due to the preventable disease ophthalmia neonatorum, but wholly wrong in stating that 50 per cent. of blindness was due to that cause. Again, it would be correct to state that 50 per cent. of blindness in *school children* is due to parental venereal disease, but not that 50 per cent. of blindness is due to venereal disease. The true figures for all ages are 2.5 per cent. of blindness is due to gonorrheal disease, and 9 per cent. is due to syphilis. There are certain causes of blindness over which we have little influence, and others are well within our power of prevention, possibly of extinction. Among the preventable causes of blindness ophthalmia neonatorum stands first. Prevention of the disease can be secured by the treatment of vaginal disease in the expectant mother; this is the one and only certain means of prevention. In every convenient area there should be an ophthalmia neonatorum center where affected mothers and infants could be brought for treatment, and where accurate diagnosis could be carried out. Phlyctenular keratitis is certainly preventable and likewise syphilis. Much of the blindness from industrial accidents might be prevented by the use of goggles in all work where flying fragments are common. Where

accidents are common first aid stations should be established where foreign bodies could be removed and infection averted by irrigation. For children with a high degree of myopia special classes should be established which would meet two difficulties, namely, that these children can, even when provided with suitable glasses, see with difficulty both distant and near objects, and that there is an ever present risk of damage or degeneration of the retina and that this risk is increased by strain.

2. The Advisability of Early Operation in Strabismus Convergens.—W. B. Inglis, after trying medical methods of treatment, including training of the squinting eye, comes to the conclusion that early operation is the best preventive of amblyopia and ex anopsia. He has operated upon over 300 individual patients, and in most of them the earlier the operation has been done the greater the improvement of the vision in the squinting eye. Operation, he believes, is much wiser than the use of glasses, but the operation must be carefully done, because if there is only a partial success then there is no cure of the amblyopia. To obtain success it is necessary to get the eye perfectly straight, and in many cases it is advisable to occlude the good eye for three hours daily, or use other methods of orthoptic training.

6. Erythema Nodosum: An Acute Specific Fever.—J. Odery Symes reviews the evidence that can be adduced in favor of regarding erythema nodosum as an acute specific infectious fever comparable in every way with the zymotic fevers. He does not regard this evidence as conclusive. The strong points in favor of the theory that erythema nodosum is an infectious fever are the proof that it may be transferred from person to person and may occur in small localized outbreaks and in epidemic waves. Equally convincing is the evidence of a definite seasonal incidence and constant age incidence. The systematic distribution of the rash, the evidence of relapses, and conferment of immunity are also favorable to this view. On the other hand, one has to explain the constant association of erythema nodosum with other diseases, such as tuberculosis, measles, and minor conditions of ill health. The heavy incidence of the disease in girls at and about the age of puberty is difficult to explain on any ground of infection, and it is also necessary to decide whether erythema nodosum and erythema multiforme are but two phases of the same disease or whether they are two clear and distinct entities.

8. Eleven Thousand Cases of Spinal Analgesia.—Arthur A. Morrison records that in the past ten years he has performed 11,000 surgical operations under stovaine spinal anesthesia. The solution used is made up in ampoules containing 7½ c.c. to which ½ to 1 mm. of strychnine is added. This dose suffices for a prolonged operation. He finds that he has employed this method in 97 per cent. of all operations performed. The exceptions are made up of certain operations on the head and neck, for which spinal analgesia is neither easy nor efficient. Spinal analgesia he uses in all abdominal operations. Among the advantages claimed for this method are the rapidity with which the patient is prepared for operation; the fact that no anesthetist is necessary; the relaxation of the parts; the absence of vomiting and shock, and the safety from serious sequelæ. There is only one real disadvantage and that is a persistent headache, which occurs chiefly after minor operations, largely due to the fact that patients will sit up and jump about in bed. If they rest quietly there is absence of real headache.

Southern Medical Journal.

October, 1921, xiv, 10

1. Diagnostic Pitfalls in Gastrointestinal Disease. A. L. Levin.
2. Nonsurgical Drainage of the Gallbladder. Charles G. Lucas.
3. Fresh Air Treatment for Southern Babies. I. W. Elias.
4. Breast Fed Babies Who Cry at Night. Eugene Rosamond.
5. The Nutrition Class: Its Value to the Pediatrist. Frank Howard Richardson.
6. Symptomatology of Communicable Diseases of Childhood. Owen H. Wilson.
7. Reduction of Mortality through Free Distribution of Diphtheria Antitoxin. James A. Hayne.
8. Treatment of Communicable Diseases of Childhood. John Thames.
9. The Roentgen Control of Uterine Bleeding. Thomas A. Groover.
10. Roentgenotherapy. R. H. Pepper.
11. Some Rare Orthopedic Diseases and Their Diagnosis by Roentgen Ray Examination. William R. Bethea.
12. Borderline Cases in Orthopedic Surgery. Earl D. McBride.
13. Presentation of Cautery Punch for the Removal of Minor Obstructions at the Vesical Neck with New Method of Anesthesia. John R. Caulk.
14. *X*-Ray Revelation in Fractures: A Case in Practice. T. F. Lockwood.
15. The Seriousness of Syphilis to the Railroads and Their Employees. Joe P. Bowdoin.
16. Passing of the Amputation Specialist. W. R. McKinley.
17. The Future of Specialism in Medicine. F. Park Lewis.

1. Diagnostic Pitfalls in Gastrointestinal Diseases.—A. L. Levin emphasizes the fact that errors in the diagnosis of gastrointestinal diseases are often the result of laying too much stress on the stomach manifestations or misinterpreting them. Gastric analysis is by no means the tower of strength and the determining agent in locating the existing abnormality in the abdomen. A shrivelled up gall bladder, containing one or more stones lying hidden under a large liver and covered by a heavy garment of fat will often escape undetected even the expert palpating hand, but will often be suspected by an attentive ear and a vigilant eye. There are instances in which the clinical side of a case is of greater importance than the laboratory side. In the writer's experience the gall bladder is the commonest offender of the digestive apparatus. Patients, as a rule, cannot distract their attention from the stomach as the seat of their trouble. He also agrees with Fravel, who argues against the dogmatic teaching of our medical leaders that hyperacidity is the rule in gall bladder disease, and in a number of cases he has found subacidity more frequent than hyperacidity. The latter was present only when a chronic appendix was associated with it. The duodenal tap, which should be practised as often as gastric analysis, will be of considerable aid. He has noticed in a number of gall-bladder cases the following characteristics: A history of a more or less persistent nausea or sick feeling, drowsiness after a meal, and a low systolic pressure. He has noticed that low blood pressure in young individuals between the ages of thirty and forty, well nourished, with no cause to account for the low pressure but a probable absorption of infection from the gall bladder. With improvement in the gall-bladder symptoms the blood pressure rises. An overdistended gall bladder with a common duct outlet blocked by mucus or inflammatory exudates, will give rise to the same symptoms as stones. To differentiate gall-bladder pain from gastric or duodenal ulcer pain is quite a task. The persistence and regularity of nocturnal pain and the relationship to food, so strongly emphasized by Reisman, are not borne out in two cases reported by the writer, but rather serve to illustrate Rolleston's contention that pericholecystic adhesions lead to interference with the passage of food from the stomach and even to deformity of that organ, hence a misinterpretation by the *x*-ray. The gall bladder may be infected from septic foci elsewhere in the body, and from these sources the kidney may become infected, particularly the right kidney.

La Presse Médicale.

September 24, 1921, xxix, 77

Anaphylactic Origin of Certain Crises of Nasal Hydrorrhea.—Pasteur, Valery-Radot, Haguenau, and Watelet refer to the hitherto inexplicable nature of these crises which are a burden to medical man and patient alike. They are not directly concerned with hay fever, as one might suspect in reading the above title, and in fact the authors barely allude to pollen sensitization. There is, however, the evidence that the latter is excluded, for they mention that the patient in question suffered her attacks in any climate and any season, and on sea and land alike. The habit of sneezing over a hundred times at a stretch with the crises of hydrorrhea was associated in the minds of the authors with a possible sensitization many years before with diphtheria antitoxin. The sneezing, hydrorrhea, and lacrymation were associated in the crises. The latter had persisted for ten years when asthmatic paroxysms were added. The nasal crises tended to appear after each meal and lasted as long as three-quarters of an

hour. The asthma, however, was nocturnal. Still later a rash of erythematous plaques would appear on the face and neck with pruritus each morning. This life proved unendurable, and all attempts at relief failed. The mystery was finally solved by tracing the entire picture to the ingestion of albuminous food, which produced a hemoclastic crisis and clinically the varied phenomena of anaphylaxis. By pursuing the method of Pagniez of giving peptones in cachets one hour before meals the colloidal shock due to the ingestion of albumins was prevented on the principle of antianaphylaxis.

La Presse Médicale.

October 5, 1921, xxix, 86

Functions of the Lung.—Professor Roger, the internist, and Dean of the Paris Faculty of Medicine, believes that the lung has functions quite unrelated to the gas exchange. In 1898 he demonstrated that it could detoxicate certain poisons by an oxidation process. This is an intravascular phenomenon which occurs within the pulmonary capillaries. The method of demonstration is simple, for it is only necessary to inject a toxic solution in such manner that it reaches the nerve centers without first having passed through the lungs. Having thus established a toxic coefficient it is easy to repeat the experiment on other animals in which the blood must pass through the lungs and note the difference. Injections may be made into the superior cava or common carotid in the primary test. It may be readily shown by employing different solutions that oxidation is the agency which destroys or rather partly destroys the toxic substance, because if the latter is not oxidizable no detoxication results. Roger also regards detoxication by the liver as a matter of oxidation, although the two mechanisms are probably different. Naturally, the liver detoxicates the portal and the lungs the systemic blood. The author has experimented with extract of lung substance and finds it toxic but only as far as it is a colloidal substance. Dried lung substance is a powerful hemostatic and probably contains a thrombokinase. When the lungs are removed from a frog its blood coagulates very slowly. The albumin found in the sputum in pulmonary infections is hypotensive. In affections with sputum in abundance these albumins may in part be absorbed, but whether the low blood pressure of consumptives could in part be due to this property is not agitated. The author studied autolysates of lung tissue with the following results. The autolyzed lung tissue is found to have lost rapidly its toxic power to animals. But as its toxicity is lost hypertensive properties appear. The author sees evidence of some special power of lung tissue over the lipoids, destroying the latter. A storage is hardly possible. This lipolysis can also be studied *in vitro*, which argues for the presence of an enzyme of great power in the lung. But the significance of this lipase for the economy does not yet appear and not even a hypothesis can be advanced until the problem is studied from all angles.

Schweizerische medizinische Wochenschrift.

October 13, 1921, li, 41.

Idiosyncrasies.—Doerr states that at first sight an enumeration of individual idiosyncrasies is confusing. The substances which give rise to them differ radically among themselves. A particular individual is hypersensitive toward a particular substance. Many idiosyncrasies are monovalent, while in others any member of a group may induce it. In the case of food idiosyncrasy in which many dishes may induce the same picture we do not speak of polyvalance because only the food protein in certain forms is the agent. In certain cases there is nothing specific, for it is not the quality but the quantity of protein which is at fault. Plant protein as a cause of idiosyncrasy is as well known as animal, but when we come to drugs as causal factors a different element enters. The content of nitrogen plays no rôle. The active factor is chemospecificity and there is a relation between the idiosyncrasy and the constitution of the molecule. In a large group of drugs which may cause idiosyncrasy it is the methyl group in the molecule which is actually at fault. Methyl specificity may be traced in a given individual through a number of substances. In certain cases of occupational idiosyncrasy the offending substance if traced may be found to contain the methyl radical and protein if present may be inert. Thus far the author has considered natural hypersensitiveness without reference to anaphylaxis. The relationship between anaphylaxis and idiosyncrasy is still somewhat obscure. In anaphylaxis the first step is the presence of a substance known as the antigen, which introduced parenterally causes the formation of an antibody. In a true idiosyncrasy the offending substance does not ordinarily come under the head of an antigen and no antibody is generated by it. Laboratory animals have no idiosyncrasies like mankind and anaphylactic behavior is constant for the species and in no sense an individual phenomenon. This is probably the chief distinction between the two. In practice, just as animals may be desensibilized to laboratory anaphylaxis man may be desensibilized to an inborn idiosyncrasy, but the process is more difficult and uncertain of result. In protein idiosyncrasy the subject may rarely show the presence in the blood of antibodies just as in anaphylaxis. In true protein idiosyncrasy the eliciting substance is of the same nature as the antigen which sets up anaphylaxis, although there has been no previous sensitization. This appears to be the bond or one of several bonds between the two processes. The active principle in both is an antigenic protein substance acting on different types of subject. But when we come to nonantigenic, chemospecific drug action, Doerr says, there is nothing in common with anaphylaxis.

La Presse Médicale.

October 29, 1921, xxix, 86

Removal of Cancer of the Tongue and Pharynx Under Local Anesthesia.—Aboulker of Algiers publishes a remarkable record of cancer surgery. His material comprised twenty-eight cases, all of which were severe in type. Of this number, twelve were seated on the tongue. He regards the high operative mortality in these interventions as due to the general anesthetic and especially chloroform. He has been operating on the head, face, and neck under local anesthesia since 1912, and in 1914 reported a series of 150 cases. In cancer, however, he has until recently used chloroform anesthesia. In twelve cases of cancer of the tongue operated on under chloroform he lost five from one to twenty days after operation. In eighteen pharyngectomies under chloroform for cancer he lost 55 per cent. of his patients. He then operated ten times under local anesthesia without a death and has since added three more to the immune series. Thus far he has operated but once under local anesthesia for cancer of the tongue. He believes that thirteen consecutive pharyngectomies without a death is a record. In addition to local (novocaine) anesthesia, he adds methylene blue to the solutions in the interest of vital staining and operates only in the stained tissues. The operative field is inundated with the anesthetic solution. The author is not statistically interested at present in the remote survival of his patients and lets that be as it will, as it is as yet too early for remote statistics. His lingual cancer patients are all dead or have inoperable recurrence. His longest survival here is four and one-half years. We find no mention of the remote outcome of his pharyngectomies. But he is insistent on diminishing his operative mortality. Naturally under local anesthesia he has taken full advantage of the possibilities of serial interventions, such as preliminary tracheotomy and ablation of cancerous lymph nodes.

Fatal Diphtheria in a Patient with Negative Schick Test.—Blechmann and Chevalley report the case of a patient who had given a negative Schick test ten days before, yet had developed a particularly malignant case of diphtheria. The extreme youth of the patient, a nursling of one month, should have made it relatively immune. It had contracted the disease from an older nursling. It is so rare for nurslings to contract the disease before the age of two months that but seven cases have been recorded in the past twenty years, which makes the case doubly important.—*La Presse Médicale.*

Book Reviews.

OPERATIVE SURGERY: FOR STUDENTS AND PRACTITIONERS. By JOHN J. MCGRATH, M.D., F.A.C.S. Professor of Surgery, Fordham University; Consulting Surgeon to the People's Hospital; Visiting Surgeon to the Fordham, Columbus, and New York Foundling Hospitals; Fellow of the American College of Surgeons; Fellow of the New York Academy of Medicine; Member of the American Medical Association. Sixth Revised Edition, with 369 Illustrations, Including Full-Page Color and Halftone. Price $8. Philadelphia: F. A. Davis Company, 1921.

FOR many years McGrath's book has enjoyed wide popularity as a guide in the teaching of operative surgery; and it must have deserved this popularity, for otherwise it could not have survived in these days when an inordinate profusion of elaborate illustrations and numerous more or less valuable colored plates seem to be the fashion. Most of the illustrations in this book are in plain black and white, and there are few, if any, of the useless variety. Because of the author's long experience in the teaching of operative surgery and his natural ability for clear, concise statement, there is much less need for the artist than in the average book on this subject; yet there are occasional instances where additional illustrations would be a great help to the student.

As in the previous edition, the book is divided into ten parts under the following captions: General Considerations; Head and Face; Neck and Tongue; Thorax; Abdomen and Back; Rectum; Hernia; Spermatic Cord, Testis, etc.; Urinary System; Upper Extremity; Lower Extremity. In the chapter on General Considerations the author discusses the various types of anesthesia and the methods of their employment; but the technique of local anesthesia in individual operations is not discussed. Among other subjects discussed in this section are anoci-association, hemorrhage, intravenous infusion and transfusion by various methods, including both the older methods of arteriovenous anastomosis and the newer syringe-cannula methods.

Before taking up operative technique in each section of the body there is a concise résumé of the surgical anatomy of the part, usually covering the ground sufficiently so that reference to a book on anatomy is not necessary. The usual operations on the head, neck, and face are clearly described and usually sufficiently illustrated; but there are none in connection with operations on the tongue where, in our opinion, good illustrations would greatly help the student. But one radical operation for the removal of the cancerous breast and lymphatic glands is described, and in this the incision is neither exactly so placed nor so extensive as is commonly considered best to-day; while there are several other well-known incisions that should also be described. In operations upon the heart, pericardium, and pleura many will take exception to the author's advice regarding drains in at least some of the cases where there are no positive evidences of infection. The conventional methods of operating on intraabdominal organs common to both sexes are well described. We note, however, that the author still recommends anchoring the fundus of the gall bladder to the parietal peritoneum as a final step in cholecystostomy, although that practice has been well-nigh entirely abandoned in recent years. In the chapter on hernia the genesis and operative technique in the treatment of sliding herniæ should be thoroughly covered; for these are difficult and dangerous operations for the uninitiated and are seldom covered in books on operative surgery. The principal operations on the kidneys, ureters, bladder, prostate, and male sexual organs are well covered, and the same may be said of operations on the extremities.

ELEMENTS OF SURGICAL DIAGNOSIS. By Sir ALFRED PEARCE GOULD, K.C.V.O., M.S. Lond., F.R.C.S. Eng.; and ERIC PEARCE GOULD, M.D., M.Ch. Oxon., F.R.C.S. Eng. Fifth Edition, Revised, with 16 Radiographic Plates. Price $4. New York: Paul B. Hoeber, 1920.

FOR over thirty years this has been a favorite book with successive generations of students. The latest edition is very little larger than the first edition, but it is better printed and is on thinner paper and contains illustrations. The present revision contains new matter on such topics as gas gangrene and causalgia; and many of the chapters show necessary changes. Occasionally some of the older methods of diagnosis are omitted. The book treats of general methods in surgical diagnosis, and then gives the application of these principles to the diseases and injuries occurring in the various regions of the body. Throughout the work the diagnosis of injuries is separated from that of diseases; this makes for simplicity and clearness, and in no way interferes with the usefulness of the book. From its first appearance the book has been recognized as a safe guide for the student; and readers in search of a valuable work on surgical diagnosis will do well to examine the present volume.

NUTRITION AND CLINICAL DIETETICS. By HERBERT S. CARTER, M.A., M.D.; Assistant Professor of Medicine, Columbia University; Associate Attending Physician to the Presbyterian Hospital; Consulting Physician to the Lincoln Hospital, New York. PAUL E. HOWE, M.A., Ph.D.; Associate in Animal Pathology, Rockefeller Institute for Medical Research; Formerly Assistant Professor of Biological Chemistry, Columbia University, New York; Nutrition Officer, Camp Kearny, California; Officer in Charge of Laboratory of Nutrition, Army Medical School, Washington, D. C. HOWARD H. MASON, A.B., M.D.; Instructor in Diseases of Children, Columbia University, New York; Associate Attending Physician to the Presbyterian Hospital; Attending Physician to the Ruptured and Crippled Hospital, New York. Second Edition. Thoroughly Revised. Price $7.50. Philadelphia and New York: Lea & Febiger, 1921.

IT is one of the encouraging signs of the times that books on dietetics are multiplying, indicating as it does that we are beginning to appreciate the fact that the way to prevent disease is to fortify the body first and then, if that does not suffice, to supplement the natural forces by drugs. This is one of the most complete and satisfactory of the recent books on foods, and it is even better in the second edition than it was in the first. It contains a vast amount of information regarding the content in protein, fat, and carbohydrates of foods of all kinds, but it leaves unanswered a number of questions that are often asked of the physician. For instance, Why is whole wheat bread forbidden to the gouty? What is the acid in tomatoes and why is it so harmful as to cause tomatoes to be forbidden in many cases in spite of their large and varied vitamine content? Do the acids of fruits and vegetables increase or diminish the alkalinity of the body fluids, and why? Is grapefruit a beneficial fruit or the reverse? Has it the vitamines of the lemon or orange? Does lime juice contain the antiscorbutic vitamine? Is the fat-soluble a protective only against xerophthalmia? These and many other questions that naturally come into the mind of one seeking information regarding the proper food of man are left without answer so far as a diligent search with the aid of the index enables the reviewer to determine. This is the principal fault we have to find with this really most valuable and instructive book, and we call attention to it only because it is disappointing to find information on these points lacking when it is given so abundantly on so many other points. The most practical section of the book is that dealing with feeding in disease. Here the dietary prescriptions are very direct and simple. In spite of the omission noted and of a number of typographical errors, the work is of great value and should be studied by all who wish to be fully armed in the combat with disease.

MEDICAL NOTES. By Sir THOMAS HORDER, M.D. (Lond.), F.R.C.P. (Lond.), Physician with Charge of Out-Patients to St. Bartholomew's Hospital. New York: Oxford University Press, American Branch, 1921.

THIS is a slender volume of one hundred pages, containing notes or remarks made by the author in the course of clinical teaching. In general style the book reminds one of the "Clinical Aphorisms" of Samuel Gee; and readers of this latter work will probably view the present book as a kind of continuation of Gee's well-known book. It is eminently readable, and, while there is little in it that is new, most of the material is presented in a striking way; the occasional dogmatism is due to the author's constant aim at conciseness and his apparent abhorrence of verbiage.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 24, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Establishment of Official Organ.—Dr. DANIEL S. DOUGHERTY presented a recommendation from the Comitia Minora providing for the establishing of an official news organ of the Society, which was unanimously adopted.

Action on Amendment to the Volstead Act Deferred.—The Reference Committee to which the resolution offered at the stated meeting of the Society on April 25, 1921, that the Society petition Congress to defer action on the amendment to the Volstead Act, and referred back to the Comitia Minora at the stated meeting of May 21, handed in a report stating that the Comitia Minora, sitting as a reference committee recommended that, in view of the fact that the American Medical Association at its meeting in Boston referred this question to the Council on Scientific Assembly for consideration and report, no further action be taken by this Society.

Dr. JOHN P. DAVIN moved as a substitute that the matter be again considered in its original content and that the Society petition Congress not to limit the prescription of alcoholic liquors by duly licensed practitioners. He contended that this Society was quite as competent as the American Medical Association to pass upon this question, since it followed the lights of eminent medical authorities who were members of this Society. He moved that the report of the Comitia Minora be not received and that the Medical Society of the County of New York respectfully petition Congress not to incorporate in its legislation any restrictions on the prescription of alcohol by duly licensed practitioners of medicine.

Dr. HENRY S. STARK recalled that at the April meeting when this report was read he saw that as a matter of law the resolutions would not hold water and had therefore moved that they be referred back to the Comitia Minora. Two weeks later the matter was commented on editorially in the MEDICAL RECORD, and if it had not been for him the Society would have gone on record as almost asinine in its action. Strange as it might seem, so far as these resolutions went he agreed with Dr. Davin as to the inadvisability of waiting to see what action the American Medical Association was going to take. If they were going to have all their resolutions viséd and censored by the American Medical Association, the Medical Society of the County of New York might as well go out of existence. If they could not rely upon the five or six thousand members of this Society to settle the question they should go out of business as a society. The medical profession had come out plainly in favor of the Prohibition Amendment. There might be some therapeutic efficiency in alcohol, but when one took into consideration the vast amount of poverty, destitution, and crime that was laid at the door of alcoholic abuse, the question of the therapeutic value of alcohol was a negative quantity. The object of his speaking, he said was to urge that this resolution be not passed as it would hold the medical profession before the bar of judgment as it had never been held before.

The motion to adopt the report of the Comitia Minora, that the Society take no further action on these resolutions, was adopted. Dr. Davin's resolutions were referred to the Comitia Minora for consideration.

The Present Status of Operative Obstetrics Referring to the Abuse of Cesarean Section.—Dr. JOHN O. POLAK presented this communication, in which he deplored the operative furor which had invaded obstetrics, when even the physiological processes of normal labor were disturbed, and a normal sized child, in normal position, passing by a normal mechanism through an ample pelvis, with dilatable soft parts was interfered with; the head disengaged, a version done and delivery accomplished by breach extraction on the plea that the woman was saved an hour or two of second-stage pains. Other enthusiasts either for their own convenience, or to save the woman an hour or so of suffering, were routinely applying forceps when the head had reached the ischial spines, and the cervix was fully dilated; still others had so widened the indications for cesarean section that this operation was being employed daily on patients who presented no real obstetric indications for it, simply because it was the most convenient way to get the baby out. This paper had for its purpose to show that there was a difference between surgical obstetrics and obstetric surgery done for justifiable indications and that routine operative intervention even in the hands of the expert was not free from danger to both mother and child, and, finally, that while cesarean section was the easiest and quickest method of delivery, that there was a higher *morbidity* and *mortality* following abdominal hysterectomy, than follows abdominal section generally in properly selected cases. A study was presented of the operative incidents in a series of a thousand consecutive cases, which had had intelligent and painstaking prenatal study, where each labor was conducted with a full knowledge of existing conditions, on the principle of aseptic intelligent expectancy, and where intervention was done, not withheld, on proper indications solely in the interest of the mother and child. Comparison was made with 1,113 cases delivered by one man, an acknowledged expert, who had deliberately interfered with the normal processes of labor as a routine procedure. In this series of 1,000 cases there were 106 patients with actual contraction of the pelvis, an incidence of 10.6 per cent; 344 in which the occiput was posterior at the beginning of labor, and 42 in which the presentation was abnormal. Yet in this series the incidence of operative intervention showed forceps deliveries in 2.2 per cent; version in 0.5 per cent. and an incidence of cesarean section of 0.8 per cent. The number of stillbirths in this series was 19, or 1.9 per cent., including all infants dying during the first week after delivery, six more deaths should be added, making a total infant mortality of 2.5 per cent. In the series of 1,113 women personally delivered by one of the most skilful surgical obstetricians in America, he performed 920 versions, 39 forceps operations, and 80 cesarean sections, approximately one cesarean section to every fourteen cases. In his series 10 women were so far advanced in labor that they could not be prevented from delivering spontaneously, and 12 babies were born before the attendant reached them. In this series 41 were still-born, and 34 died before the mother was discharged from the hospital a fetal mortality of 6.7 per cent, or nearly three times the mortality of the infants in the previous series. Such facts left no room for argument, they clearly demonstrated the contention that routine operative intervention in the hands of the expert was not free from danger to both mother and child. Operative obstetrics no longer recognized the induction of premature labor in contracted pelves, for it was admitted that induction was not free from danger to both mother and child. *Present day obstetric teaching recognized the propriety of giving each case an aseptic* test of labor when the pelvic deformity fell within the relative class, for over 80 per cent. of these cases spontaneously delivered. High forceps was an operation of history. On the other hand, low forceps applied with the head at or below the spines, was an operation which when indicated was purely life saving. Many children lost their lives as the result of too conservative delay during the perineal stage. Low forceps applied under surgical anesthesia, with the patient in proper posture, did little or no damage to the pelvic soft parts (in the hands of a competent man). Version according to the technique perfected and so ably described by Potter, had a wider field than had generally been given it, *but not as an elective routine procedure in normal cases.* Version had its widest indication as an emergency procedure in complex presentations—brow, face, and the accidents such as prolapsed cord, placenta prævia, abrupto placenta where rapid delivery was demanded in the interest of the child. In present day obstetrics embryotomy had but a limited field, and was now practically never done on the living child except

in the presence of an infected mother and even here, the Perro operation might come into competition. On the other hand, perforation, cleidotomy, and evisceration should have a more general use in terminating the delivery of the dead fetus. In discussing the abuses of cesarean section, Dr. Polak said there was a fallacious impression in the minds of both the general medical and the lay public that cesarean section was a perfectly safe and simple operation which could always be guaranteed to give perfect results under all circumstances. The fact was that abdominal surgery *always carried with it a certain risk to the life of the patient*, even in the most competent hands and under the best conditions. Notwithstanding this general impression, his study of 2,200 operations of which 200 were from his own clinic showed that cesarean section had a *greater morbidity and a greater mortality than ordinary abdominal operation* done for other pelvic conditions. Study of the end results showed that those obtained by cesarean section performed at the time of election, that was before labor began or early in the course of labor were much better than the results of the late or secondary operation. This, therefore, *implied the necessity of very careful prenatal study, the proper estimation of the relative size of the child to the particular pelvis and the aseptic conduct of labor*, so that if the operation was indicated it might be performed when the best results might be expected for both patients. Cesarean section was indicated in the patient in whom some definite pelvic obstruction existed either as the result of actual contraction or by the presence of tumors blocking the pelvis, which rendered delivery of even a dead or mutilated fetus impossible or dangerous. A contracted pelvis with true conjugate of 6 or 6½ cm. or an immense child would give the absolute indication. Any operator who performed cesarean section for other reasons must be sure that the benefits which were to be expected from the operation to both mother and child were sufficient to warrant the increased risk to the mother. Further admitted indications might be stated as follows: Labors in multiparæ who had had previous obstetric disasters; placenta prævia when the patient was at or near term, in good condition, had not been subjected to vaginal invasion, with a live child and a central or nearly total implantation of the placenta; abruptio placenta was a proper though rare indication, and then only when the birth passages are totally unprepared. In addition to these there were a few other indications in which cesarean section was admissible, as breech presentation with large fetus in elderly primiparæ; prolapsed cord with ruptured membranes; large child and unprepared soft parts; the delivery of the physically unfit; in cardiacs to lessen the strain of labor; in women after previous cesareans because of danger of rupture of the hysterotomy scar; dystocias resulting from previous suspension operations which had become uterine fixations, and in deliveries after the cervix had been amputated and the pelvic structures repaired by extensive plastic operations.

Advances in the Study of Metabolism in Normal and Pathological Pregnancies.—Dr. HAROLD BAILEY made this presentation in which he summarized the results of various investigations as follows:

"(1) In pregnancy there is an increased metabolism of 4 per cent. This may represent an effort to keep stationary the hydrogen-ion concentration of the blood. (2) There is nitrogen retention throughout pregnancy and in the latter months there is also a slight tendency to an acidosis.

(3) The disturbances of protein metabolism in pernicious vomiting, acute yellow atrophy and eclampsia are expressed by a lower urea output with an increase of the ammonia and undetermined nitrogen, and probably indicate a failure of deamination of some high aminobody and a retarded urea synthesis. The evidence suggests that this is due to a degeneration of the liver cells and is secondary to the true etiological agent. (4) Blood chemistry shows that eclampsia is accompanied by an acidosis and that there is a low $\frac{\text{urea}}{\text{n.p.n.}}$ coefficient in most cases. When this coefficient rises it indicates a secondary degeneration of the kidney and consequent lowering of the functional activity. Blood analyses support the evidence furnished by the nitrogen partitions of the urine. Prognosis and even treatment may be based on the report of the blood findings."

Improved Maternity Care as a Public Health Question—Can We Provide for the Same by Legislative Enactments?—Dr. GEORGE W. KOSMAK presented this paper, in which he stated that the increasing attention given to questions of public health was conclusively demonstrated by the rapid strides during the past few decades in this domain and had also found expression in the widespread agitation and propaganda now so generally prevalent in both lay and professional circles. The campaigns against tuberculosis, the contagious diseases of children, typhoid, malaria, and other illnesses had now been succeeded, it seemed, by an almost worldwide propaganda for better maternity care and infant welfare. Tracing the development of this latter movement, Dr. Kosmak said that interests which were scattered through communities both large and small, because of their sentimental appeal, had gradually developed to such an extent that they had submerged in a country wide agitation and propaganda for national legislative support. The interest which the public, both as individuals and in organizations, had shown in this matter, behooved us as physicians to recognize these sentiments and to lend our constructive advice and technical knowledge in guiding the same along proper channels. It was necessary to bear in mind that the question of improved maternity care was largely a medical one and that while the economic and social factors were important, they should not lead one astray in any concerted attempt to remedy the situation. There was no field in which false sentiment could lead to such fatal errors. Childbirth and the preparation for the event aroused in the mind of everyone a feeling of sympathy or even pity and it was well known how dangerous an overabundance of these sentiments might become in the furnishing of practical relief. We all realized how important the childbearing life of a woman was to the community and to the state—the whole welfare of the nation was linked with healthy motherhood, the ability to bear and to rear children. As physicians a great deal of the burden and responsibility for securing the same rested upon their shoulders. The propaganda in this country in favor of national recognition of the maternal mortality depending on childbirth was to some extent based on a study made by Dr. Grace L. Meigs of the Children's Bureau of the U. S. Department of Labor, published in 1917. This report was an admirable study. Dr. Meigs claimed that in 1913 in this country 15,000 women died from conditions caused by childbirth, of which 7,000 were cases of puerperal fever. It was also pointed out that the death rate per 100,000 population was only a little lower than that from typhoid fever and that this rate would be almost quadrupled if only the group of the population that could be affected, namely, women of childbearing age, was considered. In the group of fifteen foreign countries only two were shown to have a higher death rate from this cause than the United States. Dr. Meigs claimed that the death rates showed no appreciable falling off during the period 1900-1913, although this same lapse of years had been marked by a revolution in the control of certain other preventable diseases such as typhoid fever, diphtheria, and tuberculosis. The author of the report believed the standards of obstetrical care in this country were low and that this resulted chiefly from two causes: (1) General ignorance of the dangers connected with childbirth and the need of proper hygiene and care to prevent them; (2) difficulty in the provision of adequate care due to special problems characteristic of this country. She concluded that improvement would only come through a general realization of the necessity for better care in childbirth, and that if women demanded better care physicians would provide it, medical colleges would furnish better training in obstetrics, and communities would realize the vital importance of community measures to insure good care for all classes of women. Dr. Kosmak called attention to the fact that this report contained no recommendations along the lines suggested at a later date by the Sheppard-Towner bill. So far as infant mortality was concerned, later statistics were at hand and very satisfactory reductions in infant mortality had been noted. From a survey of these statis-

ties, it might be claimed that whatever factors should be credited with the reduction in infant mortality, they had at least accomplished their purpose. A less satisfactory condition prevailed, however, in regard to the mortality from childbearing, for septicemia and eclampsia, among other conditions, still claimed an undue number of victims. The mortality from septicemia had remained practically the same for the past twenty years and the mortality from childbirth in general was second only to that from tuberculosis in women of reproductive age. The death rate from eclampsia seemed to have been equally high. Of course, we must expect that in the carrying out of the processes of gestation a large number of complicating factors entered and many of these were out of our control. On the other hand, it had been amply proved that with appropriate prenatal care and skilled attention during labor, the maternal morbidity and mortality could be much reduced. The assertion had frequently been made that only the rich and the very poor obtained adequate obstetrical care. This was secured for the former by their ability to pay for skilled attention, and by the latter through the provisions made by charitable agencies. If the foregoing facts were pondered it was natural that a propaganda should arise in which an attempt would be made to provide women unable to obtain it otherwise with such necessary care through public agencies. The development of this idea would readily lead to extreme measures. Progress to be satisfactory must be slow and thorough coordination between the medical and the contributory factors must be developed. We could not accomplish by radical legislation the solution of a problem which was purely personal, by methods which savored of the dictatorial, and which offended the sense of liberty of action as we understood it in this country. While within recent years direct legislation had been introduced, and people had begun to realize that for the benefit of the community they as individuals had to submit to certain definite regulations even if they were disagreeable, nevertheless there must necessarily be limits to which such methods could be applied. Dr. Kosmak traced the development of the health centers as a result of the fostering of community spirit and the expansion of public health activities. He asserted that there was no doubt that the institution of a public health center exerted a wide educational influence, and a knowledge of personal health and hygiene must be spread. If such an ideal condition could be brought about, and the giving of advice divorced from treatment, perhaps less opposition would be generated, but it was a difficult matter to separate the two. It would mean the gradual recognition of a system of State medicine which in this age at least we were not prepared to accept in the United States. Maternal and infant welfare being of greater popular interest than any other topic in the field of medicine, more concerted and serious attempts had been made to bring it under the control of central government supervision and authority, but admitting, as we had done, that the situation was in need of improvement, could we hope to accomplish this end by such widely heralded measures as the recently proposed Sheppard-Towner bill? The bill might be summarized as the most radical type of legislation which had ever been proposed in this or any other country, for it sought to establish through the medium of a minor government bureau a system of close supervision and direct federal financial support of certain essential functions of the individual States. The mere appropriation by the Federal Government of funds on a fifty-fifty basis, the expenditure to be supervised through the head of the Children's Bureau of the Department of Labor without control and the carrying out of the act largely through visiting nurses, constituted a measure that would effectually bar rather than further the progress of medicine along these lines for many years. It would take out of medical auspices the carrying on of a strictly medical work, and, judging by its accomplishments in the past, the work of this lay bureau would be largely of a sociological character and constitute an entering wedge for paternalistic and socialistic schemes with which this country was not in sympathy. Admitting that septicemia and the toxemias of pregnancy constituted the largest element in the mortality of childbirth, how much could these factors be reduced by advances in obstetric methods? Radical interference with the course of labor had been accused as one of the factors in an increased mortality. But could we say that this was true—could we say that more sepsis had resulted since these radical methods had come into vogue, and were they being done in sufficiently large numbers to influence the result as a whole? They certainly had nothing to do with the reported increase in the toxemias of pregnancy. In this connection it was of interest that in Germany during the war, when the nutrition of the nation was reduced to a low ebb, eclampsia became almost unknown. German observers attributed this to the compulsory change in diet when fats and proteids were reduced to far below the amounts usually consumed. Might not the unfavorable statistics as regarded eclampsia and the toxemias of pregnancy be due to the more abundant and richer food supply which our people had become accustomed to in recent years. Dr. Kosmak showed that the reduction in infant mortality had been brought about largely by the awakening of community spirit and the development of local interests in this problem. Further improvement, he claimed, would result from the continued development of local interests in this important problem, and what had been accomplished thus far should be a matter of greater pride in the particular localities, for the accomplishment of the end had been attained without the help either through financial assistance or supervisory restrictions, of the national government. He felt safe in claiming that further improvement would result if this method was extended, for it was a method particularly applicable to this country. If the wider aspects of the question demanded that the national government recognize the possible shortcomings in our plans for the welfare of women and children, then let this recognition take the form which it had in other great departments of the government. A great deal more dignity and credit would redound to a central government if it exercised its functions in a purely advisory capacity, stepping in where need be to help along by good advice, suggestion or precept, and carefully avoiding direct control or direct financial support. Our people were not constituted to tolerate this, and governmental interference in other ways had so often proved a dismal failure that it should not be repeated in this instance. If all the medical interests of the National Government were concentrated or coordinated in a department of national welfare or in a national department of health, this problem could readily enough be made a part of the general scheme. The Public Health Service was at the present time fully capable of taking up the National Government side of this important matter, and whatever was done could be done in a dignified way from the medical point of view and free from the socialistic and paternalistic aspect with which so much of the work of the U. S. Department of Labor had been characterized. It was his belief that improvement in obstetrics would result more rapidly and more directly by a recognition of the fact by the medical profession, by an improvement in teaching facilities in obstetrics, by an acknowledgment that this was one of the major branches of medicine, and by a full realization of the fact that improved maternity and infant care was a medical problem pure and simple with certain underlying economic factors, but a problem that must be kept free from all schemes for the endowment of motherhood, compulsory health insurance, or the subtle influences of the feminist movement.

Dr. JOHN A. KILLIAN stated that Dr. Bailey's paper on normal and abnormal metabolism in pregnancy had covered such an extensive field that it was impossible to discuss even the salient points. However, there were a few points that would stand a great deal more emphasis from the practical standpoint than Dr. Bailey had given them. It had been his experience in dealing with obstetricians that they clung to the idea that nitrogen partition of the urine was of some value during pregnancy or in eclampsia, whereas it had been demonstrated that the chemical analysis of the blood was infinitely more accurate and reliable in detecting the metabolic status of the patient than the results of urinalysis. Normal pregnancy was characterized by a retention of nitrogen, which indicated that there was an excessive demand on the maternal organism for this substance. Of the total amount of nitrogen, non-pro-

tein nitrogen and urea formed the largest factor, about 50 per cent.; 46 per cent. was in the form of little known nitrogenous compounds. This was spoken of as the "rest nitrogen." In eclampsia the ratio of urea nitrogen to non-protein nitrogen was decreased. The increase in the "rest nitrogen" ran parallel with the degree of toxemia, so that it would seem that some factor causing the toxemia was one of these nitrogen compounds. If one dialyzed blood taken from a case of toxemia of pregnancy and injected it into animals it produced convulsions, showing that the condition was really one of toxemia. There was also a drop in the carbon dioxide combining power of the blood in the toxemia of pregnancy, and under such condition of acidosis the risks of surgical operation requiring general anesthesia was evident. As the toxemia was relieved the carbon dioxide in the blood rapidly returned to normal. The toxemia of pregnancy was characterized by a rise in the uric acid, both in nephritis and eclampsia. In the analysis of the blood in pregnancy one should take into consideration the non-protein nitrogen and the urea nitrogen, laying emphasis on the ratio of the urea nitrogen to the non-protein nitrogen, and in calculating this ratio it was important to know the hydrogen-ion concentration of the blood.

Mr. MICHAEL M. DAVIS said that Dr. Kosmak appeared to refer to the Sheppard-Towner bill when he questioned the extent to which legislative enactment could promote matters of public health. An act of the Federal Government must not be judged from the local standpoint of New York City, but from the standpoint of all parts of the country. Two years ago he had been in Montana, where one might ride twenty-five miles and see only two ranches. The people there were not suffering from poverty, but owing to the great distances the problem of getting care in time of sickness was very difficult. The Federal Government must consider these sparsely settled regions; it must likewise consider the small poor communities in the South, and the comfortable middle-class regions whose people were on fertile farms and not in towns. A recent journal from the Middle West stated that the women of that section were setting up a new slogan. They were saying that whenever a farmer bought a new tractor to lighten his work on the farm his wife should be bought a new washing machine to lighten her work in the home. A public health department took up that suggestion and said that every time the farmer put in a petition for legislation for an agricultural school for the training of efficient farmers, the women should ask for public health nurses to help bring up better babies to provide material from which these more efficient farmers were to be made. It was not right to judge Federal legislation from anything else than its effect upon the whole country. The proposition of using the wealth of one section for other sections not so well provided for had been applied in other departments, as in education, and was applicable to this problem. As to people resenting the visit of a public health nurse, the public health nurse was usually a very popular person, and particularly among the women. The public sentiment developing among the women of this country for better maternity care was absolutely certain to find some definite means of getting results. Personally, Dr. Davis said he did not believe in educating people by hitting them on the head. He believed that education should be something attractive to those who were to be educated. One was justified in using compulsory methods in dealing with contagious diseases, but he thought maternity welfare work must be educational and attractive and not compulsory. It must be brought about by all agencies interested, including the medical profession and the medical schools, as well as lay groups. It was a work that was not solely medical and not solely lay. It was important that the lay group should not attempt the work alone, and on the other hand the medical group could not carry the work out successfully without the lay group, which must provide the sinews of war. As to how far legislative enactment could promote maternity care, he thought Dr. Kosmak had shown what it had done in New York City when he mentioned the improvement of the milk supply, the education of mothers, the work of the visiting nurses, and the baby health stations, as among the chief measures that had diminished infant mortality in this city. Analogous measures were applicable to mothers, and it was reasonable to expect that if legislative enactment had aided the work in one instance it could do so in the other. To bring about the desired results legislative enactment was necessary and it was also necessary that those engaged in this work should have constant prodding from such a medical body as this. He felt that in carrying out maternity welfare work there was needed the cooperative effort of the medical profession and lay groups working together for public education and for the enactment of proper legislation in order to achieve results.

Dr. KOSMAK, in closing the discussion, said that much of Mr. Davis' discussion bore out his contentions, though they seemed to be on opposite sides of the fence in the matter of the Sheppard-Towner bill. His contention was not that the Federal Government should not take part in maternity welfare work; his objection to it was the manner in which it sought to exercise this function. As he had said in his paper this was the most radical type of legislation of its kind. Mr. Davis had brought out the factors which had been effective in the reduction of infant mortality in this city and these measures had been duplicated all over the United States. This work was done by the community, without the assistance of the State. It was local community work developed by people who knew and were interested in what was going on around them. According to Mr. Davis one should not judge results by what was going on around one, but had to take into consideration what was going on all over the country. The Sheppard-Towner bill depended upon a fifty-fifty basis. The Federal Government would pay as much as the individual State paid. If one took great States like New York, Pennsylvania or Illinois, States appropriating $100,000 a year for the work, they could call on the Federal Government for another $100,000. But if one took certain States with a poor treasury that could make only a small appropriation, they would get a correspondingly small appropriation from the Federal Government, and consequently there would be insufficient funds to carry on the work just where it was most needed. The plan would therefore fall short in granting the desired relief.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held October 18, 1921.

DR. SAMUEL BRADBURY IN THE CHAIR.

THE subject of the evening was "The Pay Clinic."

Why the Public Needs Pay Clinics.—M. M. DAVIS, JR., Ph.D., spoke on this subject. He stated that his understanding of a pay clinic was a clinic which charged fees covering the cost of service for the patients and a clinic which paid salaries to physicians who did the work. He did not believe one should go on without the other. The public needed clinics because there was a large number of persons in the community who could afford to pay something for medical care and were not objects of charity, but who could not pay the usual kind of fees. There were three factors to be taken into account in determining whether an individual or a family "could pay:" (1) The income of the man or family. (2) The margin which the family or individual had over the minimum daily needs, such as shelter, clothing, food, etc. (3) The approximate cost of adequate treatment, depending upon the nature of the illness. This cost varied widely from a small amount in very minor ailments to the high cost of major surgery or the diagnostic procedures that called for expensive investigation. When these three factors were known one was in a position to know whether the patient could pay the usual private rates. Taking up these things separately we had, first, the cost of living. This had been a sore point with all of us. By the cost of living was meant the estimate of the cost of living on the basis of minimum requirements of health and decency. Such estimates had been made by many organizations. Perhaps the most reliable figures were those of the United States Department of Labor and of the New York Bureau of Municipal Research. These were probably as reliable as could be obtained. The minimum health and decency standard of the New York Bureau

for a single man per year was $1,093 and for a single woman $1,118; for a family of five, which was taken as the "average" family, the minimum "health and decency" standard required $2,263 per year. All these figures had been very accurately estimated, and they included a certain allowance for medical care. In the single man's budget of $1,093 an allowance of $32 was made for care of health. In the single woman's budget of $1,118, $43 was allowed for the care of health. In the family of five an allowance of $80 was made for the care of health. These figures were not made by doctors but by the Federal and local bureau who took the sums actually paid for health care or considered as practicable for people receiving these incomes. What would $80 do in providing medical care for a family of five? It must be borne in mind that $80 was the amount included in the minimum figures. Anything in excess of $80 must be taken not from luxuries but from the necessities of life. Obviously dental care and the allowance for medicines would easily eat up one-half of $80, and often much more, so that $80 could by no means be allowed for physicians' fees. The allowance for health care of a single man was $32 and of a single woman $43. No very expensive treatment could be obtained for that amount. If the services of a specialist were needed the situation would be still more difficult. If the child needed the services of an oculist and the usual office fee of $5 or $10 was paid and then from $5 to $15 for glasses, $10 to $25 for the examination and glasses, it made a big hole at once in the $80 allowed for medical care. Secondly, Dr. Davis said they had been collecting estimates from physicians, chiefly specialists, for the treatment of more or less typical ailments. These figures it was hardly necessary to read before a medical audience. The cost of the usual fees by a specialist for a baby with rickets during the course of a year's service was $195. At the hands of a pediatrist a child eight years of age with malnutrition for eight months' treatment was charged $55.50, to which must be added a certain amount for medicines. A case of syphilis cost for the first year $225 for treatment; a carbuncle cost $40; a corneal ulcer $49; a glaucoma running six months $157. A case of nephritis during the first period, when the case started with diagnosis and initial treatment, cost something like $100. It was obvious that these figures would be impossible of payment by a family of five with the income above named, or by a single man or woman with an allowance of $32 or $43 per year for health care. The conclusion was that people supporting themselves on earnings of $1,200 to $1,500 a year for single persons and $2,000 to $3,000 for families had a very small margin to expend for health over and above the necessities of life. The question then arose as to whether these figures applied to large groups in the community. The statistics in regard to income were not as reliable as one would like to have them. There were certain figures of income in New York City, compiled by the National Bureau of Economics which showed that in normal times, in a population of over 6,000,000, two and one-half million were employed. About 14 per cent. were estimated to have incomes of $3,000 or over; 86 per cent. had less than $3,000. As one went down the scale, 61 per cent. had incomes less than $2,000, 22½ per cent. less than $1,200. Approximately one-half of the two and a half million had incomes less than $1,700. A further analysis of these figures showed that a considerable proportion of those with incomes of $1,200 or less were single men and women or young persons living with their parents. The great bulk of those with incomes of $2,000 to $3,000 were heads of families. Approximately 240,000 families in New York had incomes between $2,000 and $3,000, meaning that there were over a million persons with that scale of income, and that was about the *minimum* scale of income to support the average family in health and decency. If we added an estimate of the number of single individuals with incomes of from $1,050 to $1,650, we might judge that there were about one and a half million persons in New York with incomes which just about extended to the minimum budget estimated as necessary to provide the necessities of life. There was also a large group habitually below this margin of self-support who were unable to pay anything for medical care. These constituted those who filled most of the free beds in hospitals and the free clinics. Over one million people were now annually receiving care in charitable clinics in New York City, and that corresponded with the figures quoted. There were, however, quite a number who were attending the charitable clinics yet who were willing and able to pay a small fee. In the studies made by the Public Health Committee of the Academy of Medicine it was found that three-fourths of all who went to the dispensaries went for care by specialists. The group of one and a half million were not able to afford specialist care at the rates usually charged by specialists and consultants. This large group fell between those who could pay the rates of the expensive specialist and those who were legitimate attendants at the free dispensary. Obviously it was impossible to generalize as to the fee for medical care, but there were one and a half million people who fell between the charity class and the well-to-do. Since the city together with the immediate suburbs had a population of 8,000,000, probably 2,000,000 of these fell between the well-to-do and the charity group. This 2,000,000 might be called the "pay clinic class." The pay clinic was not a new thing. It had been established on a small scale in New Yorn; in Boston, Cleveland and Chicago on a larger scale. It had been successful enough to prove that it met a definite need, but relatively little such work had been done in comparison with the large amount needed. Such a clinic ought to be a substantial help to the medical profession, for through it the family physician could get the help of better diagnosis. The pay clinic also brought to physicians a considerable sum of money which now did not go to the medical profession at all. Many patients now either paid nothing because the charitable clinics charged nothing or received no treatment because they did not wish to accept charity. If these persons paid a fee within their means a considerable amount of money would go to the medical profession. Approximately one-half the expenditures of the Boston Dispensary Pay Clinics were for salaries to physicians. Now the amount which the patients of those clinics paid for treatment plus medicines, etc., at cost just about equalled the cost of the medicines or appliances alone at commercial rates. If pay clinics were general, instead of all the patient could afford being paid to commercial enterprises, a considerable part of it would be turned over to physicians. But, of course, the essential result of the pay clinic was not financial benefit to the profession, desirable as that was, but larger service of the public. With the age-long tradition of the medical profession, service to the public had always ranked first.

Pay Clinics for Venereal Disease.—Dr. ALEC N. THOMSON read this paper, in which he stated that the pay clinic was established for the accommodation of those venereal-disease patients who were too poor to afford treatment by a well-qualified practitioner, and yet were economically above those who were admitted to dispensary service. At present, even though they were entitled to dispensary service, they did not want to avail themselves of what they termed "mere charity." The theory upon which the pay clinic was based was better specialized medical service within the reach of the average individual. The need for low cost and high grade service was especial in the case of the venereal diseases. With proper personnel, ethical publicity, social viewpoint, public-health ideas, and modern professional procedure, a clinic could be maintained to treat those individuals who could receive treatment in neither the dispensary clinic nor from the private specialist. The pay clinic was by no means a competitor of the private physician. Not over two per cent. of the patients could afford private treatment. Private treatment cost from $300 to $400 per year, whereas the pay clinic affords equivalent treatment for $100 to $125. This rate, which, on the one hand, was a considerable saving for the patient, on the other hand afforded the physician a reasonable compensation for his services. He got for his clinical work, $5 an hour, working six hours a day, six and one-half days a week. This amounted to $10 000 full time schedule, a net income greater than the average medical man's grand total with uncollectible bills included. He could afford to devote some hours a week upon a purely selfish basis. From the inception of the

pay clinic, it had developed along various lines in various places. Some had been affiliated with hospitals or dispensaries, such as the Boston and Brooklyn dispensaries. Others were separate entirely. It was the latter type which was growing more popular. Group medicine frequently resolved itself, in the final analysis, into the private pay clinic. Hitherto nothing better had been offered. It could administer salvarsan for $5 and compensate the administrator. This could not be accomplished by the private physician. The business principle of reducing cost as the volume of production increased applied, with certain modifications, to medical practice.

Boston Dispensary Health Clinic: Its Object, Mode of Operation, and Accomplishments; a Review of the First Four Hundred Cases.—Dr. LESLEY H. SPOONER of Boston read this paper. (See page 1028.)

Dr. THOMAS KIRBY DAVIS said he had had the experience of working in a neurological clinic which was a pay clinic. There were two things that might be considered as disagreeable factors. One was that there was a certain amount of abuse of the privilege, but a small amount, and another that inasmuch as it was a neurological clinic there were neurotic and functional cases which were rather difficult to deal with. In connection with the treatment there was a busy and well handled therapeutic department and there was a certain abuse of that aspect of the work, as many cases not needing hospital attention found that they could get this desirable treatment and cluttered up the clinic, but this was perhaps not altogether an objection because it did give them some benefit.

Dr. MAURICE FISHBERG said he was very glad to have heard this discussion on pay clinics and had learned a great deal from the three papers presented. Group diagnosis was like writing poetry by a group of would-be poets. Three or four of such could not produce a work as good as a poem by, say, Byron. A brilliant diagnosis was not usually made by a group; in the last analysis it must be made by an individual. Our great institutions were not made famous by groups, but by individuals who were leaders. After hearing the details of the Boston Dispensary Dr. Fishberg said he was surprised that only 50 per cent. of the patients were referred by city practitioners and he wondered how many kept on sending cases. The statistics given by the first speaker about the cost of living showed that a single man should allow $32 for health care and a family of five $80. Medical men would be happy to undertake at $30 a year to supply medical care and would find it a very good proposition. Fraternal orders had been supplied with medical care for $3, $5 and $6 per family per year. If this $30 to $80 would really go into the pockets of the profession it could be done on a wholesale scale, and enrich the profession. They had been told by one of the speakers that the doctors in the pay clinics were being paid at the rate of $10,000 a year, which he said was new to him. Work in the pay clinic probably covered three hours a week at $5 an hour. The physicians in the pay clinics were not working six or eight hours a day at five dollars an hour. Dr. Fishberg said he would like to know of a doctor in a pay clinic getting $10,000 a year. He pointed out that one of the speakers agreed that they were paid by prestige and experience, but the money remained with the social workers. He knew whereof he spoke because he had worked with the social workers. Of late they thought that medical fees were going up and had the idea that the doctors were getting too much, and when they made up statistics they put down that inasmuch as doctors were paid at $5 an hour it is clear that they were getting $10,000 a year. He suspected, however, that the doctor was working in a pay clinic only a few hours a week at the rate of $5 an hour. Group diagnosis at its best could be seen in the Life Extension Institute. They were advertising widely in newspapers and magazines, which would not be ethical for a group of physicians, and which they would not want to do. He had seen some very monstrous diagnoses made by the Life Extension. As soon as there was a group there was likely to be advertising, as witness the Chicago clinic which advertised in the daily papers. The publicity agent who does the advertising for them was usually one who had failed to do the publicity work for industrial enterprise, because there the department inquired at the end of the year how much increase in business the publicity manager had to show. As a matter of fact there was no need for pay clinics. Everywhere doctors were treating patients unable to pay their fees for one-fifth to one-tenth of their regular fees and on down to nothing, and the patient got proper attention such as he could not get in the pay clinic. However, the pay clinic might be of some use educationally.

Dr. STAFFORD MCLEAN stated they had started one of these pay clinics about a year ago at the Babies' Hospital. For many years patients had been refused there because their husbands were earning more than the law allowed to the person seeking admission to a charitable clinic. These people were willing to pay and wanted to receive the type of examination and treatment that the clinic at the Babies' Hospital could give them. They had made an arrangement to meet this special need. They charged patients $3 for the first visit and $1 for subsequent visits. An additional dollar was charged when a Wassermann test, a blood count, or a uranalysis was necessary. The idea of the three dollars for the first visit was because many came solely for an opinion, perhaps to check up their own doctor, or perhaps for advice they could not get in their own locality. For those cases that came only once they charged more than for patients who came frequently, such as feeding cases and leutic cases. The conditions in the pay clinic were no different than those in the free clinic, except there was less congestion in the former and the patients were not forced to wait for long periods. There was the same objective in both clinics but in the free clinic one traveled in the day coach while in the pay clinic one traveled in the parlor car.

Dr. WARD C. CRAMPTON expressed the opinion that the pay clinic simply pointed the way in which medicine was moving. The pay clinic was a phase of medical progress whether one liked it or not. The pay clinic was a movement in the direction of pay relative to the service rendered and the ability to pay. A feature that had particularly interested him in Dr. Spooner's paper was the prominence that was given in the Boston clinic to the habits of the individual. Physicians were primarily, fortunately or unfortunately, pathologists, concerning themselves with disease rather than health. It was natural that this should be so, since disease was an emergency, dramatic, important, and immediate. But there was a field where the charlatan had crept in and this was the field in which the Life Extension was working, whether we liked it or not, and this was the field of construction. It was for the medical profession to enter this field and develop it as a part of the medical profession. They should not permit the masseur, the osteopath, the chiropractor, the bonesetter, and the milk curist to foist their methods for the extension of life upon the public rather than those of the physician who had the knowledge to properly develop this field. The Boston clinic had shown in a definite, conservative, formative way that the physician could enter this field and work as effectively as in the field of pathology.

Dr. LOUIS FAUGÈRES BISHOP said he was interested in this question of pay clinics. Three or four years ago by force of circumstances he found himself president of a dispensary that was treating 6,000 patients a year and trying to collect ten cents from each patient. This was the Good Samaritan Dispensary at Essex and Broome streets. At this time the institution was running behind in its expenses, had had no improvements for a number of years and was in a distressing situation. He conceived the idea of converting this old institution into a pay clinic. The Board of Managers thought it could not be done. They said the people in this locality would not pay, that the dispensary had been running too many years in the old way and that nothing could be done. He took a man out of a drug store near the hospital, put him in charge of the clinic, and got his cooperation, explaining to him that his idea was to have these people pay as much as they could. The admission fee was raised from ten to twenty-five cents. A fee of five dollars was charged for a tonsillectomy, etc. At the end of the first year they had collected $3,000 more than their expenses, but they had not made many improvements. He went before the Board of Managers, showed that they had this balance

in their favor and that everybody liked the new plan better than the old one. The second year they showed a balance of $6,000 in favor of the dispensary. They established a model heart clinic, with electrocardiograph and *x*-ray apparatus, and charged $37.50 for complete examination and observation for a period of one month. This was done as a social experiment. When people came with heart conditions the complete diagnostic work was explained to them and they were told that if they did not care for it they could be treated in the dispensary in the old way. It was surprising the number of people who were willing to pay the cost for good service. This year the Board of Trustees were so elated with the evidence that the institution was self-supporting that they had voted $26,000 for improvements, and the whole institution had been practically rebuilt and renovated. His idea was that the physicians in a pay clinic should be paid according to their ability and that we should do away with the idea of paying them indirectly by experience, prestige, etc. The question of pay clinics was a part of the evolution of medicine and we could not get away from it. Public service was the only excuse for the existence of any philanthropy. He believed in raising the standard of practice and teaching the people the value of good medical service even when they were getting it at cost. No one was refused treatment because he had no money, but every medical philanthropy should teach the value of medical service. If every medical philanthropy in New York would hand to every patient a receipted bill showing the actual cost of the service rendered to him it would be an admirable educational movement for raising the respect of the public for medical service, assisting physicians to collect their proper fees, and in making people appreciate the service they received.

Dr. M. M. Davis, in closing the discussion, said he realized that anyone who was rash enough to quote figures of income laid himself open to criticism. He could recall the statement that there were three kinds of liars and that of these the statisticians were credited with being in the lowest grade. However, he believed the figures quoted were not based upon imagination but upon careful work and were as accurate as it had been possible to make them. It was quite true that if one took 10,000 people who had $30 each to spend on medical care and organized them into an insurance group one could probably build up an excellent scheme of health care but he would not care to undertake to do it because he believed it could not be done at the present time. Under such a scheme two things would be found, first, the sickly people would come in first so that there would not be a fair average of healthy and sick persons. In the second place objection would be raised to it as a form of contract practice which is generally regarded as a subversion of the current ideals of the medical profession. At the present time the pay clinic seemed to offer the best solution, though some time there might be a genius who would work out a system of taking this excess of $20 or $30 and building up a great system of group health insurance. But the pay clinic would be easier to get under way and would serve both the public and the medical profession.

Dr. Thomson asserted that syphilis clinics were today handling cases of tertiary syphilis that not only were not recognized but when recognized were not properly treated in the dispensaries. Dr. Fishberg evidently had not understood what he had said about the remuneration in the clinic. He said there was at the present time one full-time worker who was receiving approximately $10,000. In the Brooklyn dispensary the doctors were averaging $30 and $40 a week for a few hours' work. That was more than most doctors in New York were making net. Many specialists neglected to make examinations in other lines than their own. For example, in the tuberculosis clinics the examining physician frequently did not even ask the patient whether he had had syphilis, yet it was known that syphilis was 15 to 25 per cent. prevalent in tuberculosis individuals. Then there was the question of letting the patient understand what he should expect for the money invested. In one clinic dealing with venereal disease, a cash register had been installed and on the back of every receipt given to the patient was printed "Do not fail to come when the doctor tells you to return," and the doctor wrote on the case receipt the date of return.

Dr. Spooner, in closing the discussion, expressed the opinion that the objections used against group diagnosis were inadequate. There was no reason for assuming that the group was made up of inferior specialists. As to the fact that 50 per cent. of the patients were referred to the clinic by physicians, he had regarded it as a compliment to have outside physicians send their patients for diagnosis. He did not feel that the scope of the clinic was anything against its efficiency, and the fact that 50 per cent. of the clientele came from beyond the city limits was a healthy sign. The Life Extension Institute was quite a different affair. He felt that there were certain disadvantages to the Life Extension Institute. The examinations throughout the country were conducted by one man, who was probably a perfectly reliable physician, but by no means always an experienced practitioner. The reports of all examiners went to a central office and the diagnosis was made from this evidence. If the individual in question was overweight, he was sent a little book on obesity; if he was a little below weight he was sent a book on malnutrition; if his blood pressure was slightly elevated he received a book on hypertension. Diagnosis under these conditions lacked the common sense of the individual who saw the patient and sized up the whole situation first hand. In the Boston Clinic the final diagnosis was made by an internist whose judgment was not overbalanced by having his attention fixed on one field. He was not guided entirely by the finding of a diviated septum or hypertrophied tonsils, though it was important to have a record of these defects. Dr. Spooner said he was glad someone was impressed by the emphasis placed on habits and general hygiene; that had been a strong point with him and he was glad to have it appreciated.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Rôle de la Radiologie dans le Pronostic des Affections Cardio-Vasculaires. By Dr. Andre Sorel. 90 pages with 59 illustrations. Price, 15 francs. Published by A. Davy et Fils Ainé, Paris.

State of Connecticut—Report of the State Tuberculosis Commission for October 1, 1918, to June 30, 1920; 81 pages with illustrations. Published by the State, Hartford.

Statistical Review of the Insane in the State Hospitals and Private Licensed Institutions, for year ending June 30, 1920. Prepared by H. M. Pollock. 368 pages, with tables. Published at Albany.

Anales de la Direccion de Sanidad Nacional. Director, Dr. L. G. Chacin Itriago. 296 pages with tables. Published in Caracas, Venezuela, by F. J. Camejo & Co.

The Block Supply to the Heart—in its Anatomical and Clinical Aspects. By Louis Gross, M.D., C.M. 171 pages with 29 full page plates and 6 text illustrations. Price, $5.00. Published by Paul B. Hoeber, New York.

Le Reflexe Pilomoteur. By Dr. André Thomas. 242 pages with 74 illustrations in black and colors. Price, 25 fr. net. Published by Masson & Cie., Paris.

La Dégénérescence Hepato-Lenticulaire (Maladie de Wilson—Pseudo-Sclerose). By Dr H. C. Hall. 361 pages with illustrations. Price, 20 fr. net. Published by Masson & Cie., Paris.

Atlas for Electro-Diagnosis and Therapeutics. By F. M. de Laroquette, M.D. 180 pages with 52 plates. Price, $4.50. Published by Paul B. Hoeber, New York.

Massage and Medical Gymnastics. By Dr. Emil A. G. Kleen and various contributors. 564 pages with 182 illustrations. Price, $7.00 net. Published by Wm. Wood & Company, New York.

Medical History.

WILLIAM WINWOOD READE, 1838-1875.

A NEGLECTED PROPHET AND DPSPISED REFORMER.

By BAYARD HOLMES, M.D.,

CHICAGO, ILL.

In his "Outline of History," H. G. Wells refers to the "Martyrdom of Man" as an early attempt to write the history of the human race. It was a book that I had never seen, and when it came into my hand my interest was aroused in the remarkable perspective and horizon with which the subject was presented, and my admiration excited in the erudition of the author at a time when scientific studies and philosophic interpretation were in a state of primeval chaos. This fascinating book was published in 1872 and at a time when the conflict between biology and the church was most acute. The style was popular and unconventional, but vivid and dramatic. The great literary critics passed it by with supercilious mention of its defects, the historians without a word or with a finger of scorn for some obvious historical mistake. The religious press and even the pulpit condemned it as irreligious and blasphemous. In spite of all, the untimely volume has gone through twenty-two editions in fifty years and its sales are increasing rather than diminishing. It is a book that any physician would read with profit, and many physicians with a great enthusiasm. I recommend it as a valuable and permanent addition to any library.

But it is to the author of this book that I would call attention, as it is in the author that my interest centers. He is a type of man of which modern society furnishes too few examples. He was almost contemporary with Samuel Butler, whose life affords a number of parallels. They were equally influenced by Charles Darwin, but Butler was educated for the ministry, while the author of the "Martyrdom of Man" would be a physician. They were both prospectively rich men, but they could neither of them wait the disbursements of time and death. Butler went to Australasia and was a sheep rancher in a plateau of New Zealand, and there in his lonely cabin, with the mountains and the literature of the world about him, he conceived his "Erehwon," a great metaphysical and prophetic document. The author of the "Martyrdom of Man" was hundreds of miles from any white man, camped on the headwaters of the Niger, reading his Herodotus, when he conceived his outlines of the history of man, a popular exposition of the evolution of human society.

William Winwood Reade was the nephew of Charles Reade, the novelist, and was born in 1838 at Ipsden House, Oxfordshire. In 1856 he matriculated at Magdalen Hall, Oxford. He took no degree at Oxford, and does not seem to have distinguished himself as a scholar. However, he had a good time and wrote a three-volume novel which seems to have been suggested by his college experiences. It was said to have been rough and youthful and never attained popularity. It is now extremely rare, and is not to be found in any public library in Chicago. It might be interesting to compare this record of life at Oxford in 1860 with that of our own universities half a century later.

Legge seems to think that Reade described himself in "Liberty Hall, Oxon.," as the drunken man, but in his African Sketch Book he attributes his long freedom from fever to his abstemious habits.

When he was made a Mason he immediately ransacked the literature of secret societies, and especially that found in the classics on the Druids, and wrote the "Veil of Isis." This book is also rare, and it is not to be found in any of the libraries to which the writer has access. One cannot depend much on the reviews of the time, because Reade's mind was distinctly an anachronism, as his subsequent work fully demonstrated.

By the study of Charles Darwin's "Origin of Species" Reade became converted to the philosophy of the unity of nature and the uniformity and consistency of natural phenomena, including human life. This idea was fixed by the discussion of Du Chaillu's gorilla skins with the surgeon of an African coasting steamer, and after this conversation Reade determined to go forthwith to the Gabbon and observe the habits of the gorilla for himself. His egotism soon made for himself the prospective reputation of an African explorer, and he set his stunt to be the discovery of the source of the Niger.

All of these undertakings were unprecedented among the young fellows that made up the membership of the Conservative Club in London. Reade was not a highbrow, and he had no sympathy with the smug Victorian proprieties. He had begun to understand the origins of ecclesiasticism in his study of the Druids. Now he learned about missionaries in his preparations for African exploration. His preparations for sailing to the Gold Coast were hurried and incomplete. He embarked in December, 1862, in the S.S. *Armenian*, and after much suffering and hardship he returned to England within a year, the victim of African fever.

This experience decided him to study medicine at St. Mary's Hospital, Paddington, and when cholera broke out, as it did over the whole world in 1866, he served in the cholera hospital at Southampton. Evidently he learned little of malaria from the books and his teachers, though the publication of his "Savage Africa" and an anonymous romance, "See-Saw," under the *nom-de-plume* Francesco Abati, shows he was anything but idle. In "Savage Africa" there is a chapter on malaria which gives a perfect picture, hard for the modern medical man to conceive, of the lay and professional psychosis of the disease in the 1870's. It is well worth reading.

European knowledge of Africa in 1866 was meager, but there was a great awakening of interest in exploration. Livingston was opening up the southern plateau. The Burton and Speke exploration was a conspicuous symptom of the psychosis of the time of the *Zeitgeist*, as the Germans say. Now, the effect of exploration and of colonization on the mind is sometimes much the same as the effect of transplanting on the tree. There develops at the root of the tree an inhibiting toxic substance comparable to the state of mind

which we recognize in the provincial. A similar condition existed in the mind in England during the Victorian period. Butler broke loose from the fetters of this psychosis in the wilds of New Zealand. Reade became partially emancipated through his solitary journeys in Angola, his stay in Fernando Po and his repeated search for the source of the Niger.

What Reade did for geography and trade in the "Savage Africa" and "The African Sketch Book" is trifling compared with what contact with the Africans did for him in inspiring his "Martyrdom of Man." That the book was not well received and the author died thinking himself a failure and a mediocre mind was inherent in the novelty of his vision. "Erehwon" and the "Martyrdom of Man" needed a public opinion, a psychosis, a Zeitgeist which smug England and smugger America did not yet possess. The American Civil War was over. The blacks were free. Lincoln was assassinated. Public opinion and public spirit in the States had sunk to the lowest level of groveling economics. In England conditions were much the same. The preachers and the priests were in the saddle. The conflict between science and religion, as it was incorrectly called, was raging. Reason and perspective were lost sight of. There was no social enzyme in religious fervor or historical philosophy. The law of the survival of the fittest was interpreted to mean the survival of the strongest. "Whatever is is right" was the byword of manufacture, of commerce, and of politics. There was unmitigated child labor and unrestrained labor importation. Great, soulless corporations exploited everything that could have social influence from newspapers and theological seminaries to school books and Sunday School leaflets. The occasional appearance of a mind unfettered by the accepted "principles" and restrictions of the time and place is the only hope of human progress. Only such a mind can lead to those adaptations on which the prolonged tenancy of the earth by our species depends.

LITERATURE.

Burke's Landed Gentry. 1890, p. 1408.

Legge, F.: Introduction to the Martyrdom of Man. 22nd Edition.

Reade, Charles: Obituary of William Winwood Reade. London *Daily Telegraph*, April 27, 1875.

Reade, William Winwood: Savage Africa. London, 1863.

Reade, William Winwood: African Sketch Book. Two volumes. London, 1873.

Reade, William Winwood: Liberty Hall. A novel in three volumes. London, 1860.

Reade, William Winwood: [Francesco Abati. *pseud.*]. London, Moxon, 1865.

Reade, William Winwood: The Story of the Ashantee Campaign. London, Smith Elder & Co., 1874.

Reade, William Winwood: The Outcasts. Edinburgh, 1875.

Obituary of William Winwood Reade, Proceedings of Royal Geographical Society. Anniversary Meeting, 1875.

Italian Physicians and Aortic Aneurysm.—*La Riforma Medica* some time ago published one of its characteristic illustrated symposia dealing with the achievements of the native specialists in a given field of medical practice. It was in Italy that the Belgian Vesalius published the first account of the autopsy finds of an aneurysm of the descending thoracic aorta. This was in 1557. In 1804 Scarpa wrote a monograph on aneurysm in which he showed that it differed throughout from a mere dilatation, although the latter might and often did coexist. In his textbook on diseases of the heart and aorta, Huchard awards to Scarpa the credit for inaugurating our modern conceptions of neurysm, for his finds put an end to a long period of controversy. This does not take away from Morgagni the credit for the description of aneurysm in his "De sedibus et causis morborum," and Testa and Lancisi, two of Morgagni's scholars, also made contributions to the subject; the latter, in fact, in 1740, anticipated Scarpa in distinguishing between dilatation and aneurysm. But as stated, Scarpa brought harmony to the subject which for years had been the occasion of much polemic.

The next to be mentioned chronologically is Cardarelli, who began to write on aortic aneurysm in 1868. It was in 1878 that he described the sign which goes by his name for the recognition of the condition—laryngotracheal pulsation. In the same year Oliver described a similar phenomenon. In 1889 Cardarelli described the percussion signs of aneurysm and two years later Grocco and Lussati the auscultatory signs along the laryngotracheal tube. Cardarelli has also described other laryngeal symptoms of this affection, as have further Villanova, Baccelli, and the Irishman Stokes (aphonia and cough). As far back as 1868 Cardarelli had described the sensory symptoms—neuralgiform pains, etc.—and in 1873 he followed with the vasomotor phenomena, of aortic aneurysm. Massei and Pansini, old pupils of Cardarelli, considered the same affection, the former from the angle of the laryngologist and the latter from that of the Internist. The presence of aortic aneurysm causes a number of endolaryngeal and other symptoms affecting the air-passages, due in part to recurrent compression. Pansini added to the general symptomatology, which is very extensive, in part running parallel to that of angina pectoris. He added also to the symptomatology of the systolic laryngotracheal pulsation. D'Amato, another old pupil of Cardarelli, made further contributions along the same lines. At a somewhat earlier period other Italian clinicians, including Rummo, Cantani, Ferrannini, and Bozzolo, studied the influence of the breathing on the circulation in the subjects of aneurysm (1887).

In 1894 Castellino noted that laryngotracheal pulsations were sometimes noticeable in mediastinal tumors. Pansini afterward corroborated this discovery. Slightly in advance of Cardarelli, Baccelli and Fedeli, in their work on diseases of the heart and aorta (1864) had laid stress on the importance of pain in the symptomatology which pointed to the aorta as its source. Cardarelli followed with an analysis of the topographical relations and landmarks of the various structures in physical diagnosis, and another early writer on the same subject was Concato (1881). Baccelli laid down a series of rules for the diagnosis of aneurysm of the descending aorta. The writer notes that Fernelius, who indeed was a Frenchman, stated in 1554 that syphilis could cause aneurysms. In 1724 Severino, an Italian, wrote of "Gallic aneurysm."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 25. Whole No. 2667. | NEW YORK, DECEMBER 17, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

INTELLIGENCE, SO-CALLED.

BY MAXIMILIAN P. E. GROSZMANN, PH.D.,

NEW YORK.

A SENSATIONAL notice has been printed recently in a number of papers. One of the "twenty-five best minds in America" has been discovered. It is not stated who the other twenty-four "best minds" are. But we shall pass that over. The gentleman in question is forty-two years old. So far, he does not seem to have distinguished himself in public or private service, to be ranked among the twenty-five pinnacles of intelligence in a low-land of over 100,000,000 inferior minds. He is neither a leading statesman, nor a scientist, nor a philosopher, nor a poet, nor a captain of industry—nor a psychologist. But he has made a perfect record in the U. S. Navy Intelligence Test, scored 211 points out of a possible 212 in the Army Alpha Test, and 166 out of a possible 180 in the test given by the University of the State of Washington, said to be "far more difficult than either Army or Navy test, and so abstruse that even the directions are not comprehensible to the average intellect." Think of it! And think of the genius of psychologists who are capable of giving tests, and directions for doing them, which are incomprehensible to the average intellect! We may look forward to this man getting ready to unhinge the universe, or at least to unravel all the mysteries of nature and to solve the problem of our present world cataclysm.

May we, really?

By way of contrast with this "evidence" of superior intelligence let us quote what Mr. Simon S. Patten thinks he has found regarding the intelligence of the great mass of the American people. In an article printed in *The Survey* some time ago, he expressed deductions which were based in a great measure upon statements made by those psychologists who developed and applied the Army Mental Tests in which the first-mentioned gentleman excelled. From a summary of conclusions in a book by Dr. Henry H. Goddard he draws these figures:

> About 20 per cent. of the drafted men were unfit for military service and, of those accepted, half had obvious (physical) defects. This would indicate that at least three-fifths of the male population lack some of the qualities essential to manhood. Were women included in this schedule the percentage would run much higher. It is probable, therefore, that three-fourths of the adult population suffers from some handicap which prevents a full expression of inherent traits. The psychologic tests of intelligence levels are more valuable because they measure the mental depression which these (physical) defects create. *Seventy per cent. of the recruits showed an intelligence below that of the normal 15-year old boy.* It is plain that the mass of the recruits are still infantile in thought and disposition.

One consoling element in this statement is that Mr. Patten seems to find the cause of the mental depression in remediable bodily defects. If that is so, the present great interest and activity in public health measures may be expected to improve not only physical health but also mental efficiency. Psychologists in general are dwelling more particularly on the great lack of "intelligence," without pointing to physical troubles as possible causes. Many ascribe, without much qualification, intellectual growth to hereditary factors and assume that the social stratification of society corresponds to, and is correlated with, a stratification of intellectual capacity. Professor William McDougall, who makes this assertion, indeed also considers moral elements; but he maintains that even these, particularly the degrees of will power, fall into the same category of hereditary qualities, coordinated in part, at least, with intellectual capacity. He distinguishes between ruling and docile races, the first type represented by the English, the second by the French and Germans. His deductions would establish an inevitable division of types of intelligence, independent of the factor of health which Patten adduces as an explanation of mutable intelligence levels.

If the efficiency valuation of the great mass of the American people as stated by Patten is correct, and if McDougall's contentions prevail, the country is in a bad way as an exponent of democratic institutions. In my book, "The Exceptional Child" (Scribner's), I have discussed the problem of different "civilization levels" in modern society quite fully. In fact, I was among the first to state this problem concisely when I read a paper on this subject before the American Academy of Medicine on May 31, 1912, more than nine years ago. In the book mentioned, the relation of mentality to health is also fully discussed. But it is quite another matter to relegate a vast majority of our population to the backyards of civilization and to pronounce it infantile in thought and disposition. There must be an error somewhere.

The error must be found in the method of mental testing, and in the evaluation of the results of such tests.

As the Army Mental Tests have become so widely considered as a standard of intellectual measurement, it may not be amiss to discuss some of its features which exhibit some of the errors leading to a wrong valuation of the mental capacity of our citizenry.

The growing interest in mental testing and its supposed value in quick differentiation of mental

types led to a desire to assist the army command in making a rapid survey of drafted men for the purpose of classification in service. A Committee for Psychology was organized by the National Research Council; within the Medical Department of the Army a Division of Psychology was organized. A committee of seven "experts in practical mental measurements" was formed in the summer of 1917 and called together for the preparation or selection of suitable methods of testing enlisted men and commissioned officers. After various trials and revisions the tests elaborated by them were officially introduced for the purpose of (*a*) aiding in segregating the mentally incompetent; (*b*) classifying men according to their mental capacity; and (*c*) assisting in selecting competent men for responsible positions.

We see that the first purpose is one biased by the present trend of looking for mental defect. Those who look for trouble generally find it.

In the trial tests, to arrive at what the psychologists considered a safe basis of standardization, many different groups were tested, and it can be cheerfully admitted that the experimenters labored faithfully along the lines of their accustomed methods. For instance, ten selected tests were given to approximately 5000 men in the Regular Army and National Guard, and, in addition, to a variety of subjects outside of the Army, like inmates of institutions for the feeble-minded, members of officers' training schools, and students in universities and colleges, even school children, most of whom had been previously examined and graded by "established" methods of testing. Other measures of intelligence, such as officers' ratings, teachers' estimates of intelligence, and college and school grades, were used for comparison. In this way, it was thought, a fair degree of accuracy of valuation was obtained. There proved to be, to the satisfaction of the experimenters, a regular gradation of score distributions from the graduate students through the officers' training school men, regular and National Guard privates, down to the inmates of institutions for the feeble-minded; and although speed was a prominent element, it is claimed, as set forth by the leaders of the work, Professors Clarence S. Yoakum and Robert M. Yerkes, that the tests approximated a measure of actual ability.

Before entering into a discussion of the merits of the system, I will briefly describe it, on the basis of the book compiled by Drs. Yoakum and Yerkes, and published by Henry Holt & Co. of New York, in which the entire process is set forth.

There are four main groups of tests. The first group, the much-talked-about Alpha Test, is intended for literates. These were examined in groups of 100 to 200 men each. To those who failed in this examination, and to illiterates, Group Examination Beta was given, to groups of men up to 60 each. The term "illiterate" was applied to those enlisted men who could not master English sufficiently well, even though they were proficient in other languages, comprising, therefore, many "foreigners," so called.

Men failing in Beta, or having been especially referred for some reason, were given individual examinations. In these, either the Yerkes Point Scale, or the Stanford Revision of the Binet Scale, or a "Performance Scale," was employed. A Mechanical Skill examination was supplementary.

The time allowed for Alpha examination was 40-50 minutes; for Beta, 50-60 minutes; for Individual, 15-60 minutes (!), and for Mechanical Skill, 15-30 minutes. The examinations were given with a sort of military precision.

For each one of the eight tests of which the Alpha series consists, alternatives were presented, so that different groups had different questions.

As the Alpha Tests are those which have served the examiners, and their followers, to arrive at their main conclusions, I will confine myself here to a discussion of the problems presented by them.

The first test of the Alpha series is a sort of performance test, requiring the drawing of lines around circles, marking squares, etc. The second presents arithmetical problems; the third is intended to test practical judgment; the fourth introduces synonyms and antonyms; the fifth, disarranged sentences; the sixth, number series completion; the seventh, analogies; the eighth is an information test.

The eight tests are rated quite differently, from 12 to 40 points respectively. The maximum score is 212 points. The examiners expressed the individual ratings as follows:

Score Made	Rating	Meaning
135—212	A	Very superior intelligence.
105—134	B	Superior intelligence.
75—104	C +	High average intelligence.
45— 74	C	Average intelligence.
25— 44	C —	Low average intelligence.
15— 24	D	Inferior intelligence.
0— 14	D —	Very inferior intelligence.

All ratings above D— were entered and reported at once. Men whose scores were below D were recalled for examination Beta.

Inasmuch as the "Mental Age" idea governs the ultimate findings, especially in connection with the individual examinations, it is well to give here the corresponding "mental age" as computed by the examiners.

A	corresponds to a mental age of	18.	—19.5 years
B	corresponds to a mental age of	16.5	—17.9 years
C +	corresponds to a mental age of	15.	—16.4 years
C	corresponds to a mental age of	13.	—14.9 years
C —	corresponds to a mental age of	11.	—12.9 years
D	corresponds to a mental age of	9.5	—10.9 years
D —	corresponds to a mental age of	below	9.5 years

It is stated that 1,726,966 men were examined, certainly a colossal undertaking, hardly equalled in any other country—yet also indicating the possibility of speeded-up and superficial work. Of the total, 45,653, or less than 3 per cent., were judged to be under ten years "mental age," comprising many "illiterates" and "foreigners." Statements given a few pages later seem to differ from this calculation; for a tabulation of percentages on pp. 22 and 23 would give the following picture:

A	4— 5	per cent. of total
B	8—10	per cent. of total
C +	15—18	per cent. of total
C	25	per cent. of total
C—	20	per cent. of total
D	15	per cent. of total

This means a total of from 87 to 93 per cent. (it is not quite clear from where the difference of 6 per cent. is calculated), leaving a residue of from 7 to 13 per cent. of lower grade. This percentage

includes all those who, as D—, represent, according to the schedule quoted before, a "mental age" below nine and one-half years, and an E grade which is here suddenly introduced.

It is claimed that men of "A" intelligence have the ability to make a superior record in college or university, while "D—" men are of such inferior mentality that they are rarely able to go beyond the third or fourth grade of the elementary school no matter how long they may attend. In fact, many "D—" and "E" men are of the moron grade of feeble-mindedness, we are told. On the other hand, it is claimed that the score is little influenced by schooling so that some of the highest records have been made by men who had not completed the eighth grade. Only one-half of one per cent. seems to have been rated as clearly feeble-minded, whatever that meant to the examiners.

It is distinctly and repeatedly emphasized in the book that these tests were prepared for army use, not for civilian use, and are applicable to other uses only within certain limits. Nevertheless, the outspoken tendency of the book is to show that the tests are actually a measure of native ability, that the rating a man earned furnished a fairly reliable index of his ability to learn, to think quickly and accurately, to analyze a situation, to maintain a state of mental alertness, and to comprehend and follow instructions. If this be the case, it would seem unnecessary to issue a warning against the use of these tests for civilian purposes. As a matter of fact, the results were actually applied by the examiners to parallel an occupational gradation.

Another warning is expressed by the authors of the book, to the effect that the tests should be given only by "experts." I quote: "The ease with which the army group test can be given and scored makes it a dangerous method in the hands of the inexpert." It is not explained why. Truly, there is no difficulty in giving and scoring these tests, as they are presented in a purely mechanical manner and scored by a simple mathematical method. There is no need of an *interpretation* of results. They are all tabulated. Of course, if the tests were of a kind which must be given with caution and in an expert way, as the psychiatrist approaches his patient, it would be a different matter; the problem would then be the proper interpretation of responses and reactions. The psychologists who conducted these tests do not seem to have had need of interpretations of this kind. But they may have had a lurking suspicion that after all these tests were not the last word in judging a man. Or was the warning issued to give the impression that the professional psychologist has a sacred inspiration of his own? Certainly, the clinical psychologist, as he is called, has had his ascendency lately, and tests like these have become the by-word of modern efficiency measurements—with more or less reliability.

That the examiners admit other elements to enter into a true measurement of human efficiency, is apparent from other places in the book. The mental tests are, in their estimation, tests of "intelligence," whatever this term may really mean. In one place they put it: "Intelligence or mental alertness." This juxtaposition is to a certain extent a giveaway, for the two terms are by no means identical. But it is plain that mental alertness is really the thing they wish to ascertain. Yet they say: "A man's value to the service should not be judged by his intelligence alone, but that instead temperamental characteristics, reliability, ability to lead and to 'carry on' under varied conditions should be taken into account. . . . The company commander should be cautioned not to neglect the importance of other qualities, such as personal appearance, energy, military experience, leadership, initiative, tact, etc. . . . The fact must not be overlooked that there are individuals of high intelligence who are not properly fitted to command. . . ." That the reverse is also true is not mentioned. It is also admitted in various places in the book that race characteristics, emotional states, volitional elements, and a number of other elements are not considered in these tests. Yet, the statement is made that the comparison of negro with white recruits revealed markedly lower mental ratings for the negroes, especially the Southern negroes.

But the examiners endeavor to wipe out the objection that intelligence tests have no value without tests of the other kind, by claiming that there is a fairly high correlation between general intelligence and other desirable traits, like discipline, character, leadership, etc., and an equally high correlation between the results of these tests and success in studies and occupations. In other words, the examiners claim for these tests the same effectiveness which has been claimed for the Binet and similar scales, namely that they furnish a fair index of general efficiency, and can therefore be used as a sort of short-cut for ranking the personnel of the army—and, for that matter, any other kind of personnel. This in spite of the fact that the tables of results given for students of various colleges who were tested in this manner show most astounding differences.

Some further results of the army testing must here be recorded to give the proper perspective. Militaristically speaking, the authors claim that officers' training school candidates and graduate students made as a rule A and B scores. Clerical assistants and men in the Regular Army who could handle the paper work, usually made grades in upper C or B. The average private scored C. Men who reported themselves as laborers fell in Grade D, and privates who were relatively ineffective in the Army, or men who were inmates of institutions for the feeble-minded made scores in low D or E. It is not quite clear where the inmates of the institutions came from in this inquiry which, it would appear, merely embraced the personnel of enlisted men. Be that as it may, this grading is obviously based upon the previous history of the men. A fuller list is given on pp. 198 and 199 where occupational intelligence standards, so called, are tabulated, based on data for 18,423 men, taken from soldiers' qualification cards. Indeed, in each group, practically all grades of scoring are represented by certain individuals. The variations themselves give food for thought. By taking the median in each group, the general ranking is as follows:

The greatest percentage of "A" scores was made by the Engineer officers who headed the list. A "B" median was reached by the Medical officers, civil engineers, accountants, mechanical draftsmen, and dental officers, in the descending order indicated in

the enumeration. A median C+ included, in descending order, the following occupations: Bookkeeper, army nurse, general clerk, filing clerk, railroad clerk, telegrapher, photographer, stockkeeper, concrete construction foreman. "C" is represented by telephone operator, ship carpenter, auto assembler, auto engine mechanic, general auto repairman, general mechanic, gunsmith, tool and gage maker, plumber, general pipe-fitter, telegraph and telephone linemen, hand riveter, general machinist, butcher, general carpenter, general blacksmith, painter, baker, cook, bricklayer, horseshoer. A "C—" median is reached by barbers, teamsters, miners; and at the bottom of the list stands the common, or unskilled, laborer with about 33 per cent. of "D" and "D—" scores.

The examiners themselves seem puzzled by some of their results. They say: "There is no obvious reason for assuming that the military duties (!) of the engineer demand higher intelligence or more mental alertness (!) than do those of the medical officer." Their answer to this puzzle is: "Since it is improbable that any arm of the service possesses more intelligence than can be used to advantage, the necessary inference is that certain arms would benefit by the elimination of low-grade men and the substitution of officers with better intellectual ability." Very clear, indeed! Another puzzle was presented to the examiners by the higher averages reached by "conscientious objectors." Their explanation (p. 196) must be read in toto to be fully appreciated; it would lose by an abbreviated quotation.

We must bear in mind that the authors are constantly reiterating the statement that the tests refer to "military" qualifications only. What experience did they have to establish a reliable gage of "military" qualifications? It is hardly evident why the tests presented have any particular bearing upon "military duties" any more than upon any other kind of responsible duties. It will be noted that the inferences are altogether too often confused as to military or other vocational activities.

That this schedule cannot represent the actual scale of intelligence of the workers as enumerated seems so evident that it would hardly need an argument. There is something wrong about the classification.

It is noteworthy that the authors quote on p. 176 from an article by Lieut.-Col. W. V. Bingham as follows: "Can mental tests be of any assistance whatever in specific vocational guidance? At some far-distant date psychological methods are going to be a help even in this difficult task of guidance. They cannot help today. I mean that there exist now no adequate psychological tests of specialized vocational talent." If this is the case, of what value are these tabulations? They apparently do not justly represent the mental efficiency level characteristic of the vocations as listed.

Incidentally it may be remarked why lawyers, teachers, ministers, merchants, bankers, farmers, and, last but not least, psychologists, etc., do not appear in this list. Were there none among the drafted men, or were they mercifully left out from this schedule?

If we would accept this kind of gradation; if we could consider these tests as a new discovery in "mental engineering"; if the relation of intelligence to occupation were as it here appears; if it were true that there is a diminishing degree of intelligence in occupational groups from the professions down to the trades, and to skilled and unskilled labor; if, perchance, as some maintain, this is largely a hereditary condition, we might wonder why there should be any excitement or worry about economic and social reforms. Then the world were wonderfully organized as it is, and every attempt of the underdog to rise to a higher level would be futile. Everything is as it is because it is foreordained by the intellectual endowments of the various classes of men.

The "ruling" classes would be perfectly justified in keeping a restraining hand upon reform movements and in denouncing every opposition to the existing order as wicked and destructively revolutionary.

Even if the schedule as presented by these psychologists were to be considered merely as a classification of performance levels while it would leave open the question whether or not the rising generation might not be educated out of this sinister intellectual predicament, it would spell condemnation of the hopes of the present generation. Of course, many may greet this classification as a full vindication of their distrust in popular government, of their fear of the masses, of the mob spirit; an explanation of the prejudices, superstitions, narrownesses, and general ignorance of the public. This would, incidentally, imply a gigantic impeachment of our current methods of education.

While there are, undoubtedly, different civilization levels in human society (cf. my book, "The Exceptional Child," quoted before), these are certainly not identical with occupational or economic levels.

This is felt by the authors of the book to some extent; they admit that temperament is as important as intelligence for industrial placement and vocational guidance. But they leave us there. What will loom up in the mind of the average reader is the alleged importance of these intelligence tests. As a matter of fact they have already been taken up by manufacturers, merchants and others to test applicants for positions in their plants; by colleges to be used in connection with, or in lieu of, entrance examinations, and in several other ways. We have seen, in the beginning of this study, that they have been applied as a proof of the unusual intelligence of one of the "twenty-five best minds" in the country.

But let us consider what these tests really test. Is it general intelligence? What is meant by this term? Innate mental capacity? The hidden powers of the mind which do not otherwise come to the surface?

Quite apart from the subconscious promptings, repressions and motives; from the emotional states, temperamental and racial characteristics, strength of will—and equally apart from the physical and biological factors and the environmental elements which enter into the mental and emotional make-up of the individual: can these tests do justice to the thought life of the examined? To his power of judgment and discretion, his mental leadership, his capacity for growth and expansion, of subtle dis-

crimination and critical discernment, of wise counsel and philosophic reflection, of poetic imagery and creative thinking?

To my mind, they cannot. They measure surface appearances, momentary abilities, a mechanical quickness, speed of adaptation, placid readiness of response—all on a relatively low level. They are a sort of expanded and glorified Binet scale, with all its shortcomings. They do not measure intelligence so much as a certain type of mental response and activity, and the measure of training the mind has received, in one way or another. A small amount of real intelligence, well trained in traditional lines, aided by a good memory, may show off well when there is smiling, smooth alertness, the ready shrewdness of the commercial mind—while a deliberate, or neurotic person, although he be a deep thinker of creative thoughts, and of extraordinary intelligence, might not measure up immediately in ready response.

That this is true may be deduced from the amazing difference in points demanded of the different groups. This difference was determined by purely empiric methods, not on the basis of a deep study of psychological principles. The *average* man, scoring C, was supposed to make 45 to 74 points out of a possible 212! That is to say, not more than 22 per cent. to 35 per cent. of the total, with a range limit of only 30 points! Only 44 points were left to those who were marked as being below the average—or about 21 per cent. of the total. Sixty-five per cent. were reserved for those above the "average," three times as much as for those below. The C+ group had a range limit of 29 points, practically as many as the C group; the same number (30) for the B group, and 78 points, or nearly 37 per cent. of the total number of possible points, were reserved for the A group. The whole arrangement presents a most curious perspective. Little wonder that there was such a high correlation with other criteria. For these criteria, as far as they implied success in scholarship, in teachers' evaluations, and similar factors, represented precisely the same type of mental gage as these tests. They were tests for the discovery of specialized students' work, of capacity for the learned professions, so-called, of a particular type of mind. But there are other types of mind, equally, or more valuable, in human efficiency, if properly recognized and trained.

It will be interesting to apply eventually the test of real life success, of humanitarian worth, of true greatness to the students of colleges and other institutions, even to "engineering officers" and others who scored so highly in the army tests. Will they make good?

We may also point to another element in the appreciation of the value of these tests. All deductions are based on averages, or medians. But there is no group which shows an even grade. In every one there are representatives of practically all scores. There are C— scores among the medical officers, and A and B scores among the laborers. Would the authors' deduction be, as suggested by their remark in behalf of the medical officers which I quoted, that all A's and B's should be put into the officers' class, or the university grade, and that the representatives of lower scores should be distributed among the other occupations in descending scale? What are we to expect of the D— men among the electricians, and of the A— men among the barbers?

Another element is introduced when we learn that there was a high correlation between officers' judgments of military value and the intelligence rating. Here we may remember that the authors claim these tests to have been elaborated exclusively for army purposes. In other words, for war purposes. War, however, while historically considered an element of the civilizing process, implies a suspension of ordinary rules of human conduct. Every war is a reversion to the primitive type. War efficiency is of a very particular kind. It is not altogether ratable in terms of human service, as constructive efficiency. We cannot, therefore, immediately apply the results of war efficiency tests, even if they were altogether reliable,* to the rating of peace time human efficiency. It might, by the way, be interesting to look into the war record of those who stood high in these tests, to see whether they actually justified the high hopes which their scores may have aroused.

Considering the army tests as tests of military efficiency, we may perhaps appreciate the occupational rating quoted before: it may be a perfectly normal schedule as long as our economic conditions represent a state of war, war between different classes of society, between capital and labor, between employers and employees. Cunning and unscrupulously ruthless tactics often win out when real intelligence fails, on either side. In economic and commercial competition a type of mind may triumph which represents a relatively low level of human intelligence in spite of its mathematical perfection and economic leadership.

Again, life—as it is—has often been compared to a game, a big game, to be sure, but nevertheless a game. Let us be good sports, is the injunction. Be a good loser. Too bad that in life's game the loser sacrifices his own and his family's happiness and existence, just as the gambler does. Bluff and warlike "strategy" decide many a time when the mere scientific game will invite defeat. He who is defeated in life's game becomes the underdog, the proletarian, condemned to live from hand to mouth. The winning of this game, indeed, presupposes "mental alertness" of a kind which is not necessarily coupled with conscience.

Our present economic conditions represent, as the famous English writer, John Galsworthy, put it in an article in the *Atlantic Monthly*, a bankrupt ideal. Mental measurements based on them must lead to wrong conclusions. They often stunt and paralyze mental ability, even in the age of childhood. We need a psychological valuation which will help us to detect true human values, for the building up of a new humanity. As it is, as Galsworthy says, "we are all borne along in the car of industry, driven by that blind driver, our own competitive mood."

Three other factors must be briefly discussed to understand the nature of these tests. One is the factor of speed. To make the total of 212 points, 212 answers must be given within the specified time of about three-quarters of an hour. Although the giving of these answers is facilitated by various

*It is reported that an eminent general in command of one of our armies was set down as a ten-year old in intelligence.

devices, the thought work required is not inconsiderable, especialy in the more complicated questions. It is not everybody's way to think fast, and not a few of the questions refer to matters which may not at all be present in the minds of many at the time of the examination. The more deliberate and conscientious thinker may lose out in a race requiring speed. The sprinter will win in a running race; he will lose in the lifting of heavy weights, and vice versa.

To meet questions of the kind proposed by these tests with quickness and alertness, may be considered to require concentration. In this sense, it may be claimed for them that they give a valuation of a person's power of concentration, of will power. In a measure, this is correct. There is concentrated effort needed to meet the demands, and a man who can give concentrated effort is surer to succeed than one who is not so capable.

But again, there is a limitation. There are different types of mind. Some will float lightly along, skimming over surfaces, solving problems with lightning speed and little concentration. They may be helped by a good memory, or by a mechanical endowment similar to that possessed by the "idiots-savants," like the lightning calculators. There may be no depth at all. The deliberate person, or the person fighting against distracting temptations, may need much more power of concentration than these "brilliant," yet oft so superficial minds.

Besides, the difference in type will fit different tasks. The engineer, building a railroad, or a tunnel, or a viaduct, in treacherous mountain country, must be ready to face emergencies on the spur of the moment. So must the operating surgeon, or the army officer leading his squadron to attack. Speed of decision and execution is here an indispensable requisite. The scientist, on the other hand, the inventor and research worker, the astronomer, the diagnosing physician who arrives at his conclusion by careful elimination, and many other thinkers and workers of the deliberative and plodding kind, must scorn speed. What they need is time, patience, endurance, long-extended application, the ability to meet disappointments and failures with equanimity, never "saying fail."

Thus, the factors of speed and concentration demand individualized discrimination before we can judge a person's "intelligence" and ability rightly.

The third factor to be finally considered is that of distribution of answers. It will be remembered that in counting the points and grading the men only the totals were marked. A man was put down as being of average intelligence if he made from 45 to 74 points. To do this, he would really not need to answer questions in every one of the eight groups of the Alpha test. The number of points varies in the different groups, with as many as 40 in groups Four (synonyms and antonyms), Seven (analogies), and Eight (information test), and as few as 12 in Group One (drawing lines, etc.), and 16 in Group Three (practical judgment). It is plain that very different types of mind, even people of very limited endowments and information, might make 45 points quite easily from selected groups only. Even higher scores can be attained by very one-sided success. Such kind of evaluation must naturally obscure the meaning of the results.

These comments are applicable not only to the Army Mental Tests, but to others as well. While they are critical, they are not intended to be destructive or inimical. Quite the contrary. I do not underrate them. All these tests are serious attempts to reach out to a desirable goal; to find some ways and means to diagnose mental equipment. They represent big steps toward discovering methods of mental evaluation, along certain specific lines. It is merely the extravagant claims which have been made for them, the idea that they actually measure human intelligence and can classify human strata, that I have endeavored to comment upon.

Apart from the Alpha test of the Army series: the Beta test, and the Performance and Mechanical Skill scales which I have not described in these lines, have their own particular significance. They point hopefully towards the discovery of some of the mainsprings of human capacity. They have a distinct vocational value. A decade or so past, the great Münsterberg and others made a notable beginning in the development of vocational tests in the psychological laboratory. We have not gone very far since. The tests used by the authors of the Army tests and by their associates will contribute their share to the development of satisfactory measurements of vocational ability. Such measurements, however, are not necessarily measurement of mental gradation.

If we can also elaborate suitable methods to determine racial and temperamental attitudes, character differences, emotional states, and perhaps even those subconscious elements which are so powerful in the conditioning of human conduct, we may begin to understand something about human values and social efficiency. But at best we may have to admit that the human psyche contains so many "imponderabilia" that we shall forever fall short of reducing it to a simple psychological, or mathematical, formula. "Mental engineering" may remain a dream, after all, when all is said and done.

The true measure of human personality is human service.

276 WEST NINETY-FOURTH STREET.

MEDICAL IMPRESSIONS OF SOUTH AMERICA.

BY WILLIAM SHARPE, M.D.,

NEW YORK.

A TRIP of four months to the principal cities of South America during our summer (their winter) forms not only a most delightful vacation but a period of much educational value, especially to the medical profession of North America. We here know very little of South America and particularly of its medical profession and institutions, and possibly we have been inclined to overlook the medical development of this wonderful continent as not being a factor of very great importance. Naturally, the difficulty of language is a real obstacle in the more intimate association of the medical professions of the two continents and yet it was very surprising to find that most of the doctors in their medical schools could understand English when spoken clearly and slowly, and many of them were able to express their ideas in intelligible English.

On the other hand, a working knowledge of Spanish is not difficult to acquire, especially after our usual training of several years in Latin, and this elementary acquisition opens a field of the most interesting literature—not only of writers of the Spanish peninsula, but also of an increasing group of South Americans. To be sure, in Rio de Janeiro the language is Portuguese, but Spanish is well understood there, so that even in Brazil a smattering of Spanish will suffice the visitor when there is any difficulty with English. Vigorous study and practice of Spanish upon shipboard en route to South America will prove of much value.

A visit to the principal cities of the southern portion of South America such as I have just completed with Mrs. Sharpe, may be down the east coast first in one of the palatial steamships of the American Munson Line to Rio de Janeiro, Montevideo and Buenos Aires, then over the mountains of the Andes by the Transandine railroad to Santiago, and from Valparaiso up the west coast on the Grace Line of American steamships to the Panama Canal and then home; naturally, the trip may be made in just the opposite manner, visiting the west coast of South America first, over the Andes, and home by the east coast.

In speaking of the four principal medical centers of South America visited by me in Brazil, Uruguay, Argentine, and Chile, I must at the very beginning express my profound admiration of the excellent surgical work being carried on in their hospitals. Although many of the hospitals are old—in fact, some of them have been constructed almost two hundred years ago—yet the wards are clean and the patients are as well cared for as is possible, without the assistance of trained nurses (as we here understand that term); this lack of skilled female nurses is a real one in South America—not only in the ward treatment of the patients but also in that of the operating room itself; rarely did I see a trained nurse assisting the surgeon during the operation. In spite of this definite handicap in the operative technique, I was very much impressed by the operative ability of the individual surgeon, who, assisted by only one young doctor, would perform most skillfully and rapidly major operations of extreme complexity. The surgery of North America has little to offer these brilliant surgeons in a technical way, although the services of an assistant nurse to take care of the instruments, needles, sponges, et cetera, would be a great asset in their work.

There is one feature, however, in the surgical work of South America that is much more advanced than in North America and this is the skilful use of local anesthesia. It was the exception to see ether or chloroform used as a general anesthetic—in fact, after witnessing eight consecutive major operations in Buenos Aires performed under local anesthesia and operations of the character of total laryngectomy, carcinoma of the lower lip with bilateral resection of the cervical glands, thyroidectomy, double inguinal hernia, posterior gastroenterostomy for extensive pyloric cancer, etc., I felt obliged to apologize for the use of a general anesthetic when I operated in the clinic of Dr. David Prando at the Rawson Hospital to sever the posterior root of the Gasserian ganglion for chronic trifacial neuralgia. Not only is novocaine used extensively as a local anesthetic, but also as a means of spinal anesthesia in abdominal and pelvic operations; in the clinic of Professor José Arce at the Hospital de Medicina Clínica, an accurate record of over five thousand patients does not show one serious complication, either of a local or permanent general character. Rectal anesthesia is also being successfully used in selected patients; in fact, it was in Buenos Aires that I extirpated a Gasserian ganglion for the first time with rectal anesthesia. The clinic is not delayed by this extensive use of local anesthesia in that the assistants and even advanced medical students are instructed in the practical technique and in this manner, there is no long interval between operations. It was indeed a revelation to me to watch Dr. Adrián Bengolea, a surgeon of forty years of age, at the Rivadavia Hospital, perform a vaginal hysterectomy under local anesthesia only, and within one hour; such skillful technique with only one male assistant and no nurse, is not surpassed anywhere. In this connection I should like to mention the superb technique used by Dr. Segura in Buenos Aires and by Dr. Vidal in Santiago in performing the operation of

Pupils in the Training School for Nurses of the Hospital Parmenio Piñero, Buenos Aires.

sellar decompression for pituitary lesion by the intranasal transphenoidal route, and with local anesthesia—in many respects a simple and an ideal method.

The problem of the trained nurse is a most difficult one in South America. Until the recent war, her social status was that of a servant, and naturally only girls of the servant class—usually ignorant Indians—entered the hospitals to serve in the care of patients; their training was a meager one—more that of a maid. A marked advance in the training of nurses—not as servants but as real assistants and as competent aids to the doctor not only in the care of the patients in the ward but also in the operating room—has recently been made. At the Hospital Parmenio Piñero, Buenos Aires, Dr. Delfor del Valle has organized a most efficient training school for nurses, twenty girls now being enrolled in a three years' course which would compare favorably with the best schools in North America (vide photograph); it is an excellent beginning, and Doctor del Valle is the progressive type of physician to make it a success. In Santiago, as the result of the well-directed efforts of Doctor Manuel Torres Boonen and of Señora Eastman Huneus, the Red Cross Society has established an out-patient clinic

in which the nurses are all girls of the best education and social position, and by their excellent work the status of the hospital nurse has been greatly raised, so that now in Chile the profession of nursing is becoming a well-recognized one, and naturally a better type of girl is being attracted to it as a life work. Trained nurses are not servants or maids, but assistants to physicians, and they must be treated and respected as such.

Rio de Janeiro.—Under the able leadership of Doctor Aloysio de Castro, the medical school of Rio de Janeiro, a city having the most beautiful and picturesque scenery and especially its environs of a majestic grandeur unsurpassed anywhere in the world, has completed the central portion of its school building in white marble, and the construction of a similar building upon each side for additional laboratories and especially animal research laboratories for physiology and surgery, is planned for the near future. With the brilliant and efficient service rendered by the Oswaldo Cruz Institute under Doctors Chagas and Crowell, the medical profession of Brazil realizes the importance of well-equipped laboratories in making possible and stimulating the research work of postgraduate students, so that the younger group of doctors, such as Oscar Clark, Dionysio Cerquiera, and others, is making use of these modern advantages. The surgical work of Doctor Mendonça is indeed an inspiration to the medical profession. The Hospital for Mental Diseases, with Doctor Juliano Moreira as Director, is situated beside the medical school and is affording excellent treatment to the patients as well as most modern instruction to the students; the library is unusually large.

Montevideo.—Leaving the tropical climate of Rio where ocean bathing is a winter sport and straw hats are in fashion throughout the year, we find a more temperate climate in Uruguay—rarely snow, however, and similar to the winters in the eastern part of North Carolina. As an item of interest to all travelers, the Parque Hotel may be mentioned as the most luxuriously appointed one in South America and what is most important of all, its service and food are the equal of any hotel in the world.

As in all of the South American countries, the medical school of Uruguay is a government institution, not being supported financially by private subscriptions and endowments, as are the majority of the schools in North America. The Asistencia Pública, in which department the large municipal hospitals are managed, maintains a very active ambulance service. As dean of the medical school, Doctor Manuel Quintela has established an enviable reputation as an organizer in that the heads of the various departments are men of the highest professional standing and ability, such as Doctors Navarro, Garcia Lagos, Lorenzo Mérola, and others; the medical buildings are well equipped for instruction with excellent hospital facilities for the more advanced students. The military hospital under Doctor Acevedo Blanco (who had five years' experience in France during the war), and the Italian Hospital, with Doctor Mérola as one of the chief surgeons, are excellent examples of modern medicine. The British Hospital directed by Doctor Garcia Lagos is distinguished by its excellent corps of English nurses—well trained for the operating room as in the after-care of patients.

Buenos Aires.—In this most modern of the cities of South America, there is almost as varied a population as in New York—Spanish and Italian predominating. Argentine is essentially an agricultural country, and from the standpoint of its medical institutions, Buenos Aires is Argentine.

Besides a number of private hospitals and sanatoria, there are seventeen large hospitals under the control of the Asistencia Pública, with Doctor Delfor del Valle at its head; such excellent hospitals of the older type as Rawson (800 beds—Drs. David Prando and Enrique Finochietto), and of the newer type as Parmenio Piñero (600 beds—Drs. Herrera Vegas, R. Spurr, and del Valle), Duran (500 beds—Drs. Palma and Kenny), and Alvear (1500 beds—Drs. Solé, Valdés and Capello), form a group which will compare favorably with any of the hospitals in North America. A ladies organization, Sociedad de Beneficencia, well endowed, controls two of the most efficient hospitals in Buenos Aires—the Rivadavia (500 beds—Drs. Caballero, Zabala, Belaustegui, Bengolea, and del Pino), and the Children's Hospital (600 beds); the latter is a most attractive hospital with its open clean wards, numerous patios and orange trees; it is here that Drs. Castro, Viñas, Capello, and Rivarola are doing such excellent work.

Opposite the medical school of which Dr. Alfredo Lanari is the dean, is the Hospital de Medicina Clínica, under the control of the school, and intimately associated in the teaching of clinical medicine and surgery to the students; the brilliant surgery of Doctor José Arce at this clinic is an inspiration to all.

The Bacteriological Institute has proven of great value to Argentine—not only in the preparation of vaccines, but in research work of diseases common to the entire country; the Director, Dr. R. Krause, has made a number of important contributions in addition to developing a small group of able assistants to carry on this work. When one considers this large group of well-equipped buildings devoted to bacteriology and then realizes the need in South America of experimental animal laboratories in physiological medicine and in surgery, it cannot be denied that within a few years this great advance in scientific medicine and surgery will also be made here. The younger group of men are ready and anxious for this work—they need only the facilities of buildings and equipment to make it possible.

The system of instruction in the medical school is a most practical one—a six years' course, the last two years being spent in hospitals and under the teachers selected by the student; this elective method stimulates the teachers to do their best in order that a larger number of students may choose their courses, and so it happens that teachers may have excellent appointments and the best of clinical facilities and yet their number of students may be very small, because their teaching ability is inferior to that of others having less favorable hospital appointments. This elective system was finally adopted only in 1920 after over fifteen years of agitation on the part of the students in favor of it—in fact, in 1906 the students went "on strike" to demand it,

and after various compromises it was eventually adopted last year. The influence of the French school of medicine throughout South America is largely explained by the fact that practically all of the medical textbooks are in French and not in Spanish, so that in the very first year the study of anatomy begins with a French textbook of anatomy and so on throughout the medical course. A Spanish medical literature and especially the fundamental textbooks will be a marked advance in the progress of Spanish and South American medicine.

One is greatly impressed in Buenos Aires by the surgical ability and skill of the younger men. It is rare in North America, under our present hospital system, for a surgeon to develop much operative ability under forty years of age—due chiefly to the fact that he has not the control of the patients of a ward, but remains an assistant to the older surgeon until a vacancy occurs, possibly when he is over forty-five years of age. This method does not develop surgical ability and originality to the extent that the system used in the Argentine and Chile does—where the older surgeons permit their various assistants each to control a ward of forty to eighty patients for whom the assistant is responsible; this method has permitted the younger group of surgeons to develop a surgical technique far superior to that to be observed in a similar group of surgeons in North America; I must express my profound admiration of the surgical ability of this younger group of surgeons in Buenos Aires—Drs. Pasman, R. Finochietto, Jorge, Bosch Arana, Bengolea, P. Chutro, del Pino, Ceballos, Zorraquin, del Valle, Pirovano, Kenny, and many others.

One of the most attractive of the smaller hospitals is the British Hospital where Dr. Roberto Hallahan is doing such excellent work. A group of well-trained English nurses under their competent matron, is of great value in the treatment of the patients both in the operating room and in their after-care—and the condition of the patients in the wards reflects their assistance and their presence.

Santiago.—It is difficult to conceive of a medical atmosphere more conducive to good-fellowship and scientific endeavor than in the capital of Chile. Situated upon a high plateau with the snow-capped Andes on the east and the Cordilleras on the west, this most Spanish of the cities of South America makes a profound impression upon the visitor. To me the word Chilean means, among many other things, courtesy of the most sincere type.

At the head of the medical organization in Santiago is Doctor Amunátegui, the dean. Many of the more recent developments in the various branches of medicine are due to his tireless energy, and with the able support of the younger men, such as Drs. Torres Boonen, Vargas Salcedo, Charlin, Vidal, and others, the medical situation is not only favorable to the most modern instruction in the medical school but also to the encouragement and stimulation of research work among the graduates. There is need here, however, of an animal research laboratory with modern facilities, and fortunately the plans are already being made for the creation of such a department.

The hospitals are most attractive, and no matter how old some of the buildings may be, yet the wards are most clean and the patients well treated. The hospital San Juan de Dios (500 beds) is two hundred years old and in the center of the city, and yet it would be most difficult to find a more attractive hospital—with its numerous wards radiating from a central chapel, large gardens and patios filled with orange trees heavy with the luscious yellow fruit and on all sides the many sun pavillions and promenades for the ambulatory patients.

Another hospital of the highest standing and efficiency is the San Salvador (500 beds). A large central patio with beautiful trees of all kinds and many walks make it one of the most attractive hospitals in South America. For fear of possible earthquakes, the buildings are not over one story in height, but with their overhanging roofs shading the pavements below, the comfort afforded the patients is very great indeed and especially in summer.

The Children's Hospital under the able direction of Dr. Commentz is one of the most modern of the hospitals in South America. Besides the excellent feeding facilities for both in- and out-patients, there are the stables at the farther end of the hospital grounds where the best of milch cows are kept under sanitary conditions, and in this way the milk for the patients may be considered as being the purest obtainable in Santiago. The isolation wards for infectious diseases are admirable.

Much to my regret only one morning was spent in Valparaiso, but during these few hours, Doctor E. P. Reed made it possible for me to witness the skillful major surgery of Doctor Guillermo Münnich at the German Hospital and also to observe the excellent clinical facilities of the Hospital San Juan de Dios and especially to take note of its luxurious private pavilion.

Upon my return trip up the west coast I was unfortunate in not being able to remain more than one day with Doctor Soldan in that most historic city of South America—Lima. It is my hope, however, that during another summer's vacation I shall have the pleasure of visiting the capitals of Peru, Ecuador, Colombia and Venezuela, and of observing the progress of medicine and of surgery in their respective medical schools and hospitals. The Panama Canal has made these countries easily accessible to us in North America and the thrill of passing from the Pacific to the Atlantic Ocean in one day over this beautiful highway of modern engineering genius, is one never to be forgotten. In closing, I wish to express our appreciation of the many courtesies extended by the members of the diplomatic corps and especially of our cordial reception by Ambassador Morgan in Brazil. As a field of recreation during our summer season, South America cannot be excelled, and to the medical profession it offers an opportunity of learning much.

20 WEST FIFTIETH STREET.

Stiller's Asthenic Constitution.—Stiller has recently summed up the habitus which has long been known by his name as one of general relaxation and atony. The face is small, facial bones delicate, neck long, thorax of the paralytic type with the Stiller rib (tenth ribs mobile). Other changes suggest hypoplasia and infantilism affecting a considerable number of the organs and structures of the body. These subjects, although predisposed to a large number of diseases, are relatively immune to the degenerative and metabolic affections of advancing years.—*Schweizerische medizinische Wochenschrift.*

THE TREATMENT OF MENTAL ABERRATIONS AND UNDESIRABLE HABIT-FORMATIONS BY PSYCHOTHERAPEUTIC METHODS.

By CARL SCHEFFEL, Ph.B., M.D.,

BROOKLINE, MASS.

PROFESSOR OF PSYCHOPATHOLOGY, UNIVERSITY OF MASSACHUSETTS.

In the domain of psychopathology, as in many other special branches of medicine, much more time and study seem to be devoted and considerable more space seems to be given to the publicity of diagnostic measures than has been accorded the therapeutic possibilities and the results capable of being produced in many of these conditions. But what is still worse, inasmuch as a large number of the sufferers from these psychopathic conditions sooner or later become medicolegal problems, the neglect of the medical profession to intelligently coöperate with the legal profession in considering the medicolegal aspect of these conditions is resulting in the sending of many unfortunate sufferers of some mental aberration, some abnormal impulse, or from some uncontrollable habit-formation to the various reformatories as criminals, whereas they should be sent to proper psychopathic institutions or schools to be treated as patients afflicted with curable forms of mental disease.

As matters now stand, the majority of the medical profession, and practically the entire legal profession, associate abnormal mental conditions with medicolegal practice only when considering insanity and feeblemindedness. The large number of cases, especially those coming to the attention of our juvenile courts, which have psychopathic conditions as the underlying causative factors that result in various antisocial acts, is practically being ignored by both professions. Furthermore, the great bulk of undesirable habit-formations and uncontrollable impulses which come to the attention of the physician only are being sadly neglected by the profession from the standpoint of rational therapeutics.

Many cases of the socalled stubborn child, the sexual or moral pervert, the drug addict, and a host of others who habitually practise antisocial acts which may bring them into conflict with our laws if they are detected, are nothing less than psychopathic cases which should be accorded scientific treatment rather than legal punishment, and proper psychotherapeutic measures persistently and intelligently applied certainly bring about a cure in many of these cases of abnormal mental activity precisely as medicinal therapeutics can bring about a socalled cure in many physical ailments. From a legal point of view it is curious to note that in capital crimes the legal profession is very often quick to utilize medical science for the purpose of attempting to show that their client was non-compos at the time of the homicide; but in the more common minor cases having a much easier diagnosable psychopathic condition as their underlying cause which very often makes their defendant non-compos, and which may be perhaps successfully treated by proper psychotherapeutic measures, they are slow to avail themselves of the services of the physician with special training along these lines.

There are any number of conditions which manifest themselves in various abnormal mental activities which certainly do not involve insanity or even come within the meaning of the socalled border line cases, but which nevertheless leave in grave doubt the controllability of these manifestations or the responsibility of those suffering from them. In the past many of these conditions have come under the jurisdiction of the psychiatrist who is very apt to view them from the point of view of psychiatry rather than from the point of view of the psychopathologist who does not deal with the actually insane. It seems to me that the field of the psychiatrist should be confined to the study, diagnosis, and treatment of actual insanity and to those abnormal mental cases coming within the range of socalled borderline cases—while the psychopathologist should confine his activities to the study, diagnosis and treatment of those mental aberrations which do not involve actual insanity or even so-called borderline cases—and there is ample work to be done in both fields without overlapping activities.

It is true, the line of demarcation between sanity and insanity has not yet been determined with precision by either the legal or medical professions, and admittedly a person is only then possessed of a normal healthy state of mind when there exists complete mental equilibrium to the extent that the personality easily adjusts itself to those accepted actions which have been deemed good and proper standards set by the majority of the community in which he resides. Every disturbance of this normal mental equilibrium may be considered as a psychopathological manifestation, but many and I dare say most of these disturbances which come to our notice could hardly be termed manifestations of insanity. The moral or sexual pervert, the masturbator and the sodomist, the petty thief, the habitual drunkard, the drug addict, and to a certain extent all psychasthenics are examples of psychopathological manifestations, but who would care to place the unfortunate sufferers of these manifestations in the category of the insane? At the same time the moral or sexual pervert, the habitual drunkard, the drug addict, and the petty thief may be suffering from uncontrollable impulses or habit-formations that make their actions as involuntary and almost as irresponsible as are the acts of the insane.

In a great many of the cases of juvenile delinquency the neglect of proper training during the developmental period may have resulted in that mental retardation which yields the symptoms of a poorly balanced mentality, or possibly created vicious habits which have become firmly established so that they seriously disturb the mental equilibrium to the extent that oftentimes antisocial acts are committed as the result. Emotional conflicts, moral lethargy, morbid sexual ideas and imaginations, as well as a host of other psychasthenic manifestations have very often potent impulsive attributes which culminate in antisocial activities if left untreated, and the moral or sexual pervert as well as the drug addict or petty thief are no less immune to the good effects of prolonged and proper psychotherapeutic treatment than are those unfortunates suffering from emotional conflicts or

other similar psychopathic conditions in which psychotherapy is the only rational and effective remedy.

Of course, in dealing with such mental aberrations and undesirable habit-formations, proper diagnostic methods are as important as in all other diseases of body or mind. It is no more scientific or even logical to attempt to treat a patient who comes to us as being unable to control her sexual impulse as a mere prostitute, or the unfortunate addict to morphine as a mere drug addict, than it would be to treat socalled rheumatism or plumbism without seeking to determine all that is possible to unearth as to the source and extent of these intoxications. In the proper diagnosis of undesirable habit-formations and other mental aberrations a thorough examination of such attributes of conscious activity as attention, reasoning, judgment, moral appreciation, volition, emotion, and associational activities should be made before actual treatment can be intelligently attempted, for in an astonishing number of cases the causes that have led to these psychopathic conditions may be unearthed in this manner, and not a few may be removed.

The diagnostic results of a large number of cases of this nature demonstrate that present-day education and training, both in the home and in the schools, leads to the cultivation of superficiality, to ill-developed powers of attention, to lack of self-control, and lack of character development. In our younger population these laxities in our educational system bring with them severe mental reactions which lead to lowered standards of moral appreciation that make the incurrence of anti-social and illegal practices more prevalent than ever before. A sound, well-balanced mentality is one in which an idea, an impulse, and to some extent an emotion are able to inhibit opposite mental activities; and trained powers of attention, self-control, and mental discipline enable us to do this without fear of defeat through the intrusion of chance impulses from within our own consciousness or suggestion from others. On the other hand, he who has never learned obedience and self-control can never become his own master.

From a therapeutic point of view it therefore becomes apparent that in not a few of these cases re-education and retraining of the several attributes of consciousness which make up the abnormal mental activities becomes necessary. In practically all cases either this or that abnormal impulse needs to be overcome, this or that uncontrollable habit-formation requires to be broken up, this or that emotional conflict needs to be straightened out, and new channels of discharge need to be established for this or that mental activity, and this or that attribute of conscious activity which forms the weak link in the chain of mental events needs to be strengthened by an artificially created mental bulwark.

In all this work the very first requisite necessary for laying a successful foundation upon which to base psychotherapeutic treatment is the establishment of rapport between physician and patient. How to get en rapport with the patient for psychotherapeutic purposes cannot be outlined in any routine way, everything depending upon the nature of the case and the personality of the patient. However, a happy combination of dignified sympathy plus the display of genuine friendliness in act as well as in word will aid in bringing about the desired mental setting in many of these unfortunate cases. In dealing with moral or sexual perverts or with those addicted to uncontrollable habits, we should always take into consideration the fact that most of them are seriously misunderstood and often mistreated by those with whom they come into contact. The relatives of many of these unfortunates treat them with disdain; their associates shun them as soon as they become aware of their weaknesses; and if they happen to be so unfortunate as to come under the jurisdiction of the law, they are treated as criminals. Under these conditions the experienced psychotherapist should have little difficulty in getting en rapport with the majority of these unfortunates.

In the cases of uncontrollable and undesirable habit-formations, whether the term is used to designate warped mental activity followed by abnormal physical activity, or whether it is confined to include only wrong ideational or associational reasoning, thought, or other purely mental activities, the first necessary psychotherapeutic step consists in the attempted destruction of these abnormal mental activities by closing the existing channels of mental discharge, by side-tracking pent up mental energies into new and harmless channels of discharge and by cultivating entirely new associational paths over which the mental activities connected with the habits may travel. While admittedly such therapeutic procedures require skill, patience, and much time, they result in much good if well established psychological laws are closely adhered to in their application.

Once an acquired habit-formation has been broken up by proper psychotherapeutic methods, then, and then only, have we the right to employ constructive therapy in the form of suggestion in either the hypnoid or waking state. At this juncture I would point out that the customary short-cut psychotherapy of relying upon constructive suggestive therapeutics at the outset in many of these cases has been the direct cause of many failures, and the indirect cause of the unjust condemnation of the value of suggestive therapeutics as a remedy in these conditions. Unfortunately many who have attempted to utilize this therapeutic measure in the past have limited themselves to its direct application without first endeavoring to ascertain the suggestibility of their patients, or the heightening of the suggestibility by appropriate methods if undue resistance existed—and there is nothing so fatal to successful suggestive therapeutics as the undesirable reaction which accompanies unaccepted suggestions.

Subsequent to the scientific determination of the degree of suggestibility of a patient, and heightened suggestibility brought about through appropriate methods in cases where the original resistance was too high, suggestive therapy is a most valuable means of aiding in the restoration of normal equilibrium. It forms a powerful factor in assisting the individual in overcoming the uncontrollability of many mental activities; it enables the unfortunate more easily to get a foothold in

overcoming abnormal impulses and unpleasant emotive reactions. It is by no means a panacea and is admittedly a dangerous weapon in unscrupulous hands, but no more so than strychnine or certain gynecological instruments in similar hands.

In cases where the underlying causative factor seems to be repressed emotions or certain types of mental conflict, and in cases involving certain abnormal associational activities, in addition to suggestion, the various socalled cathartic psychoanalytical methods may be the means of aiding in the readjustment of the mental functions so as better to fit them to withstand the shocks that are bound to come to us all in every-day life, and which succeed in breaking the weak link in the chain of mental resistance in just this class of cases. It is the aim of psychotherapy to repair and reinforce these weak links in their mental make-up so that the future strain of mental stresses shall make no, or very little impression on them.

Proper psychotherapeutic methods diligently and persistently applied certainly will overcome many socalled uncontrollable impulses and undesirable habit-formations. This field of therapeutic endeavor has not received the proper study and attention that its deserves for the best interests of the community. The present tendency among professional men seems to be antagonistic to the employment of time-consuming and often unremunerative therapeutic measures. But freeing the mentality of an unfortunate of some uncontrollable impulse, of some undesirable habit-formation, or of some emotional conflict or other mental aberration is fully as important in the prophylaxis of insanity as are other measures in preventing chronic and incurable physical ailments. From an economic point of view there can be no question that the proper treatment of many forms of mental aberrations surely would tend to stem the rising tide against our ever-increasing cases of actual insanity. In most lines of medical endeavor there seems to be widespread appreciation of prophylactic therapy, but in dealing with the manifold manifestations which in many cases are the direct forerunners of actual insanity if not checked in time, and which very often culminate in the perpetration of illegal acts, both the medical and legal professions are hopelessly unprogressive.

To-day, as never before, the sexual or moral pervert is apt to be treated as a law-breaker only, instead of being considered a distinct type of pyschopath. The unfortunate addict to the uncontrollable use of morphine, alcohol, or other narcotic is being dealt with most unscientifically by both law and medicine. The sufferer from abnormal impulses whose manifestations creep out in the nature of antisocial acts is also dealt with as a criminal instead of being treated as a patient with a strong possibility of being cured by proper psychotherapeutic treatment. If the punishment now handed out to these unfortunates were at all effective, its unfairness and crudeness could be overlooked; but the facts are that both legal and unscientific medical measures do not produce even transient favorable effects. Nowadays the moral or sexual pervert may be given probation, may be sent to some socalled reform school where he is capable of infecting others with his pernicious habits, or may be thrown into the house of correction which has not corrected his mental aberration at the expiration of sentence. To-day the socalled drug addict is temporarily locked up either in some institution or in jail where he is deprived of his drug and sometimes given some routine medicinal treatment, but almost invariably is sent out into the world again still uncured of an uncontrollable and long-standing habit-formation. What is the result to the community of these illogical and unscientific methods of disposing of this class of cases? The country is experiencing a distinct increase in juvenile delinquency, certain types of adult crime, and a large increase in insanity. What could be done to improve existing conditions by appropriate methods? If those mental aberrations which very often manifest themselves during youth and which in not a few instances are the direct causes of juvenile delinquency, later crime, and forerunners of insanity itself, were appropriately treated as pathological conditions instead of being dealt with as legal and social problems only, the results would make themselves apparent in a very few years. If the subjects of those undesirable and often uncontrollable habit-formations which display themselves in both youths and grown-ups, which are apt to make their unfortunate victims the perpetrators of illegal acts that cause them to be treated as criminals, were treated as distinct psychopaths suffering from curable conditions, not only would much be gained from a social and economic point of view, but from a eugenic point of view the benefit would be marked to the coming generation.

The modus operandi of bringing about this much desired change in dealing with this unfortunate class of mental defectives is primarily one of education. Both the medical and the legal professions need to be educated along these lines before intelligent co-operation can be anticipated. The medical profession needs to adopt rational therapeutic measures that show real results, and these cannot be produced by therapeutic shortcuts or haphazard methods. The legal profession and the public need to be awakened to the much neglected fact that far more cases coming within the jurisdiction of the law have important psychopathological aspects which have a direct bearing upon their antisocial behavior than is now generally appreciated. It is very important to the individual as well as to the entire community that the legally trained mind with judicial powers should learn to appreciate that many more and varied conditions besides feeblemindedness and actual insanity are to be taken into consideration in determining whether an alleged offender is capable of controlling his act or is responsible for committing it.

Once the professions have become alive to the possibilities of real applied scientific diagnostic and therapeutic methods in dealing with this class of offenders, then it will not be long before the intelligent public will demand the services of a psychopathologically trained physician connected with every court much the same as they now utilize the services of district attorneys. Then, too, the day will arrive when socalled reform schools, socalled houses of correction, and even jails and

prisons will be presided over by properly trained physicians who will transform many of these penal institutions into psychopathic institutions and real training schools where physicians may work unhampered in their endeavors to treat the mentally ill and retrain and re-educate their warped mentalities with some reasonable outlook of restoring their unfortunate charges to become useful members of society again. It is being done successfully on a small scale among those who have not yet come within the jurisdiction of the law, and it is possible, feasible, and entirely desirable to take this work up on a large scale and produce excellent results.

Nowadays the services of psychopathologists in our courts are taken as a novelty and often work out as a farce. Resident physicians for our socalled correctional institutions are very often underlings with no executive power and usually with no special training. This is an extremely sad state of affairs, and the indirect cause of much unnecessary expense and suffering. Reform schools, reformatories, and even houses of correction should harbor those whose psychopathological examinations have demonstrated the existence of some mental aberration or undesirable habit-formation which may be cured by prolonged and proper treatment and re-education, and these institutions should be presided over by physicians especially trained in this line of work and not by political underlings as is now too often the case. Furthermore, if juvenile delinquents, addicts to undesirable habit-formations, and even some classes of petty criminals are to be cured so that the possibilities of their becoming later inmates of our prisons, jails, or insane asylums become greatly diminished, the present system of sentences of fixed duration must be eliminated, for then they will be treated as sick individuals who require proper treatment until the physician considers them cured, whether that implies institutional treatment for six months or six years.

I do not mean to imply that prisons and jails are superfluous and of no value; but I do mean to state the fact that the time will come when those suffering from some curable mental aberrations or undesirable and uncontrollable impulses or habit-formations whose manifestations may have brought them into conflict with the law, will be rationally and scientifically classed as patients and treated with the view of really curing their weaknesses; while those with normal mental make-up who knowingly and deliberately commit crime will be classed as criminals to be dealt with much more severely than is now the case. In the meantime the few physicians who handle cases of mental aberration that are entirely curable by appropriate methods must continue to endeavor to perfect existing methods of psychotherapy and attempt to demonstrate to their professional brethren of the medical and legal professions the vast importance of this therapeutic measure as a means of curing many of these psychopathic conditions when properly applied. Mental hygiene is no less important than physical hygiene; and in actual practice both law and medicine must unite before either may apply effective means of safeguarding the future physical and mental health of the American people. If we had to-day as many hospitals harboring contagious diseases such as smallpox, yellow fever, typhoid, etc., as we now have insane hospitals, socalled reform schools, reformatories, houses of correction, and even jails harboring the unfortunate victims of mental aberrations who are unjustly classified as criminals, I believe the profession would wake up to the seriousness of the situation and get busy; but curious enough the preponderance of the latter institutions seems to be taken as a matter of fact as being necessary, while the truth is that many of them would become superfluous if their unfortunate inmates were rationally treated as patients rather than as criminals.

It is high time that the sufferer from mental aberration or undesirable habit-formation who has violated our laws be separated from the deliberate criminal with sound mentality and be given the proper treatment that will cause him to become again a useful member of society. It is not enough that the psychopathologist classify juvenile or adult delinquents into various gradations of mental defectiveness, although that is a step in the right direction; it is equally, if not more important that these unfortunates be given the proper treatment which will cure many of them—and psychotherapeutics, expertly, rationally, and persistently applied will result in success in a great many cases and is certainly worthy of a fair trial in all of them. I for one hope to see the day when law and medicine shall so co-operate that the poor may receive the beneficial effects of modern psychotherapeutics in our correctional institutions that the well-to-do suffering from certain mental aberrations, undesirable habit-formations, uncontrollable impulses, and other curable mental abnormalities now find available in private institutions under the care of specially trained physicians.

1680 BEACON STREET.

SOME GENERAL ASPECTS OF DIGESTIVE DISTURBANCES.*

BY ELLIOTT C. PRENTISS, M.S., M.D.,

EL PASO, TEXAS.

THERE are some general features of digestive disturbances that are not only of interest but also of great importance, many of which are not receiving the attention from the medical profession that they deserve. This becomes clearly evident to us when we study carefully many of our cases, particularly some of the serious ones of long or fairly long standing. Abdominal conditions requiring operation are frequently the logical result of factors leading up to them. Many of these factors are easily discoverable and easily preventable. The importance of slight symptoms and errors of living in youth and early adult life is not fully realized by medical men. Many serious cases would not have become so if early mild symptoms had received the proper attention and been relieved. These points are easily brought out by the taking of careful detailed histories in long-standing cases. This will frequently give valuable suggestions for the medical treatment,

*Read before the El Paso County Medical Society on May 17, 1921.

or the after-treatment when an operation has been performed.

Faulty habits of living and some other unfavorable factors are at the bottom of many digestive conditions that become later so serious as to require operation. In many individuals these are unavoidable, but in general this is not so, and they are of such a nature as to be easily avoided or overcome. I will detail briefly a few of these:

The value of the regular toilet habit, whether there be a desire to defecate or not, can hardly be overestimated. Constipation is too often the beginning of serious conditions, such as gastrointestinal catarrh, subinfection, adhesions, appendicitis, gastric and duodenal ulcer, and gall-bladder infection. The use of a cold toilet will occasionally lead to constipation with its resulting conditions. The toilets in office buildings, stores, and other places of business are occasionally not only cold but dark and dirty, and very disagreeable to use. Consequently there is an unconscious tendency to put off using them as long as possible. Also the cold in such cases will frequently lead to piles and acute attacks of diarrhea.

The drinking of too little water is frequently a factor in causing constipation and faulty elimination, especially in women.

Poor care of the teeth, caries, pyorrhea, and loss of teeth, and then inability to chew the food properly, are common. Too many people have teeth pulled that should be filled and saved. The swallowing of pus from pyorrhea may cause digestive troubles, and may seriously influence the cure of a condition that may otherwise yield readily to treatment.

The lack of exercise is a factor of great importance. This leads to constipation along with such other conditions as muscular flabbiness, the putting on of useless fat, overweight, and poor elimination. This is due to carelessness, as a man, no matter how busy he may be, can put aside sufficient time to take a reasonable amount of exercise. Irregular hours of eating and improper food are usually under one's control but not always, although, even when conditions are unfavorable, the most injurious factors may be avoided if an effort be made to do so. Frequently there is no effort made to cut out the satisfying of appetites that are known to be harmful.

Late night hours with too little sleep and insufficient recuperation from the previous day's work affect the general health, and also the digestive apparatus secondarily.

To-day the excessive use of alcohol has nearly stopped in this country, but a few individuals are still getting it on this side of the border, and many are imbibing across the river. We are still dealing with the effects of it in people who have been habitual users for years. We shall see less and less of this as time passes.

The use of tobacco is now more prevalent among the men of our country than alcohol ever was. It probably causes some digestive disturbances, but its principal harmful effects on digestion are in aggravating existing disturbances, or in preventing their cure. I believe that this is particularly true in gastric and duodenal ulcer, and gastrointestinal catarrh from whatever cause.

The continual rush of modern business leads not only to the development of bad and faulty habits, but to the prevention of, rather than the inability properly to take care of slight troubles that arise. Consequently these conditions are allowed to continue until they seriously interfere with comfort or work, and are in many instances then of a surgical nature. Some of these cases result fatally or develop semi-invalidism. A little time and care at the beginning would easily have been preventive.

In many instances a person will be very much given to worry over large or small troubles, whether unnecessarily or with good reasons. This seriously affects the health in many cases by reducing appetite, diminishing the secretory and motor functions of the digestive apparatus, diminishing sleep and thereby interfering with recuperation from the daily duties, and in other ways.

Occasionally business or other trips to a distance become necessary and too frequently during them not sufficient care is given to the mode of living, such as rest, food, late hours, use of alcohol, excessive smoking, and other factors. Such trips frequently will originate a digestive disturbance, cause a lighting up of an inactive process, or prevent the cure of a chronic condition.

With regard to food, idiosyncrasy may be mentioned. In such cases some individuals will persistently try to eat articles of food against which they know that they have an idiosyncrasy. This condition, when suspected, should be proved or disproved by the physician and if it exists that particular food should be stopped or the idiosyncrasy corrected.

Several other possible causative factors may be mentioned; one is the condition of the tonsils. Bacteria from discharging tonsils being swallowed with the food, no doubt at times cause disturbance of the digestion, and certainly in many cases may be the cause of failure to relieve or cure the patient. I have seen several cases of gastric and duodenal ulcer that would not heal until bad tonsils had been removed.

Another factor is pregnancy. It seems to me remarkable that pregnancy does not cause more digestive disturbances than it does. It is no doubt responsible for many cases of ptosis and gall-bladder inflammation.

Most individuals suffering from chronic digestive disturbances do not possess vitality that is up to the normal. As a rule they are more susceptible to minor acute ailments, and show more frequent and more serious complications and sequelæ and also a higher mortality from serious intercurrent affections.

I wish now to take up a few of the results of factors previously mentioned. Constipation is certainly the most important one. Retention of material in the intestines for a longer period than normal always sooner or later leads to increased bacterial decomposition of the food, with the formation and absorption of toxins. As time passes, laxatives cause more or less catarrh, general symptoms due to the toxins occur, and local inflammatory conditions, such as acute or chronic appendicitis, gall-bladder inflammation, gastric

and duodenal ulcer, and adhesions, are apt to occur. Frequently in such cases the patient has lassitude and gets tired very easily; this leads to diminished exercise, and thereby a vicious circle is created.

The following is a combination that I have noticed in a number of long-standing cases: Stasis, marked decomposition of food in the intestines with evidences of autointoxication, and passage of large amount of pale urine giving a very intense reaction for indican, low specific gravity, a trace of albumin, and a few hyaline casts. Upon treatment as the condition improves the indican in many cases will disappear, the amount of urine gets to normal, the specific gravity rises, and the albumin and casts disappear. Some of these cases will show a low blood pressure without sclerosis due to diminished general strength. Some others have reached the stage of atheroma, high blood pressure, enlarged heart, and other symptoms which go with them.

With women, disturbed menstruation is not at all rare as a result of the toxemia of intestinal origin. This will usually return to normal when the intestinal condition is corrected, but not always, as it may have had time to have produced a permanent pathological condition. Also in women, and occasionally in men, the threshold of symptoms will be passed, owing to the toxemia, and hysteria, periodical headaches, or other symptoms may develop that otherwise would not have occurred.

I will now cite a few case histories. They are composite, but are easily recognized, if one will take careful, detailed histories.

CASE I.—The patient was a successful merchant. As a boy he worked hard around stores, did a good deal of lifting, and had considerable exercise; he had plenty of food, but it was of indifferent quality and not well prepared, and as his parents were not well educated, the regular toilet habit was not established, and he was slightly constipated. However, he was well and his digestion was good. At about the age of 15 he began smoking a great many cigarettes, chewed tobacco a little, and occasionally used alcohol to excess. Owing to the fact that he was earning more money he occasionally had large indigestible meals away from home. He became a little wild, less attention was paid to his habits, constipation was more marked, and he began having a little gas formation in the intestines. At 23 he was earning enough money to get married, had better food and owing to a very good appetite, ate more than formerly. He had a horse and buggy and rode back and forth from the store, and ordered his clerk to do the physical work. This resulted in a marked increase in weight, aggravation of the constipation and gas formation, and beginning twinges of pain in the region of the appendix. At 30 he was making more money, eating rich food and more of it, and the other factors became more marked, with the result that one day he had a very severe pain in the region of the appendix. His physician was called, acute appendicitis was diagnosed, and after time spent on consultation with a surgeon and counting the leucocytes, operation was performed twelve hours after the beginning of symptoms. The appendix was found to be gangrenous and general peritonitis had begun. Owing to his poor general condition he gradually grew worse and died on the third day after the operation.

This fatal outcome could easily have been prevented if the family and their attending physician, if they had one, had given the proper attention to the boy's habits and constipation at the time symptoms began.

CASE II.—Physician, 45 years of age. As a boy he went through the grades and high school and was in perfect health, as he had good exercise, good food, and good training. He went to a neighboring city to study medicine and while there lived in a boarding house, had very ordinary food, took but little exercise, and worked very hard, studying usually until late at night. This led to slight constipation, occasional insomnia, and slight headaches. In the summer following his second year he developed typhoid fever, from which he promptly recovered. He used tobacco excessively, drank more or less beer all the time, was occasionally led into sprees by his friends, and drank a great deal of coffee. After he graduated he made his calls either afoot or riding a bicycle, and his physical condition was good. He played outdoor games, had plenty of exercise and his bowels were regular. At the end of 5 years he was making more money, made his calls with the horse and buggy, was too busy to take exercise, and when evening came, either spent it with his friends or went to bed to rest up for the next day. His constipation became worse, headaches were more frequent and severe, he had a little rheumatism, and began to notice frequent eructation of gas after meals. He had been eating more, had gained considerably in weight, his muscles were flabby, and his abdomen was getting a little prominent. Five years later all of these factors had become more pronounced. He had eructation of gas off and on all day with more after meals, twinges of pain in the right hypochondriac region, with occasional attacks of pain of moderate severity lasting an hour or two. At the age of 45 he woke up in the middle of one night with a typical severe attack of gallstone colic. Jaundice set in in due time. After waiting the proper length of time operation was performed and he made a good recovery.

If this man had used what he knew about medicine he could easily have corrected the factors leading to his ill health, except perhaps that of the cholecystitis, which was probably due to the typhoid bacillus, although this infection may not have occurred in the absence of predisposing causes.

CASE III.—Housewife, 40 years old. As a child she was not strong, being of a moderately asthenic type. She would catch cold easily, the throat frequently getting sore. The tonsils were slightly enlarged. She was fond of reading and sewing and had poor energy, consequently did not take much exercise. She did not have a regular toilet habit, did not drink much water, and was quite constipated. Frequent headaches developed, and she became very nervous. At 15 menstruation began, which was irregular, painful, and as a rule scant. She developed occasional spells of hysteria, which gradually became more pronounced. She was above the average height and much below normal weight. At 21 she married and bore five children, 18 months apart. This, together with increased worries and confinement in the house very much aggravated her previous condition. Upon careful examination the following symptoms and conditions were found: Patient very much underweight, complexion sallow, marked pyorrhea, some teeth out and the rest in bad condition; marked chronic tonsillitis, a great deal of eructation of gas after meals, feeling of weight and fullness in the stomach, occasional nausea and vomiting; a great deal of borborygmus with occasional cramps; marked constipation; hemorrhoids; insomnia, lassitude, frequent headaches; poor strength; occasional fever to 99° or 100°; occasional edema of the feet; marked nervousness and irritability; frequent spells of hysteria; dyspnea on exertion; spells of palpitation and tachycardia; frequent passage of light colored urine, and irregular painful menstruation. Physical examination shows a flabby abdomen, prominent below the umbilicus; ptosis of the stomach, intestines, liver, and right kidney; slight tenderness over the appendix, gall-bladder, and epigastric regions. Blood— hemoglobin 80 per cent., urine—low specific gravity; trace of albumin; intense reaction for indican and indigo red; and a few hyaline casts. Blood pressure low and arteries soft.

It is not necessary to mention the proper treat-

ment of a case of this kind, as all of you know what it is, but suffice it to say that if she had received the proper treatment as a child and later this end result would not have occurred. The fault for such a result frequently lies with the family or patient for not getting the proper advice and carrying it out, or using patent medicines and doing what any old granny tells them to do. But this is not always the case; often the physician does not go into sufficient detail, either in examination or in outlining the treatment, on account of rush of work, to get the desired result.

Conclusions — 1. Slight digestive disturbances should receive very careful treatment. 2. Their importance is not fully realized by the general physician. 3. If they are relieved when they are readily amenable to treatment, many serious conditions can be prevented. 4. Faulty habits and unfavorable factors of living should be sought for and corrected when possible. 5. The history should be taken with sufficient care and detail to bring out these facts.

515 Roberts-Banner Building.

SIMPLE AND RELATIVELY SAFE THYROIDECTOMY.

By WELLER VAN HOOK, A.B., M.D.,

CHICAGO.

One of the most serious difficulties associated with the treatment of goiter lies in the determination of the amount of tissue to be removed. The writer, in common with many other surgeons, formerly removed the larger of the two lateral lobes, and with this mass he often excised part of the isthmus and occasionally smaller masses of the smaller lobe.

But this routine practice occasionally led to disappointment. For in the case of exophthalmic and toxic goiters, and even in the simpler forms of the disease where one operates on account of mass, the complaint of the patient is only temporarily stilled, in the one case on account of the persistence or the return of the toxic symptoms and in the other case on account of the growth of the masses remaining.

For this reason the writer more recently has been removing almost all of both lobes as well as the isthmus of the organ. But who knows how much of the masses must be left in order to prevent cachexia strumipriva and how much must be removed to do away with the toxic state? This difficulty is enhanced by the fact that, before the removal and sectioning of the tissues, no one can do more than guess at the proportion of normal to abnormal tissue in the parts not obviously to be excised. The old procedure of removing one lobe is inadequate; the dictum that one-fifth of the thyroid mass should be left is equally unsatisfactory.

The writer has recently left small masses at each of the horns of the organ and, in addition, a thin layer of thyroid tissue attached to the posterior, untouched part of the gland capsule. These tissue masses are left by choice because their volume can be rather accurately gauged and because they are well provided with blood vessels and lymphatics, allowing for hypertrophy if that need be brought about by demand of the organism.

A second, remoter danger encountered in these operations now generally recognized is that of injury to the parathyroid bodies either immediately or through damage done to their vessels and nerves. The writer agrees with the majority of operators in preserving a layer of gland and capsular tissue comparatively undisturbed at the back of the gland.

The recurrent laryngeal nerves are best managed by the same artifice, leaving the region which they traverse entirely untouched. The operation may be systematically considered:

The position of the patient upon the operating table is of prime importance both for the administration of the anesthetic and for the work of the operator. Not only must the conditions be satisfactory at the outset, but at all stages of the procedure it must be easily possible to alter the relations of the parts under manipulation.

For it is necessary for the anesthetist to be able at any time to lift the lower jaw from its angles in order to aid respiration. And he must have reasonably clean hands and must be screened away from the operation by sterilized linen.

Two cylindrical sandbags are needed, each four inches in diameter and about fifteen inches long. One is placed transversely under the back at the upper scapular level. The other is placed exactly under the occipital protuberance. It is not to be put under the neck. Now, if the head is to be extended upon the neck it is merely lifted a half inch, rotated backward about an imaginary point located in the upper cervical region, and then replaced upon the sandbag. If the neck is to be flexed the process is reversed. The novice will find that his difficulties in making and closing the wound and in manipulating the thyroid are pronouncedly minimized by this simple device. During the early part of the operation the anterior part of the neck is made prominent to facilitate the removal of the mass; during the latter part it is relaxed so that the muscular layers may be readily brought together.

Kocher's collar incision, which Doyen of Paris claims to have practised since 1887 (Traité de Thérapeutique Chirurgicale, Paris, 1910. Vol. III, p. 40), is made a finger's breadth or so above the sternum. The exact level of the incision above the sternum cannot be stated for all cases in inches. Some necks are short, wide, and thick, while those of the contrasting type are long, narrow, and meager. The incision should be made at such a level as will give the best access to the *horns of the gland*. The length of the incision must be such as will give the operator enough room for his work. The inexperienced operator should allow himself abundance of room before attacking the difficult, deep work. The prime ideal of the operation is the conserving of life, and the nicking of the inner borders of the sternomastoid muscles is of small disadvantage in comparison with the great value of abundance of room for dealing with the vessels of the gland. If these muscles are slightly incised, sutures can be placed when the wound is closed.

The platysma is next divided, and any blood vessels injured are clamped as they are cut. As a rule there is no hemorrhage from any of these vessels caught by the forceps, even when the

clamps are removed, provided the pressure has been maintained for five or ten minutes while one continues the work of exposing the gland. Yet, unless one has had large experience with thyroidectomy, it is best to ligate the large veins with very fine catgut the moment they are seized.

The platysma having been transected and the superficial veins clamped or tied off, the sternothyroid and sternohyoid muscles may be retracted after they have been separated by a longitudinal incision, or they may be transversely divided, as suits the skill and experience of the operator and the difficulty of the case. I have had opportunity to reopen a neck in which recurrence took place a year after I had removed one lobe of a thyroid with transection of these muscles, and I found the wound in the sternothyroid and sternohyoid muscles so smoothly united that one could not well have imagined any serious functional disturbance, as indeed the history substantiated. Operative elegance and smoothness of function are highly desirable and are much to be sought after, but the honest operator should transect or leave these muscles intact after deciding upon the method by which he can best conserve his patient's chance of recovery with general usefulness in his place in society.

Exploration gives certainty in reference to many of the important inquiries that the surgeon would make. He wants to know, especially, what is the size and shape of each lobe of the gland and what the relations of each lobe are to the other cervical structures. It is important to know whether the gland extends around the trachea to the œsophageal region or not and whether the lower lobes reach down into the mediastinum or thorax.

The half of the gland chosen as the first one to be attacked is lifted between the thumb and forefinger, a piece of gauze having been interposed if the mass is slippery. Sometimes the small Tuffier's (Allis's) forceps is used if the goiter tissue is firm enough to bear it without laceration and hemorrhage. The operator is fortunate if the lobe comes up easily. Inflammatory adhesions are rare; usually it is only the shortness of the connective tissue strands that prevents the gland from coming freely into the wound. It is, of course, easier to perform the necessary manipulation if the part of the thyroid involved can be drawn forward and isolated.

Firm and fairly deep retraction is now made by an assistant and the cornu of the gland is grasped by an ordinary forceps of the Kocher type. The forceps used should be carefully selected before the operation because so much depends on them. The thyroid having been brought into view, the finger is carefully passed around one lobe of the gland dividing the filmy connective tissue, at first laterally and then toward the upper and lower lobes successively. If resistance is encountered I am in the habit of overcoming it tentatively and, as it were, experimentally and coaxingly. By this I mean that pushing the finger along the gland surface and hugging the gland closely, the lighter and looser resistances of connective tissue are overcome at once, while the more heavily binding masses are left until later. In case this is necessary one passes to another part of the field, loosens the gland and then, returning to the earlier point of attack, frequently finds the conditions more readily understood and the separation easier.

The purposes of this manœuver are to explore, to separate the connective-tissue masses that bind, and especially to free the lobe so that it can be lifted somewhat from its bed in preparation for its excision.

The forceps should be applied in such a way that its jaws grasp no unidentified tissues behind the exposed horn. The thumb and finger passed around the gland act as guides. It is not requisite that the whole mass of the horn be grasped by the forceps and it is not necessary, though it is desirable, that but one forceps be used.

The purposes of the clamping are, first, to hold the horn, preventing its slipping out of reach when transection has been affected; second, and most important, to provide provisional hemostasis, and, third, to mark the amount of gland tissue to be left.

The lower lobe is clamped with especially great care, and I usually apply the forceps almost exclusively to the anterior two-thirds or three-fourths of the mass. The forceps immediately crushes the soft tissues and hemostasis is thereby simplified. One forceps grasping but part of the horn does not always wholly prevent hemorrhage, but two or three others, superficially applied, will almost certainly catch all the accessory vessels that may bleed when the gland is incised.

Supposing the forceps has been applied on one side, the operator may at once attack the opposite lobe in the same way, if he wishes, without, for the moment, doing anything more to the first lobe. The clamps are placed on the second lobe while the operator stands on the same side of the table as that on which he stood for the first lobe, or it may be done after he has moved around to the other side of the table, exchanging places with his assistants. Though this is a matter of convenience, it may be important, since position may facilitate the work for some operators.

The forceps having been placed, the operator takes the knife, severs one horn of the thyroid at a quarter or a third of an inch beyond the forceps holding it, and, pausing for a moment if necessary to apply an artery forceps to any small accessory bleeding vessel, he proceeds to sever the second horn on the same side and then to lift and to shave off the main mass of the gland from the posterior layer of the capsule, which, together with a little gland tissue, is left in the wound. This shaving off process is continued until the trachea and the isthmus are reached, where the direction of the curved plane of section is changed to run parallel with the tracheal wall, the isthmus being similarly treated. One carefully avoids cutting deep enough to injure the trachea. The median line having been passed, the opposite lobe of the gland is freed from the stumps of the horns and the posterior part of the capsule in the same way.

The wound in the thyroid is now large and usually has a number of artery forceps attached to it, especially about the lower horns, where the

inferior thyroid artery will sometimes have divided to send several branches through and over the gland. One does not ligate these small arteries as a rule; instead he uses a curved needle and light catgut and passes the thread around the cornu just above the artery forceps and makes the first hitch of a knot. He then has the forceps removed by the assistant. Thereupon the knot is drawn gently taut and the second hitch completes the ligation.

The ingenuity of the operator is now applied. He examines the thyroid tissues left and uses the remainder of the suture to bring together, if possible, the capsule of the gland in such a manner as to diminish the wound surface of the gland and simultaneously to close blood vessels. The other horn of the same lobe is similarly treated. Many ligations are thus avoided. Now, one of the great advantages of this method is to be observed in that *hemostasis and wound closure are combined*. The operation is shortened and simplified. One is careful not to draw the capsule into a puckered mass that may injure the recurrent, the parathyroids or their blood supply, the trachea, or the jugular vein. This necessity is easily complied with, since there are many alternative ways of closing this deeper wound that will present themselves to the attention of the surgeon.

Next, the muscles are sutured together with great accuracy in neat layers, and, lastly, the skin. I leave a tiny tape drain in the wound to permit fluids to escape. Accurate closure conduces to comfort in the finer neck movements later on and prevents undue deformity. Careful closure of the skin gives a nearly invisible scar. The drain is removed after twenty-four to thirty-six hours; the sutures are taken away after five or six days.

We have thus far considered the simplest and easiest cases. Let us now discuss some of the difficulties to be encountered.

Large goiters, symmetrically developed and not growing into the mediastinum or enveloping the trachea, demand but little variation from the simplest normal procedure. The wound must be large enough to give the operator enough space to suit his own skill, experience, and feeling of confidence. Then one must exercise great care that superficial veins coursing over the mass are not torn by rough manipulation or by rubbing. And the lifting out of the lobes of the goiter from their beds must be carefully effected. I use the forefinger as a sort of probe and instrument for lifting the gland. Kocher used a goiter "spoon," an instrument much like a dessert spoon, not very deep and quite strong. When the gland is somewhat free from its laterally associated structures it is well to use the thumb and finger with which to draw the lobe upward and outward. Grasping the smooth gland is aided by placing a layer or two of gauze next to the tissue. A danger to be dreaded in all goiter operations is—not hemorrhage in the visible operative field, but bleeding from points not at once in view. It is just at this stage in the operation that such a hemorrhage may occur. When the lobe has been lifted into view its bed becomes, as a rule, accessible. But when venous hemorrhage takes place deep in the wound, especially if it comes from a vessel behind a lobe still *in situ*, it may be the best policy to pack the wound for a few minutes until coagulation takes place. The time may be used in working elsewhere.

Recently I have sometimes used the Tuffier (so-called Allis) forceps with which to grasp the lobe and draw it out of its bed. If one follows this plan he must be ready to apply more than one forceps so as to make no more tension at one point of traction than is absolutely necessary. And he must observe with care the toughness of the capsule and the gland tissue as he subjects them to the traumatism that is necessary. Sometimes the tissue is too delicate to permit the forceps to be used. Then one must depend upon using the finger and thumb. Kocher's spoon may be used. A German surgeon uses a loop of gauze passed around the lobe with which to lift it. It is stated that mediastinal (retrosternal) masses are easily raised with a loop of tape. Thus far I have always succeeded with the simpler means above referred to.

When once the lobe is raised at one of its corners and clamped as suggested, one usually proceeds quite easily to the other cornu of the same lobe, managing in the same manner. When the clamps are thus placed the excision may be undertaken as heretofore described.

In all larger goiters there may be irregular arrangement of the arteries demanding the use of a few extra clamps.

If displacement of the lobe through irregular enlargement has brought about peculiarities of localization, the clamps are to be placed where they will carry out the central plan—that is, where they will serve the purpose of preliminary or provisional hemostasis, to be followed by definitive closure.

Cysts that are infected may be incised if one wishes, in order to diminish their mass before removing them.

31 North State Street.

SOME UNUSUAL FEATURES IN A LOCALIZED EPIDEMIC OF INFLUENZA.

By S. R. Blatteis, M.D.,
and
M. Brunner, M.D.,
Brooklyn, N. Y.

Following the pandemic of 1918-1919 the whole civilized world was in suspense about the question of recurrences. Authoritative sources differed widely on this question, and though the years 1920-1921 did show recurrences, yet they were not extensive and did not cause much alarm. However, when epidemics, no matter how localized, took place the entire community became greatly perturbed. Possibly were not medical men and health authorities as alert as they were, a different story of these outbreaks might have been told.

The epidemic reported here is to illustrate in a small way what can be done in limiting and, in fact, stamping out an infectious communicable disease that, without the proper measures, might have run like wildfire through the immediate community and might have been the focus of a much larger outbreak.

This is a narrative of an outbreak occurring at a girls' camp located in a summer mountain resort section of New York State. The camp was situated in a thickly wooded region bordering on a large lake, so that as a health resort conditions were ideal. At one of the public assemblies held weekly in this camp it was observed that one of the visitors (who afterward, it was learned, was convalescing from a double pneumonia) was a constant source of annoyance by her persistent hacking cough. A few days later four girls reported to the camp nurse, complaining of a slight dry cough, a feeling of general malaise, and slight fever. The temperatures then were of 102.°, 100.4°, 102°, and 102°. The girls were put to bed in the infirmary and kept under observation. Physical examination revealed a negative chest and negative abdomen. The fauces were slightly reddened and the tongue was coated. For the following four days the temperatures varied from 101°—104°, the pulses from 85—100, and respirations averaged 24.

The cases presented a picture clinically lending itself readily to a tentative diagnosis of typhoid fever. During the first five days no corroborative evidences were observed. Physical examination failed to reveal any positive chest or abdominal findings. The only subjective symptoms were slight dry cough, fever, and a feeling of general malaise; yet they felt so well that they repeatedly asked to be let out of bed.

The simultaneous occurrence of four cases of an indefinite illness in a camp previously remarkably free from any disease immediately led us to suspect the presence of one of the more common of the infectious diseases. The tentative diagnosis of typhoid fever made it obligatory to institute all the preventative measures possible. Strict isolation and thorough methods of disinfection were enforced. No contact in any manner whatsoever was permitted between the healthy members of this community and those who were sick. Of those instances where this rule was not strictly observed, specific mention will be subsequently made.

A complete and careful physical examination was made by both of us at least daily. It was only after the temperature had reached its fastigium and was beginning to drop that the first physical signs of pulmonary involvement were observed. This was true of all the cases. On the fifth day of the disease Case No. 1 presented numerous crepitant and subcrepitant râles over the right upper chest anteriorly and posteriorly without any evidence of consolidation. On the following day cases 2, 3, and 4 presented positive chest signs as follows:

Case 2.—Numerous diffusely scattered crepitant and subcrepitant râles over both bases posteriorly and several small areas of increased voice and breath sounds.

Case 3.—A distinct area of consolidation about the size of the palm of the hand in the base of the right lung posteriorly with a diffuse infiltration of the remainder of the right lung.

Case 4.—A definite area of consolidation about the size of a silver dollar in the left axillary region.

Those who came in contact with the patients were the doctors and nurses. Because of the absence of the parents, the camp directress was compelled to mingle with them. A daughter of the camp directress was also a camper. It was learned that in some way or other the mother and daughter met, greeting each other in the usual manner of kissing. For how long after the outbreak this had been going on is not known, but ten days after the onset of the first case of illness the daughter and her tent-mate reported to the nurse complaining of headache, slight fever, general malaise, and slight cough. Their temperatures were 104° and 102° respectively. These two patients were put to bed and kept under observation in the infirmary. The same precautions were followed out with these two patients as with the other four. Physical examination failed to reveal any positive chest or abdominal findings until the fifth day when signs of consolidation and infiltration of the upper lobe of the right lung were made out in the daughter of the camp directress. Five days later, when the temperature was nearly normal, pneumonic signs were found in the left upper lobe. Her tent-mate likewise presented signs of infiltration of the base of the left lung without any areas of consolidation, on the fourth day of her illness.

Sixteen days had elapsed since the outbreak of illness with the situation apparently under control. The convalescents were doing well. Then along came the camp directress with complaints of general malaise, slight cough, and fever. Her temperature registered 102°. The patients now numbered seven. Physical examination on admission was negative. On the following day the patient complained of sticking pains during respirations in the right lower posterior chest region. Examination of the chest revealed the presence of a diffuse infiltration of the base of the right lung with a slight pleuritic friction rub in the axillary region.

The eighth and last case occurred in the following manner: One of the counsellors learning the good news of the recovery of the first case, forgot for the moment the precautions which had been in vogue, and yielding to her impulse kissed the patient. Two days after this the counsellor experienced chilly sensations, slight cough, slight headache, and general malaise. Reporting at the infirmary later in the day, her temperature registered 101° and during that night rose to 103°. On the third day a small area of consolidation at the base of the right lung was recorded.

Laboratory aids in the diagnosis of the first cases were lacking, because the nearest laboratory was 45 miles distant. On the third day of the disease Widals were taken and reported negative. About ten days after the onset another Widal and differential leucocyte counts were submitted. Widals for typhoid and for paratyphoid A and B proved negative. The differential leucocyte counts were as follows:

Case	1	2	3	4	5	6
Polynuclears	60	68	64	66	53	45
Lymphocytes	36	30	32	33	47	44
Eosinophiles	4	2	4	1	..	1

From a review of this epidemic it seemed proper to have entertained the opinion of typhoid fever as

most plausible during the first few days of illness. There were the headache, general malaise, slight cough, very slight congestion of the throat, the modified step-ladder type of temperature, and the relatively slow pulse; a further sign was the simultaneous outbreak of four cases.

If not typhoid fever, then it was thought possible that some form of food poisoning producing a mild ptomaine effect might be the explanation. But the absence of gastrointestinal symptoms and no appearance of anaphylactic skin rashes made that diagnosis highly improbable.

It was only after the discovery of definite chest signs, not only in one but in all of the four first cases, that the diagnosis of influenza was justified. This was further confirmed by the presence of lung signs in every one of the eight cases, by the character of the temperature, by the definite relative lymphocytosis, and by the persistence of the lung signs for some time after the patients felt perfectly well.

Conclusions.—1. Four cases of an acute infectious disease appearing simultaneously in a summer camp, were tentatively diagnosed as typhoid fever and were placed at the very outset under the strictest isolation and disinfection.

2. The subsequent occurrence of four other cases resulted from contact definitely traced.

3. The definite diagnosis of influenza was made on the fifth day of the disease by the appearance of lung signs for the first time after the beginning of defervescence. This was true of all the cases and is noted as an unusual experience.

4. Prostration was never a feature of any of the cases.

5. The absence of expectoration during the entire period of the acute and convalescent stages is an unusual clinical observation.

6. The strictly limited nature of the outbreak under conditions most favorable for its wide and rapid dissemination is exceedingly rare, but can be accounted for by the early thorough and persistent use of isolation and disinfection.

We therefore conclude that the same methods employed in an outbreak of any suspicious infectious disease can, as here illustrated, be definitely and sharply circumscribed.

350 New York Avenue.
922 Eastern Parkway.

THREE LARGE BABIES FROM ONE MOTHER.

By G. B. Foscue, M.D.,
Waco, Tex.

The following case is so unusual, if not unique, that it seems worthy of record.

Mrs. H. W. A., primipara, white, aged 20. On the 27th of November, 1917, I delivered her of a male child which weighed at birth 14 lb. 6 oz.

On Feb. 27, 1920, she again came under my care and was delivered of a girl weighing at birth 13 lb. 2 oz.

On Sept. 4, 1921, I again delivered this young woman. This time is was a boy who weighed 13 lb. 8 oz.

These three children were born within a period of 45 months. Their combined weight was 41 lb.

The first labor was a high forceps delivery with a perineal laceration of the second degree. An immediate repair was made with only partial success. The other two births were normal. The three children are alive and healthy.

The mother is 5 ft. 6 in. in height and weighs about 130 lb. Her mother is a rather large woman who has given birth to six children, the largest of which weighed 10 lb. Her father also is a large man.

The father of these three children is 5 ft. 7 in. tall and weighs 137 lb.

1603 Amicable Building.

Medicolegal Notes.

Construction of Agreement by Seller of Practice Not to Establish Himself in Practice Within Certain Radius.—In an action to prohibit the enforcement of an injunction against the seller of a physician's practice, it is held that an undertaking in the contract of sale by the seller and his wife "not to establish themselves as a practising physician and surgeon" within a radius of five miles of the seller's home is not ambiguous, and needs no extrinsic evidence to show the intention of the parties as to its meaning. It was held that the parties thereby intended that the seller should not maintain an office for the practice of medicine or surgery within the prescribed district, and nothing more. In other words, it was intended by this portion of the contract to restrain the seller from opening an office as a practising physician or surgeon at any point within five miles of the home, which, under the agreement of sale, was sold. The court refused to read the language of the agreement as intending to mean that the seller was not at any time within five years to call upon or prescribe for any person living within a radius of five miles of his former home. A writ of prohibition was therefore made permanent prohibiting the enforcement of an injunction against the seller, except in so far as it enjoined him from opening or establishing an office for the practice of medicine or surgery within a radius of five miles of the premises sold.—State v. Calhoun (Mo. App.), 231 S. W., 647.

Expert Testimony as to Nature and Permanence of Injuries.—In a personal injury case exceptions were taken by the defendant to the admission of testimony by medical and surgical experts who had treated or examined the plaintiff, expressing the opinion that his injuries were permanent; that he would never regain the normal use of his injured foot and ankle; would always walk with a limp, and other matters of the same general nature. It was argued that this testimony offended against the rule that the expert witness may not be allowed to express an opinion in effect determining the ultimate question which the jury is impaneled to try. It was held that this rule had no application under the facts of the case. "The witnesses were not asked, and expressed no opinion, whether the defendant was negligent in respect to any of the matters alleged in the pleadings, or whether the plaintiff himself was negligent in any respect, or whether his injuries, if any, were caused by any act or omission of the defendant. In cases of this character, where damages are sought for personal injuries, it is always admissible to show by expert evidence the nature and extent of such injuries, whether permanent or otherwise, and the manner and extent to which his injured or crippled condition, if any, affects his ability to labor or to make use of his normal physical powers."—Bradley v. Interurban Ry. Co., Iowa Supreme Court, 183 N. W. 493.

X-Ray Photographs, Properly Authenticated, Admitted in Evidence.—In a personal injury case, *x*-ray photographs purporting to show the fractures of the bones in the plaintiff's injured foot and leg were held properly admitted, where the evidence showed that they were made by a skilled and practised operator of such machines, and that the machine was properly focused and so located to the injured limb and foot as to give a clear and correct view and impression of the fracture, and that the plates were faithfully reproduced by the photographs.—City of Covington v. Bowen, Kentucky Court of Appeals, 230 S. W. 532.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, December 17, 1921.

SERUM SICKNESS.

UNDER this term are understood those serological accidents which are fairly frequently observed during the week following injections derived from horse serum, more common in adults than in children and more common in subjects who have already had one or several injections of serum, and which are also more prone to occur after intravenous than after hypodermic administration and with large rather than with small doses. It would appear that these accidents are due to the precipitation of horse serum, considered as antigen in presence of antibodies called precipitins, which appear in the blood of those injected. The symptomatology assumes the form of a true syndrome, called the serological syndrome, and is essentially characterized by cutaneous and mucous eruptions, accompanied or not by a rise of temperature, arthralgia, tumefaction of the lymphnodes, etc. The exanthemata are usually of the simple kind, or polymorphous, particularly nettle-like, rarely scarlatiniform, or purpuric. They last for two to three days. The nettle-like form of rash is accompanied by severe pruritus and edema of the eyelids and prepuce. When the mucosæ become involved the exanthema provokes an edematous swelling, but glottic edema and bronchial or intestinal disturbances due to local rashes have rarely been met with. Tumefaction of the lymphnodes commences with the nodes tributary to the area in which the injection has been given. The arthralgia presents nothing special, while the fever is moderate and hardly ever lasts for more than one or two days. What usually takes place is a generalized urticaria with severe pruritus for one or two days, accompanied by a temperature of 101° to 103° F. with occasionally some arthralgia, myalgia, or lymphatic tumefaction. Between the mild serological reactions which remain localized at the site of the injection—and these are by far the most frequent—and the intense reactions of a dramatic character, which are rare and usually due to some technical error, there are all sorts of intermediary types. The serological accidents usually appear about one week after the injection and last for three or four days, recovery being the rule.

The diagnosis is usually easy, especially when it is known that the patient has been given a serum injection, but it may be somewhat embarrassing in certain cases in which the symptomatology assumes the appearance of an acute intercurrent disease, such as rubeola, during the course of a diphtheria, tetanus, or cerebrospinal meningitis which is receiving serum treatment. This is particularly the case when, after repeated intramedullary serum injections, the cerebrospinal meningitis seems to return. The coexistence of a cutaneous eruption will, however, remove all doubt.

The treatment consists of purging the patient, the exhibition of calcium chloride in a daily dose of three to four grams, powdering the parts involved by the exanthem with talcum to quiet the pruritus, strengthening the heart's action in the severe cases with the usual cardiac stimulants, especially camphorated oil hypodermically. The prophylaxis of serological accidents is confined to the exhibition of calcium chloride in the doses above mentioned at the expected time of the occurrence of the accidents, or to the employment of Besredka's so-called anti-anaphylactizing method. This consists, as is known, in giving one or several very small subcutaneous injections of serum several minutes or several hours before the regular serum injection.

THE PATHOGENESIS OF FORWARD DISLOCATION OF THE UPPER END OF THE RADIUS WITH FRACTURE OF THE ULNA.

THE mechanism of the production of this double lesion was first studied by Grenier, and afterwards by Dorfler, Helferich, and Schüller, but of all the experiments carried out, those of Dorfler are the most evident and convincing. Two different conditions must be first considered. In the first, the dislocation of the radius and the fracture are contemporaneous; it is an immediate dislocation. In the second, the dislocation of the radius occurs gradually after fracture of the ulna and requires several days or even weeks to take place. These are what Desprès called gradual dislocations. When the posterointernal portion of the forearm receives a trauma it is the ulna that first supports the intensity of the violence, because it is both superficial and on a lower plane in relation to the radius. Fixed at both ends, directly vulnerable to shock, it breaks under the influence of direct or indirect causes with the greatest ease, although indirect fracture is much less common as Brossard (Thesis, Lyons, 1883) long since showed by a large series of experiments. When a force acts vertically, the limb being in adduction, the ulnar inclination of the hand makes the ulna the agent of transmission of the pressure it receives to the carpus. But although fracture of the ulna is produced so readily, it is not the same with dislocation of the head of the radius. And in point of fact, this isolated dislocation of the radial head—which was for a long

time supposed to be impossible—is rare clinically. The anatomical reason resides in the fact of the intimate and solid union of the radius to the upper part of the ulna.

Although this dislocation alone is occasionally met with in children, it is because its cause is not a trauma acting directly on the posterointernal aspect of the forearm, but rather forced movements of pronation and supination, traction on the hand, or a fall upon it. Consequently when it is questioned which one of these two actions—dislocation of the radius or fracture of the ulna—occurred first, the answer seems easy. Dummreicher and Albert are the only ones who maintain that the fracture is the second in occurrence, but this opinion is at present completely abandoned since Dorfler published his experiments. Schüller has very properly affirmed that although it is difficult to produce dislocation of the radius when this bone is intimately united to the ulna, it becomes easy to produce it when a fracture of the ulna has dissolved the union between the two bones. The outcome of the discussion is that dislocation of the radius is always secondary to fracture of the ulna, which itself is nearly always the result of a direct traumatic force and is the primary lesion.

It was by starting from the assumption that fracture of the ulna in its upper or middle part has a direct traumatic action as its cause, that Dorfler and then Schüller carried out their experiments. It is unquestionably accepted that fracture of the ulna, by increasing the inability of the radius and by doing away with a certain amount of fixity in its relations to the humerus, greatly facilitates dislocation of this bone. But does the dislocation always result fram a traumatic action contemporaneous with the fracture and is the latter always the primary lesion?

Dorfler's experiments show, firstly, that if the forearm is injured by the passage over it of a heavy weight, a wagon wheel for example, the prolonged pressure of the wheel fractures the ulna and then, continuing to exercise its traumatic force, dislocates the head of the radius. The lesions are therefore almost simultaneous and clinical observation proves this. It is also important to remark that upon the direction of the traumatic force depends the type of dislocation and that although this is produced especially in front in most cases, it may also take place outwardly, sometimes even from behind.

EPILEPSY.

THE issue of the *Bulletin Médical* for September 21-24, 1921, xxxv, 39, is devoted to this disease, with a belated article in the succeeding issue. The articles are obviously intended for the general reader and are therefore presumably of practical significance. Dr. Roubinovitch of the Bicêtre discusses the nosological position of the epilepsies. During and since the late war the literature of these affections has been heavy. During the war, whether as the result of cranial wound or commotion, every possible clinical form was studied, and this fact confirms the author as to the unwisdom of trying to break up the conception of the disease into different basic types. Furthermore, attacks might come on directly after injury or only after a long period of latency, due in part to scar formation. Transitory does not differ radically from permanent epilepsy, nor Jacksonian from essential, nor convulsive from psychic. There appears to be an anatomical substratum—proliferation of the subcortical neuroglia, as was well shown in the military material. In addition to the exciting factors, predisposition counts, and neuropathic heredity is the chief among these. The taint not only favors the first appearance of the disease, but aids in making it chronic and of severe degree. A heavy consumer of meat or alcohol has a sort of acquired predisposition. The cranial trauma or commotion can light up a latent epilepsy. We now know and no longer have to surmise that the child of the alcoholic, epileptic, syphilitic, etc., has a brain which is far more vulnerable to epilepsy than that of the untainted child, a fact which sheds much light on child epilepsy.

In discussing treatment, Maillard of the Bicêtre begins with a full account of the drug phenylethylmalonylurea, called for short gardenal in France and luminal in this country. This includes the peculiar intoxication which follows its abuse, which suggests alcoholism. This drug possesses the great advantage over bromides that it exerts the same power over all clinical forms of epilepsy; while the fact that it is quite inert in the treatment of hysteria makes it of diagnostic value. Another tremendous advantage is the absence of any cachexia following its use, and the fact that aside from the absence of anything corresponding to bromism it actually antagonizes the mental failure, while producing in the undernourished a remarkable increase in weight and vigor. Although he has tested it on no more than 200 Bicêtre patients the author seems enthusiastic over his results. But certain patients do not tolerate it and in that case it must be given in small doses and with great care, and combined with some organic bromide. It is possible that boropotassic tartrate may come to replace bromine in these mixed cases, regarding which at present comparative tests are being carried out. Attempts to lay down rules for surgical intervention are as usual unsatisfactory.

BIOLOGICAL PROBLEMS OF CONTEMPORARY INTEREST.

THERE is at present so great a degree of activity in biological study that even a reading man may fail to keep in touch with all of the important developments of the day. Some of these, like anaphylaxis, have been before the public for many years, yet are as active as ever; others like colloidoclasis are relatively new, yet the latter is only a phase of the former. Glycosuria and glycemia are old yet

active problems, and protein-therapy is comparatively recent. The important subjects of vitamines and lipoids stand midway between the oldest and most recent developments. Yet it would, of course, be an easy matter to trace some of the more recent subjects back to remote beginnings.

In a general view of recent biological problems, Gautrelet, writing in *La Médecine* for September, 1921, ii, 12, traces the beginnings of protein-therapy to the use by Weill in 1905 of horse serum for hemophilia. He was followed by Nolff with the peptone treatment of paroxysmal hemoglobinuria and later this management was extended to infectious diseases. Both hemophilia and paroxysmal hemoglobinuria are, however, anaphylactic phenomena, while protein-therapy is closely related to the therapeutic employment of inorganic or metallic colloids. Both forms of treatment come under the head of antianaphylaxis, and protein-therapy is only a phase of the wider subject of colloidotherapy. Enthusiastic devotees are already predicting that the latter is destined to revolutionize drug therapeutics by driving out the crystalline drugs and synthetics of the day. But certain crystalline substances which are hardly regarded as drugs—like sodium chloride and carbonate—may be made to behave in the body like colloids and can exert an antianaphylactic activity. Sodium hyposulphite is also valuable in that it hinders that precipitation in the blood which is the essential part of anaphylaxis.

The subject of vitamines is far more complex than was once believed. In this it agrees with the subject of hormones. A mass of unwieldly and conflicting data has accumulated. It was once thought that rickets could be explained by hormones and again by vitamines, or both conjoined, but we are farther than ever from understanding rickets and perhaps the same may be said of pellagra. Not long ago the thyroid and later the adrenal were looked upon as "almost the whole of physiology." Quite recently, however, experiments seem to throw grave doubts on the importance of these small organs for the dynamics of the organism, and the larger viscera also are now thought to supply hormonic or endocrinic principles once believed to be the special products of the chromaffins. Experiments by L. Stern have succeeded in isolating vasoconstricting substances from the liver, kidneys, and spleen. These bodies belong under the proteogenic amines and are not even close kin of adrenalin. It has always seemed absurd to reflect that we know so little of the true biological importance of great viscera like the liver and spleen, while we have made a few small organs responsible for most of the growth, development, and dynamics of the organism.

Tuberculosis of the Kidney in the Aged.

This localization of tuberculosis is rare in those beyond the age of sixty or perhaps it would be more nearly correct to state that few are operated on in advanced life. Marion has operated on 273 patients, counting only his nephrectomies, and among this number 18 were more than 50 years of age. Figures limited to medical cases show a somewhat larger percentage of the elderly, as might be anticipated. In a recent Paris thesis (Lepidus, 1920) there are case histories of patients aged 61, 64 and 72 years. Apparently the physiological sclerosis of the kidneys of individuals over 70 tends to make the kidneys nearly immune to infection. Some of the findings of Lepidus are given by Plicque in the *Journal de médecine et de chirurgie pratiques* for October 25, 1921, xxcviii, 20. The symptoms at the onset are purely vesical and by reason of the age-factor cystitis is apt to be the diagnosis. One thinks of everything but tuberculous nephritis—of prostatic hypertrophy with secondary cystitis, of renal or vesical calculosis, and of cancer of the prostate, bladder, or kidney. Errors of diagnosis are commonly made. But the disease progresses rapidly albeit perhaps slow in comparison with early life. Sooner or later the picture of a nephritis looms up and it may take the form of a medical or surgical nephritis. It is of course not to be suggested that a competent urologist who examines all his cases systematically will be deceived in making his diagnosis, but the author is evidently writing for the benefit of the general practitioner. The hazard of nephrectomy with the other kidney intact is not much increased in the elderly, for Marion lost but one of his 18 patients from the intervention. The cystitis may subside spontaneously after nephrectomy, or it may persist and be aggravated, requiring extreme measures to control it—cystotomy, iodine vapor, fulguration, etc.

Erythema Nodosum.

This affection resembles a constitutional infectious disease of the exanthematous type, being preceded by the typical prodromic stage of these affections, having an epidemic and even at times contagious incidence, and relapsing occasionally. It must not be confounded with erythema induratum which is a tuberculous manifestation. Nevertheless patients with the nodose form, while but seldom tuberculous, often come of tuberculous stock. Röntgenography of these subjects shows as a rule no tracheobronchial adenopathy. It is true that old clinicians regarded nodose erythema as allied in some way to tuberculosis, and it is of course possible that there is a special form of this origin. Some of the subjects give a positive cutireaction, but this is no proof that the eruption is motivated by the bacillus. Recently a few writers have come out positively in favor of the view that the dermatosis tends to appear predominantly in a tuberculous soil. But we find no evidence of an association of the latter with clinical tuberculosis. In an endeavor to throw light on the etiology of erythema nodosum Professor Demiéville of Lausanne had an assistant investigate 300 cases which had been treated in the Polyclinic during a period of 22 years. (*Revue médicale de la Suisse romande*, October 10, 1921, xi, 10.) A survey of the tabulation which gives the antecedents and coexistent phenomena with, in some instances, the family history, seems to show plainly that the dermatosis, so far as Geneva is concerned, is an autonomous disease in which there is no more tuberculosis, rheumatism, etc.,

than there would be in an equal number of controls. All of the ordinary dispensary affections are properly represented, as anemia, adenoids, hysteria and neurasthenia, gastric disturbances, syphilis, cough and bronchitis, chlorosis, etc., but none was present to any striking extent.

News of the Week.

Typhus Spreads in Moscow.—A dispatch from Moscow, under date of December 2, reports that there are more than 2,000 cases of typhus fever in the hospitals of that city. Three thousand new beds have been prepared for the reception of typhus cases. Advices from Astrakhan state that typhus fever, smallpox, cholera and "black death" have appeared there.

Is There a Shortage of Physicians in Connecticut?—The *New Haven Register*, commenting on a recent report, stating that there are only 1,600 physicians in the State of Connecticut and that forty-six towns are without a resident doctor, says it would be well to do a little figuring before worrying. It appears that there has been in the past ten years an increase of 12 per cent. in the number of doctors, while during the same time the population of the State increased 24 per cent. This should not be alarming in view of the fact that deaths from tuberculosis are decreasing and likewise the mortality from preventable diseases, and at the same time among the physicians who are left there are some remarkably competent ones. It is pointed out that some of these forty-six towns never did support a physician, and when they had one they worked him to death. It costs more to outfit a practice now than formerly it did. The inevitable result is that these towns must depend on service from the nearest city or large town, but with the aid of the telephone and the swift automobile it is probable that the smaller proportion of physicians goes further now than the larger one used to do.

Workmen's Compensation Law Revised.—The tentative recodification and revision of the Workmen's Compensation Law in this State has just been completed by a joint legislative committee, and for the purpose of study and criticism copies of the changes are being distributed. Public hearings are to be held in New York, Albany, and other places during this and next month, and the full revision is to be presented to the legislature early in February. This is the physician's opportunity to see that he gets the "square deal" under the new law.

Lebanon Hospital Surgical Fellowship.—A Surgical Fellowship amounting to $600 has been established at the Lebanon Hospital, New York, by Dr. A. J. Rongy. Each year three house surgeons graduate, and this fellowship will be awarded annually to the one who, in the opinion of the Medical Board, has had the best record during his entire term as a member of the house staff.

Industrial Hospital Advocated for Philadelphia.—Dr. W. R. Taylor, chief of the medical department of the Bell Telephone Company of Pennsylvania, in an address before the Philadelphia Safety Council, charges that existing hospitals in Philadelphia do not give proper attention or service to industrial cases. He proposes a chain of clinics in industrial centers with a central free hospital devoted to industrial cases. His proposal has been indorsed by the Chamber of Commerce and the Philadelphia Association of Industrial Medicine. Several insurance companies have indicated their willingness to lend aid to the project.

A Public Health Reference Library.—The attention of the physicians of the city is invited to the facilities of the Public Health Division of the Municipal Reference Library, on the third floor of the department's headquarters at 505 Pearl Street. In this library physicians interested will find a very up-to-date collection of books and pamphlets on public health matters, including preventive medicine. The resources of the library are at the service of the profession every day, except Sundays and holidays, from 9 to 5; Saturdays, 9 to noon.

Insurance Records Show 1921 Healthiest Year.—According to the records of thirty-seven leading American insurance companies, the year 1921 has been the healthiest in the history of both the United States and Canada. Among the striking things shown by the figures, which cover 27,000,000 persons, are that influenza has almost disappeared from the United States and Canada, and that pneumonia has decreased 50 per cent. from 1920. On the other hand, mortalities due to automobile accidents show a 15 per cent. increase, with an indication of 10,000 deaths from this cause. Homicides and suicides also show large increases, being four times more frequent than in 1920. In the first ten months of 1920 deaths numbered 205,941, for the same period this year only 184,860 deaths have occurred. This shows a reduction of 21,081 in the actual number of their death losses this year. About 28 per cent. of deaths during this year have been caused by cerebral hemorrhage, organic diseases of the heart, and Bright's disease. The report states that in the main these are diseases of the more advanced years. Therefore, the hope of further reducing the death rate must be sought in other causes of death, constituting 72 per cent. of the total.

Large Families Show Increase in France.—From this report it would seem that the decrease in population in France is not as serious as the world has been taught to believe. The statistics are especially interesting, as no families with less than nine children are eligible. The distribution of ninety prizes to the parents of the largest families under the terms of a trust fund created by the Chauchard family showed that, whereas last year only 24,000 families sought awards, this year more than 42,000 entered the lists. Several parents of eighteen, sixteen, and fifteen children have entered, chiefly from the southern departments.

Hospital Notes.—The Board of Estimate of New York City has authorized the construction of a city hospital at Walton and Gerard avenues, between 168th and 169th streets, The Bronx.

The Boone County (Missouri) Hospital, erected through a $175,000 bond issue by the people of the county, was formally opened on December 10.

A movement has been started to raise $500,000 for a general hospital to be located in Daytona, Fla.

Five counties in southeastern Arkansas have united to further a campaign to raise $75,000 for the erection of a hospital in that part of the State.

The Oklahoma County (Okla.) Tuberculosis Hospital has been completed and is ready for occupancy.

Dr. Henry F. Vaughan, Health Commissioner of Detroit, announces that the new $500,000 children's hospital, which is in the process of construction, will be ready to receive patients by March 1, 1922.

The new temporary Bristol (Conn.) Hospital was formally opened on December 4.

The contract has been awarded for the construction of the East Texas Hospital for the Insane at Rusk. The new building is to be erected at a cost of $30,000.

Secretary Mellon has approved the expenditure of $1,400,000 to provide a permanent hospital for ex-soldiers suffering from nervous and mental diseases, to be located at Palo Alto, Cal. The Public Health Service is at present operating a hospital on this site with a capacity of 550 beds. The new hospital building will accommodate 1,000 patients.

The Treasury Department announces that the work of remodeling the Roman Catholic Orphan Asylum in New York, which was purchased by the Government at a cost of $2,750,000, will be begun about the middle of December. According to the announcement, one of the reasons for beginning work at this time is to aid in relieving the unemployment situation.

Dr. Robert Snedeker has removed his offices to the National Bank Building, Broadway and Columbus Circle, New York.

Sir Arthur Pearson, widely known because of his work for the blind and founder of St. Dunstan's Training College for Blind Soldiers, was accidentally drowned in his bathtub on December 9. A deep wound over his temple indicated that he had fallen and struck the water tap, which rendered him unconscious, though death was probably due to drowning. Since becoming blind in 1914, he had kept no valet because he believed that a personal servant would be a stumbling block in the path toward blind efficiency which he strove so energetically and enthusiastically to teach. Sir Arthur enjoyed a wide reputation as a successful journalist, having founded the *Daily Mail, Daily Express,* and *Pearson's Weekly.* He followed these with *Tit-Bits, Home Notes, Pearson's Magazine, Royal Magazine, Novel Magazine, Rapid Review* and others.

Dr. Arthur J. Schwenkenberg of Galveston, Tex., has been decorated by the Greek Government for the part he has played in the Near East Relief, and particularly for his aid in constructing and superintending a hospital in Salonica.

Dr. Sterling Newton Pierce has resigned his commission as past assistant surgeon in the Medical Corps of the United States Navy and will practise medicine in Los Angeles, Cal.

Dr. G. Alder Blumer has resigned his position as superintendent of the Butler Hospital, Providence, R. I. He will be succeeded on January 1, 1922, by Dr. Arthur H. Ruggles.

Dr. E. E. Hodgin has been appointed chairman of the Indianapolis Board of Health.

Dr. Henry Heiman has removed his office to 125 West Eighty-sixth Street, New York City.

Dr. John R. Ransom of Keene, Tex., has been awarded the Greek Medal for distinguished service as a member of the Salonica unit of the American Red Cross.

Gifts and Bequests.—Mt. Sinai Hospital, New York, is the recipient of a bequest of $5,000, and the Hebrew Orphan Asylum and Montefiore Home, each $2,500, under the will of Mrs. Caroline Bookman.

By the will of the late Anna C. Nice of Philadelphia the sum of $5,000 is bequeathed to Jefferson Hospital.

By the will of the late Amelia Rice of Philadelphia the sum of $5,000 is bequeathed to the Jewish Hospital.

Through the generosity of A. Barton Hepburn of New York the Hepburn Hospital, Ogdensburg, N. Y., has received an endowment fund of $500,000. This is the third liberal gift Mr. Hepburn has made to this institution which bears his name.

Vacancies in the United States Public Health Service.—Examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held January 9, 1922, at Washington, D. C., and San Francisco, Cal. Candidates must be between 22 and 32 years of age, and graduates of a reputable medical school. They must pass satisfactorily oral, written, and clinical tests before a board of medical officers. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Medical College and Hospital for Colorado.—Under a plan approved by the agents of the University of Colorado, 200,000 persons will be asked to subscribe $200,000 to make up the balance of $600,000 pledged by the State toward the construction of a hospital. The last legislature appropriated $400,000 to the fund and, by agreement, the Rockefeller Foundation will contribute $600,000. The plans include a medical school which shall be a part of the University of Colorado.

Obituary Notes.—Dr. WILLIAM LLEWELLYN BANER of New York, for twenty years visiting physician to St. Vincent's Hospital, died from cerebral hemorrhage on Dec. 9, at the age of sixty years. He was graduated from the College of Physicians and Surgeons in 1885, and was a Fellow of the American Medical Association and of the New York Academy of Medicine.

Dr. CHARLES WESLEY GORDON of Fort Wayne, Ind., died from a complication of diseases on Nov. 21, at the age of sixty-nine years. He was graduated from the Medical College of Fort Wayne in 1877.

Dr. B. LAWRENCE TALIAFERRO of Lynchburg, Va., chief physician of the Catawba Sanatorium, died in Roanoke on Nov. 21, at the age of forty-five years. He was graduated from the Medical College of Virginia in 1898, was a member of the ad-

junct faculty of the Medical College of Virginia, and formerly was on the staff of the Trudeau Sanatorium at Saranac, N. Y.

Dr. HENRY W. TERRELL of La Grange, Ga., a graduate of Emory Medical College, Atlanta, Ga., in 1892, died suddenly on Nov. 24, at the age of fifty-three years. He was a member of the American Medical Association, first vice-president of the Georgia Medical Association, and a former president of the Troup County Medical Association. He was also a member of the State Board of Medical Examiners.

Dr. ALBERT D. YORKE of Jamaica Plains, Mass., a graduate of the University of Vermont College of Medicine in 1891, died suddenly on Nov. 22, at the age of fifty-seven years.

Dr. ELIJAH W. LAWRENCE of Newark, N. J., a graduate of the Philadelphia University of Medicine and Surgery in 1863, died on Nov. 26, at the age of seventy-eight years.

Dr. WILLIAM S. CARRION of St. Joseph, Mo., a graduate of the Meharry Medical College, Nashville, in 1898, died on Nov. 15. He was a charter member of the Pan-Medical Association of the State of Missouri.

Dr. WILLIAM C. WATERS, a graduate of the Columbus (Ohio) Medical College in 1882, and a Civil War veteran, died at his home in Zanesville, Ohio, on Nov. 22, at the age of seventy-four years.

Dr. DAVID G. CURTIS of Chattanooga, Tenn., a graduate of the Homeopathic Medical College of Missouri in 1860, died on Nov. 26, at the age of eighty-six years.

Dr. ELIZABETH LILLIAN RADOM of Bridgeport, Conn., a graduate of the Woman's Medical College of Pennsylvania, Philadelphia, in 1915, died suddenly Dec. 2, at the age of twenty-nine years.

Dr. BERNARD A. O'HARA, of Waterbury, Conn., died at his home on Nov. 25, at the age of sixty-two years. He was graduated from Bellevue Hospital Medical College in 1882.

Dr. EDWARD AUGUSTUS BOGUE, a graduate of the New York Dental Surgery College, Syracuse, and of the Castleton Medical College, Vt., in 1857, died of pneumonia on Nov. 22, at the age of eighty-three years. He was a member of the Orthodontological Society of Great Britain, the International Society of Orthodontics, the New York Academy of Medicine, the American Academy of Dental Science, the American Society of Orthodontics and the New York Dental Society.

Dr. LOUIS E. NEWMAN of St. Louis died on Nov. 19, after an illness of more than a year, at the age of sixty-one years. He was graduated from Jefferson Medical College, Philadelphia, in 1883. He was a member of the American Medical Association and a former president of the St. Louis Medical Society.

Dr. GARRETT K. W. SCHENCK of Far Rockaway, N. Y., a graduate of the College of Physicians and Surgeons in 1901, shot himself because of suffering from cancer of the stomach, on Dec. 6. He was visiting physician to the Bradford Street Hospital, Coney Island, and to the Kings County and Rockaway Beach hospitals.

Dr. WILLIAM REID PRIME of New York, a graduate of New York University Medical College in 1879, died of heart disease at his home on Dec. 6, at the age of sixty-four years.

Dr. THOMAS E. KRUM of Reading, Pa., died on Nov. 22 at the age of sixty-one years. He was graduated from the College of Physicians and Surgeons of Baltimore in 1886.

Dr. HARRY KEISER WEILER of Delanco, N. J., died of apoplexy on Nov. 24 at the age of sixty-seven years. He was graduated from Hahnemann Hospital and Medical College, Philadelphia, in 1883.

Dr. DANIEL WUNDERLICH NEAD of Reading, Pa., died at Chambersburg on Dec. 1, at the age of sixty-three years. He was a member of the Berks County Medical Society and the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association. He was for many years associated with the medical department of the Pennsylvania Railroad. He was graduated from the medical department of the University of Pennsylvania in 1881.

Dr. JOHN JOSEPH MCLAUGHLIN of Philadelphia died on Dec. 1, at the age of fifty-eight years. He was graduated from Jefferson Medical College in 1891. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. CHARLES W. SWAN, a retired physician of New Haven, Conn., died on Dec. 2, at the age of eighty-three years. He served as surgeon on a warship during the Civil War and was graduated from Harvard Medical School in 1864. For many years he was secretary of the Massachusetts Medical Society.

Dr. LEWIS C. NEWMAN, a graduate of Emory University School of Medicine, Atlanta, in 1895, died at his home in Atlanta, Ga., on Nov. 30, at the age of fifty-three years.

Dr. LAWRENCE C. CARR of Cincinnati, a graduate of the Ohio Medical College, Cincinnati, in 1878, died suddenly from heart disease on Dec. 4, at the age of sixty-six years. He was one of five physicians from the North who volunteered their services to the Government during the yellow fever epidemic in Jacksonville, Fla., in 1888, and was interested in eradicating this malady from Cuba.

Dr. JOHN MCGINNIS of Springfield, Ill., a graduate of Rush Medical College, Chicago, in 1869, died suddenly of cerebral hemorrhage on Dec. 1, at the age of seventy-nine years.

Dr. PEARL M. SATER, a graduate of the Medical College of Ohio, Cincinnati, in 1893, died suddenly at his home in Hamilton, Ohio, on Dec. 1, at the age of fifty-two years.

Dr. JOHN LUTHER MCMILLAN of Red Springs, N. C., died of heart disease after a long illness on Nov. 8, at the age of sixty-six years. He was graduated from the University of Maryland Medical College in 1881. He was a member of the Maryland Medical Association and of the Southern Medical Association, and a Fellow of the American Medical Association.

Dr. JOHN J. GOODWILL of Laurel Hill, N. J., a graduate of the University of Virginia Department of Medicine in 1908, died of pneumonia on Dec. 2, at the age of thirty-six years. He served eighteen months overseas during the recent war, being in charge of an ambulance company in the St. Mihiel and Meuse-Argonne battles and regimental surgeon of the 312th Infantry.

Dr. D. WALTER STRAUB of Bethlehem, Pa., died on Nov. 29, following an operation for cancer of the stomach, at the age of sixty-six years. He was graduated from the Hahnemann Medical College and Hospital, Philadelphia, in 1877, and was a member of the consulting board of the State Hospital at Rittersville, and of the American Institute of Homeopathy.

Dr. MARVIN WALLACE VANDENBURG of Mount Vernon, N. Y., a graduate of the New York University Medical College in 1879, died on Dec. 9, at the age of seventy-eight years. He was a member of the American Institute of Homeopathy and a Civil War veteran, having been wounded at the battle of Gettysburg.

Dr. JOHNSON C. LINDSAY of Los Angeles, Cal., a graduate of the Miami Medical College in 1872, died on Nov. 23, at the age of seventy-seven years.

Dr. JOHN F. BUTLER, a retired physician who practised medicine for more than sixty-five years and a Civil War veteran, died at his home in Keene, N. H., on Nov. 30, at the age of ninety-one years.

Correspondence.

UNFITNESS OF THE MALE PRACTITIONER FOR TREATING WOMEN AND CHILDREN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Allow me to enter a protest against the publication by a medical journal of the dignity and excellence of the MEDICAL RECORD of such an editorial as found space in your issue of Nov. 26, under the title, "More Vicious Legislation."

To quote the vulgar and inane remarks of Senator Reed of Missouri, remarks to which vigorous exception was taken by his senatorial colleagues, is unworthy of your columns.

To a brain capable of such an editorial only similar argument will appeal. May I ask that the writer will give me one instance of a male member of the profession who, at any time, anywhere, under any circumstances, gave as a reason for refraining from practice of the specialties of obstetrics, gynecology, and pediatrics, the absolutely theoretical nature of his knowledge of maternity and infancy? As a member of the profession who has, for thirty years, upon every possible occasion, endeavored to bring her brother practitioners to a realizing sense of their natural unfitness for these fields, the answer to this question will be to me of especial interest.

Seriously, it is a matter for rejoicing that at last, in the march of social and political evolution, a public fund (small though it be) for the amelioration of maternity and infancy, is to be administered by persons possessing not only the highest social and medical training, but also the inherited instincts of age-long motherhood.

INEZ C. PHILBRICK, M.D.

LINCOLN, NEB.

Mixed Tumors of the Parotid.—To the rather abundant literature of this subject has been added a graduation thesis by G. Roux, University of Montpellier, 1921. The author reports the microscopic finds in twenty-two cases. The research was inspired by Professor Forgue of the Surgical Chair, and was carried out in the Laboratory of Pathologic Anatomy.—*Le Bulletin Médical.*

THE NARCOTIC AGENT AND THE PHYSICIAN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—At the meeting of the American Public Health Association, recently held in this city, it was officially decided that the present narcotic situation in this country was not a public health problem in the usual acceptance of the term, nor one which could properly be administered under rules and regulations laid down by lay and legal bodies having no scientific knowledge of the disease of drug addiction. The situation was decided by this important body to be one which demanded intelligent medical and police supervision and control—police control for the degenerate and the criminal, and medical control for the addicts who are not degenerate or criminal.

Following this declaration, the Weekly Bulletin of the Department of Health, City of New York, Nov. 19, 1921, publishes in full what may be described as a most remarkable thesis. This is entitled "New U. S. Treasury Rulings on Treatment of Drug Addiction," and reads as follows:

To Narcotic Agents in Charge and Others Concerned: In accordance with the recent decisions of the courts (summarized hereinafter in a footnote), *and the attitude of the medical profession on the subject generally, as indicated below*, [italics are mine] the provisions of M-Min. 2212, dated July 31, 1919, are hereby amended and the following provisions as to the proper procedure to be followed in the prescribing and dispensing of narcotic drugs are issued for the guidance of Narcotic Agents in Charge and others concerned. It should be borne in mind that these instructions must necessarily be general in their nature, as it is impossible to lay down an inflexible rule which will cover all cases; and that they are subject to modification through further interpretation of the law by the courts.

[Such interpretations and modifications of the law by the courts, it may be stated, are obtainable only at the expense and risk of the doctor after he has been placed in jeopardy for an alleged violation of these rules, according to the opinion of some official.]

1. *Use of Narcotics in the Treatment of Disease Without Reference to the Question of Addiction.*—Without reference to the question of addiction, a physician acting in accordance with proper medical practice may prescribe or dispense narcotics for the relief of acute pain or for any acute condition, such as influenza, pneumonia, renal calculi, broken limbs, etc.

[The court decisions summarized in a footnote, which consists of a whole page of closely printed matter, may not be criticised by a medical writer. Criticism may properly be offered, however, in the case of the acute conditions for which a physician is permitted to prescribe narcotics in the brief summary given above, which bears all the impress of being drafted by a legal rather than a medical authority. Medical men as a rule rarely use narcotics in influenza or pneumonia to any extent. In "broken limbs" the surgeon does so cautiously with full knowledge of their danger to his patient and with the possible reflection from their use upon the proper setting of the broken limbs for which he assumes responsibility. "Etc." is not sufficiently definite to discuss.]

2. *Use of Narcotics in the Treatment of Incurable Disease.*—A reputable physician directly in charge of bona fide patients suffering from diseases known to be incurable, such as cancer, advanced tuberculosis, and

other diseases well recognized as coming within this class, may in the course of his professional practice, and strictly for legitimate medical purposes, dispense or prescribe narcotic drugs for such diseases, provided the patients are personally attended by the physician, that he regulate the dosage, and prescribes no quantity greater than that ordinarily recognized by members of his profession to be sufficient for the proper treatment of the given case. Physicians will be held accountable if through carelessness or lack of sufficient personal attention the patient secures more narcotic drugs than are necessary for medical treatment, and devotes part of his supply to satisfy addiction. The physician should clearly set forth on each prescription the date issued, and the full name and address of the patient, and describe in indisputable terms the exact nature of the ailment for which issued. It would not be lawful under any circumstances to place in the hands of an addict, through prescription or otherwise, a sufficient quantity of narcotic drugs to last a week. In incurable and aged and infirm cases, geographically isolated, where it would otherwise work extreme hardship, and where there is no danger of maladministration or diversion to illegitimate use, the physician in charge may, at his own risk, upon obtaining permission from the Narcotic Agent in Charge of the District, prescribe or dispense a week's supply or more, safeguarding the same by placing it for administration in the custody of a responsible nurse or attendant. Accurate records must be kept of such prescribing and administration.

[In this paragraph the sufferer from incurable disease like cancer, advanced tuberculosis, and other such states, passes by insensible, if not unseemly gradations, into a combination, at the end, of sufferer and addict, and his physician from an alleviator of suffering into a potential maladministrator of narcotic drugs. These he has to give during this "last scene of all" *at his own risk* and *after obtaining permission* from the narcotic agent in charge of his district. In certain localities, this agent, it may be mentioned, has arisen to his present state through various adventitious circumstances such as the resignation, suspension, dismissal, indictment, and alleged murder of some of his immediate superiors and associates. This experience should qualify him to act with discretion in an office wherein he is given absolute and unappealable authority in dealing with the matter of narcotic drug prescribing and narcotic drug addiction in this city.]

3. *Use of Narcotics in the Treatment of Addiction Only.*—Mere addiction alone is not recognized as an incurable disease. It seems necessary, however, to divide the addicts not suffering from an incurable disease into two classes: (a) those suffering from senility, or the infirmities attendant upon old age, who are confirmed addicts of years standing, and who in the opinion of a reputable physician in charge, require a minimum amount of narcotics in order to sustain life; and (b) those whose addiction is not complicated either by incurable disease or by the infirmities attendant upon old age.

["Mere addiction alone is not recognized as an incurable disease." This prognosis, though given over the signature of R. A. Haynes, Prohibition Commissioner, approved by D. H. Blair, Commissioner of Internal Revenue, is the reverse of that given by the Health Commissioner of the State of New York at the hearing before Governor Miller on the Fearon-Smith narcotic drug bill, of which bill the new rules and regulations of the Treasury Department might pass for a replica. At this hearing the State Commissioner of Health testified that he had never seen a case of drug addiction which he could pronounce cured. Medical and lay opinion was so opposed to this bill, which would have forced compulsory hospitalization upon drug addicts in this State, that the Governor vetoed it. This mode of treatment has been repeatedly shown to be absolutely impossible and impractical of adoption under existing conditions.]

(a) Aged and Infirm Addicts.—Addicts suffering from senility, or the infirmities attendant upon old age, and who are confirmed addicts of years standing, for all intents and purposes, may be treated in the same manner as addicts suffering from incurable disease. In such cases, where narcotic drugs are necessary in order to sustain life, a reputable physician may prescribe or dispense the minimum amount necessary to meet the absolute needs of the patient. As in the treatment of those addicts suffering from incurable diseases, physicians will be held accountable if through carelessness or lack of sufficient personal attention the patient, by securing more narcotic drugs than necessary for his medicinal treatment, is able to devote part of his supply merely to satisfy addiction. In this class of cases the physician issuing the prescription should make a statement on the prescription to the effect that the patient is aged and infirm, giving age and certifying that the drug is necessary to sustain life.

(b) The Ordinary Addict.—It is well established that the ordinary case of addiction yields to proper treatment, and that addicts will remain permanently cured when drug taking is stopped and they are otherwise physically restored to health and strengthened in will-power. This bureau has never sanctioned or approved the socalled reductive ambulatory treatment of addiction, however, for the reason that where the addict controls the dosage he will not be benefited or cured. The good faith of the physician and the bonafides of his treatment in a given case will be established by the facts and circumstances of the case and the consensus of medical opinion with regard thereto, based on the experience of the medical profession in cases of similar nature. The following resolution passed by the Council on Health and Public Education of the American Medical Association at its meeting on November 11, 1920, is pertinent in determining the period over which narcotic treatment should be extended in purely addiction cases: "Be it resolved that the Council on Health and Public Education of the American Medical Association endorse the principle expressed in the California law (section 8½) which forbids the use of opium and its derivatives in the withdrawal treatment of those addicted to the use of these drugs for a period of more than thirty days after the commencement of the withdrawal treatment."

This bureau cannot under any circumstances sanction the treatment of mere addiction where the drugs are placed in the addict's possession, nor can it sanction the use of narcotics to cover a period in excess of thirty days, when personally administered by the physician to a patient neither in a proper institution nor unconfined. If a physician, pursuant to the socalled reductive ambulatory treatment, places narcotic drugs in the possession of the addict who is not confined, such action will be regarded as showing lack of good faith in the treatment of the addiction, and that the drugs were furnished to satisfy the cravings of the addict.

Doubtful cases, or those not falling within any of the above instructions, upon request, will be investigated and special instructions based upon the recommendations of the inspecting officers will be issued.

R. A. Haynes,
Prohibition Commissioner.

Approved:
D. H. Blair,
Commissioner of Internal Revenue.

Under these rules and regulations "good faith" is no longer a protection to the physician in the treatment of incurable disease or of drug addiction. For this there has been substituted in some localities the dictum of a "narcotic agent" whose business is to work up cases against the doctors and one of whom was credited with the statement that

he would put every physician out of business who was treating an addict. It was this which led up to conditions resulting in the death of Dr. Christian J. F. Laase, according to the belief of his family. A physician of the highest standing and a scientific student of drug addiction, Dr. Laase was indicted on the investigation of this agent. He was acquitted by a jury on the ground of his good faith in every phase of his practice. Despite all this he was warned he would practise further at his peril when freed of the charge. He died shortly after, a medical martyr—a fact which is inscribed upon his tomb.

In considering the resolutions indorsing the California law limiting the period to thirty days in which opium can be used in the withdrawal treatment of drug addiction, it will be noticed that no names are attached to the resolutions. The sponsors of a form of medical treatment so dogmatic as never to be seriously considered until it was evolved by the passage of a law, and which the U. S. Government has adopted as a specific, should in all reason be made known to the medical world. These names have probably been withheld because if published they would not be seriously received by real students of the subject of drug addiction. Incidentally they now carry no weight.

This set of new rules regarding restrictions upon the legitimate use and prescription of opium are as impractical as they are inhuman and oppressive, as well as conducive of gain to the smuggling traffic. This gain is exclusive of that which may arise from blackmail, oppression, and extortion; all recognized evils capable of development under existing drug laws.

JOHN P. DAVIN, M.D.

117 WEST SEVENTY-SIXTH STREET,
NEW YORK CITY.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, November 24, 1921.

The First Operation for Relapsing Appendicitis.—Sir Alfred Fripp, in supporting a vote of thanks to the chairman, Sir Charters Symonds, at the first meeting of the Physical Society held in London a short time ago, asked if it were not the case that the first operation undertaken for appendicitis in the relapsing stage had been performed by him and in Guy's Hospital. The chairman replied by a silent nod, but the editors of *Guy's Hospital Gazette*, thinking that it would be interesting to learn more of the matter, gives the following extracts from the original paper and from the Historical Summary given by Dr. Howard Kelly of Johns Hopkins Hospital. Howard Kelly, in his work on "The Appendix and Its Diseases," which opens with a complete history of the subject, thus writes of the operation for appendicitis in the relapsing form: "Charters Symonds, an Englishman, did what is undoubtedly the first internal operation for appendicitis, making a lateral incision without opening the peritoneum." He quotes from the paper in the Transactions of the Clinical Society, Vol. 18, which was read on May 9, 1885. He gives many of the details, including the remark that the suggestion came from Dr. Mahomed, and gives in extenso Mr. Symonds's comments as to the part he took in the undertaking as follows: "I believe I am correct in saying that this is the first case in which a concretion or calculus has been removed from the appendix vermiformis without at the same time opening an abscess, and the credit of whatever value rests in the procedure must be given to my lamented colleague, Dr. Mahomed, at whose suggestion the operation was undertaken, and who advocated the inguinal incision in opposition to that along the linea semilunaris proposed by myself." Referring to the original account, it is interesting to note that the patient was admitted into Guy's Hospital on July 16, 1883, under the care of Dr. Mahomed, and that the operation was performed on August 24, in the same year and not in 1885, as stated by Howard Kelly. Dr. Mahomed died from typhoid fever in 1884.

Official Definition of a Voluntary Hospital.—The British Voluntary Hospitals' Commission define such an institution thus: "An institution other than an out-patient dispensary managed by a responsible committee and wholly or mainly supported from voluntary sources, including income derived from endowments or investments, the object of which is to provide medical or surgical treatment of a curative character; an auxiliary institution such as a convalescent home being eligible for assistance only insofar as it increases the facilities of hospitals from which it receives patients.

Clinical Meeting of the Medical Society of London.—At a clinical meeting of this society held on November 14 Dr. F. J. Poynton and Dr. W. B. Maurice showed an interesting case of arachnodactyl with organic heart disease. The patient was a girl aged 16, and she showed some of the peculiar features of a heart affection. Both parents were healthy, and there was no history of miscarriage. At birth she was 22 inches in height and weighed 10-11 lbs. She was fed on patent food. At six years of age she had tonsillitis, and then a musical murmur was heard for the first time. Three years ago she had measles severely, and spinal curvature commenced at the same date. This improved greatly under massage and rest. Two years ago partial flexion of her fingers was noted by her mother, and there was a rapid growth of long bones, and this had persisted, being apparently confined to the bones of the upper and lower extremities, including the shoulder and the pelvic girdle. When she stood erect the tips of her fingers reached to within 4 inches of her knees. She had a feeble musculature. She was very nervous, but could do domestic work. The heart was hypertrophied and there was a loud musical systolic murmur. The present was the oldest case of the kind ever shown in this country.

Mr. I. Izod Bennett showed a case of dwarfism with congenital ocular effects. The child was aged 7. There was another child of 11, healthy, both parents were living and well, and there had been no still-births. When the patient's mother was four and a half months in pregnancy, she fell downstairs, and attributed to that accident the child's condition. The boy was very small at birth, but had grown steadily. The eyes were the only actual abnormalities discovered, except for the facial bones in the pterygoid region being undeveloped. With regard to the ocular condition, Mr. Affleck Greeves

reported the presence of nystagmus, right ptosis, and external strabismus. There was deficient upward movement of the right eye, and both eyes were microophthalmic. A dense persistent pupillary membrane covered both pupils, and the fundi were not seen. The condition of the eyes suggested an arrest of development in utero.

Honor for Dr. Adami.—Dr. J. G. Adami, late Professor of Pathology in McGill University Medical School and now Vice-Chancellor of Liverpool University, has been admitted to the freedom of the City of London, through the Patten Makers' Company.

Obituary.—William Stoker, F.R.C.S.I., Senior Surgeon to Jervis Street Hospital, Dublin, died in Dublin on the 14th of November. Mr. Stoker, who was one of the best-known surgeons and teachers of Dublin, and a native of that city, received his professional education and training at Trinity College, Dublin, and in the Royal College of Surgeons of Ireland. He was admitted Licentiate and Fellow of the Royal College of Surgeons in 1873 and shortly afterward appointed one of the surgeons to Jervis Street Hospital, a post which he held up to the time of his death. He was for many years a member of the Council of the Royal College of Surgeons of Ireland. In his early days Mr. Stoker was a distinguished athlete, and although at the time of his death he had reached the age of seventy-eight showed few signs of age.

While crossing a street of the West End of London on the evening of November 22 last, Sir Sidney Beauchamp was knocked down by a motor omnibus and killed almost on the spot. During 1919-20 he acted as medical officer to the British Delegation at the Paris Peace Conference and received his knighthood in the latter year.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 1, 1921, clxxxv, 22.

1. The Action of Quinidine Sulphate in Heart Disease, to Abolish the Circus Movement of Auricular Flutter and Fibrillation. Paul D. White, Harold M. Marvin, and C. Sidney Burwell.
2. Factors in Suicide. Arthur H. Ring.
3. Appendicular Lithiasis. Report of a Case Unique in the Annals of Surgery. Horace Packard.
4. A Note on the Preservation of Cells in Spinal Fluid as Measured by the Cell Count. C. J. Campbell, L. M. Davidhoff, and G. P. Grabfield.
5. A Case of Bronchial Asthma, Possibly Due to a Sporothrix. Oliver H. Stansfield.
6. A Case of Recurrent Spontaneous Pneumothorax. Hyman Morrison.

1. The Action of Quinidine Sulphate in Heart Disease, to Abolish the Circus Movement of Auricular Flutter and Fibrillation.—Paul D. White, Harold M. Marvin, and C. Sidney Burwell review the literature in this subject and state that in May, 1921, quinidine sulphate was first given at the Massachusetts General Hospital in the treatment of disturbed heart action due to auricular flutter and auricular fibrillation. In five and one-half months 35 cases have been so treated, 33 cases of fibrillation and 2 of flutter. Of this number 25 cases, including one of flutter, have shown at least a temporary restoration to normal rhythm (71 per cent.). The duration of the normal rhythm has varied from a few hours to over four months, in the latter case still continuing. In several cases repeated courses have been given, in two cases a third case of quinidine succeeding when the first two courses had failed. The treatment is being found to be more successful than when first tried because the dosage is being increased in some resistant cases. Of the last 12 cases 10 have been restored to normal rhythm. During the course of these observations quinidine has been tried in all kinds of cases with auricular fibrillation, old and young, rheumatic, arteriorsclerotic and thyroid. There have been successes and failures no matter what the type or age. But heart failure and long duration (years) of the auricular fibrillation are definitely unfavorable factors. The effect of the drug has been tried in six persons with normal hearts and in one case of complete heart block. There was no obvious effect of the drug in these cases. The dosage has consisted of 0.2 of a gram of quinidine sulphate given at two and four P. M. on the first day, and then if the patient has shown no toxic symptoms or signs from these test doses, 0.4 of a gram has been given five times on the second day, and on each succeeding day until normal rhythm has been restored or until toxic symptoms or signs appeared. The total course dose has varied from 0.8 gram in a successful case to 15.6 grams in an unsuccessful case. The experience in this series of cases to date suggests that the digitalized cases are more apt to respond to the quinidine and that it is better not to give both drugs together. In the main there seems to be in most successful cases three beneficial effects: (1) relief from the palpitation of the abnormal rhythm, (2) general improvement, and (3) cessation usually of need of continuing digitalis therapy. Some patients, especially those with much heart failure, are little if at all benefited and in these the normal rhythm is but a transient result. Further study and report are required before the drug can be recommended for general widespread use.

3. Appendicular Lithiasis. Report of a Case Unique in the Annals of Surgery.—Horace Packard, in a search of the literature, has found no instance of appendicular lithiasis, approaching in size and hardness the one here reported. The patient, a man 51 years of age, presented no alarming symptoms, but a distinctly located focus of tenderness over the normal location of the appendix. At operation, on palpating the appendix and carefully separatnig the adhesions, an extremely hard substance was found associated with the appendix. Careful finger dissection delivered an appendix which showed a ragged hole on one side through which protruded a large stone or irregular shape and with apparently the hardness of porcelain. There were two concretions, one measuring 1.5 cm. x 0.6 cm., and a larger one weighing 8 grams, and measuring 4 cm. in length and 2 cm. in width at one end. Both concretions were found to consist of inspissated fecal material and an amorphous crystal deposit of bile salts in an irregularly concentric arrangement.

4. A Note on the Preservation of Cells in Spinal Fluid as Measured by the Cell Count.—C. J. Campbell, L. M. Davidhoff, and G. P. Grabfield state that it has long been taught that cells in the spinal fluid disintegrate so rapidly that such fluids must be counted as soon as possible after withdrawal in order to obtain accurate results. They have carried out a study from which it is apparent that if *nonpurulent* fluids be preserved at room temperature or in the ice-box and *well shaken before counting* the cell count will be correct for at least five days after withdrawal.

Journal of the American Medical Association.

December 3, 1921, lxxvii, 23.

1. The Diagnosis of Latent or Incipient Diabetes. James W. Sherrill.
2. An Eruptive Fever of Unusual Characteristics in Infancy and Early Childhood. David J. Levy.
3. A Febrile Exanthem Occurring in Childhood (Exanthem Subitum). Borden S. Veeder and T. C. Hempelmann.
4. Observations on the Cast Treatment of Gonorrheal Arthritis. Clyde W. Collings.
5. The Quinidine Treatment of Auricular Fibrillation. A. W. Hewlett and J. P. Sweeney.
6. Effects of the Administration of Quinidine Sulphate in Auricular Fibrillation. Walter W. Hamburger.
7. Clinical Experience with Quinidine in Auricular Fibrillation. B. S. Oppenheimer and Hubert Mann.
8. Trigeminal Neuralgia. S. L. Silverman.
9. Histopathology of Apical Region of Teeth with Partly Filled Root Canals. Edward H. Hatton.
10. The Abduction Treatment of Fracture of the Neck of the Femur Considered as the Exponent of Radical Reform. Royal Whitman.
11. Fractures of the Femoral Neck and Trochanters: A Rational Treatment. Charles E. Ruth.
12. Final Results of Fracture of Neck of the Femur without Treatment, or with Worse Than No Treatment. John Ridlon.

1. The Diagnosis of Latent or Incipient Diabetes.—James W. Sherrill reports a study in which glucose tolerance tests were carried out with analyses of the blood and urine glucose in 16 subjects with normal assimilation, 15 with impaired assimilation with negative family history, and 23 tests in relatives of diabetic patients. The results of these tests are discussed with reference to their diagnostic significance and their theoretical and practical value. The conclusion is reached that provisionally, at least, we may regard the sugar tolerance tests made by the Benedict method as the most delicate and reliable which we now possess for diabetes, in both the negative and the positive sense. When there is distinctly abnormal hyperglycemia after mixed meals, and when the ingestion of 100 grams of glucose produces an elevation of blood sugar which exceeds the normal in both height and duration, a definite diagnosis of diabetes is afforded. The observations reported in this paper furnish three grounds to support this view: (1) The remarkable number of positive tests of this character in families with diabetes; (2) the insensible gradations by which the slighter degrees of impaired assimilation are merged with the cases of alimentary glycosuria and of frank diabetes; (3) the existence of mild diabetic symptoms in a high proportion of the cases which react positively and which clear up under antidiabetic diet, and under no other treatment. In discussing the theoretical value of the tests, Sherrill points out that the number of diabetics recognized has been greatly increased by these tests. It is probable that diabetes is several times as prevalent as indicated by any statistics heretofore, and that the number of actual and potential diabetics in this country probably amounts to several millions. The number of cases to be classed as hereditary is vastly increased by these tests as compared with any statistics based on the family histories as taken by ordinary methods, and this family incidence could doubtless be enlarged if a greater number of relatives of each patient were examined. The test enables one to seek more remote primary causes of diabetes than has often been customary. When a patient, for example, complains of nervous shock or exhaustion, and glycosuria is found, one need not consider the diabetes as due to the recent nervous disturbance, but may rather regard the nervousness as a symptom of a latent diabetes, the true origin of which may be sought many years back in some infectious pancreatitis. The tests have a very practical value in that they furnish a clue for the clearing up of more or less distressing symptoms. The series of cases studied proves that diabetes need not reach the point of glycosuria to cause symptoms, but in the stage of simple hyperglycemia may be responsible for neuritis, neurasthenia, feelings of weakness and weariness, etc.; and one may suspect that even at this stage, it may sometimes predispose to retinitis, cataract, gangrene, furuncles and carbuncles, and other serious complications. It is important that persons with such complaints be tested for their blood sugar. The most important use of the test lies in prophylaxis. It is improbable that all the persons showing hyperglycemia will develop diabetes. Early warning and prophylaxis will probably reduce the number of cases of diabetes to a degree never thought possible before.

2. An Eruptive Fever of Unusual Characteristics in Infancy and Early Childhood.—Dr. David J. Levy presents a report covering some thirty cases of an eruptive fever of late infancy and early childhood, characterized by a period of high fever, generally from 103° to 104° F., with no remissions or very moderate remissions for a period of seventy-two to ninety-six hours, followed by complete defervescence by crisis, and during the early hours of the post-febrile period, the appearance of a macular eruption. The disease is readily differentiated from scarlet fever, measles, German measles and the fourth disease. It has shown no definite seasonal occurrence, although it has been most frequently observed during those periods when infection in general is most prevalent. Neither has there been any coincident relationship between the occurrence of this disease and outspoken epidemics of other eruptive fevers, so the writer has been unable to explain it as the atypical instance, such as may occur during any epidemic of some other current infection.

3. A Febrile Exanthem Occurring in Childhood (Exanthem Subitum).—Borden S. Veeder and T. C. Hempelmann. (See MEDICAL RECORD, Oct. 15, c. 16, p. 698.)

4. Observations on the Cast Treatment of Gonorrheal Arthritis.—Clyde W. Collings states that from December, 1914, to May, 1921, 517 patients suffering from gonorrheal rheumatism were admitted to the urologic service of Bellevue Hospital. These patients spent 6741 days in the hospital at a cost of $20,233 to the city of New York; these figures make evident the economic importance of this condition. Twenty-six patients were treated by casts. Among these no relapse of the rheumatism has been noted without a new attack of gonorrheal urethritis. The prognosis of treatment by casts depends somewhat on the duration of the arthritis before treatment is started. In none of these cases has ankylosis resulted or an arthrotomy for suppuration been performed. Careful attention to orthopedic principles is of the utmost importance in applying the cast. As soon as possible after removal of the cast the limb is given heat therapy. Various vaccines, serums, drugs and operation on the seminal vesicles have proved inefficacious in the writer's hands. The cast treatment wholly and immediately relieves pain and cures the patient.

5. Trigeminal Neuralgia.—S. L. Silverman claims to have discovered that the buccal branch of the inferior maxillary division, though affected very often in trigeminal neuralgia, is hardly ever diagnosed, and different from the supraorbital, infraorbital and mandibular branches, the "trigger zone" is vague and may sometimes give the impression that the neighboring nerves are the affected ones. For want of better language the writer calls this the "mirrored trigger zone." He claims further that deep alcohol injections are more difficult, and less certain, even in the hands of experts, than are well-placed peripheral injections. Since the buccal nerve is affected in nearly all cases of trigeminal neuralgia that have gone for a year or more, either it should be injected at the tip of the inner surface of the coronoid process, or it can be blocked a centimeter below and behind the mouth of Stenson's duct. Both points are reached intraorally. The extraoral method, however, is easier for the average physician to master. By this method the needle is inserted through the cheek beneath the most prominent portion of the zygomatic bone, and advanced backward to reach the inner surface of the tip of the coronoid process. One cubic centimeter of alcohol has been found to be sufficient. In a series of fourteen cases relief has been afforded by this method in every instance.

The Lancet.

November 12, 1921, cci, 5124.

1. Presidential Address on the Medical Aspects of Some Urinary Diseases. Thomas Horder.
2. Observations on Postural Proteinuria. G. A. Harrison.
3. The Essential Causes of Adenoids and Their Association with Rickets. H. Merrall.
4. Unhealthy Tonsils and Cervical Adenitis. Walter G. Howarth and S. Roodhouse Gloyne.
5. A Study of Dysentery in the Field, with Special Reference to the Cytology of Bacillary Dysentery and Its Bearing on Early and Accurate Diagnosis. John Anderson.
6. An Unusual Case of Injury to the Petrous Bone. H. Lawson Whale.
7. Modern Footwear as a Cause of Fatigue, Muscular Rheumatism, and Flat-Foot, with Notes on an Improved Type of Boot. S. D. Fairweather.

1. Presidential Address on the Medical Aspects of Some Urinary Diseases.—Thomas Horder, in this address, does not deal with any particular type of case, but brings out the importance of taking broad views of the pathology underlying several types. Cases of staphylococcus infection are of great importance, because of their frequent obscurity and also because of their great gravity. Both the urinary infection and the perirenal abscess that may develop are manifestations of a pyemia, and although prompt surgical measures are of the utmost value in draining foci when these are established, the main onus of treatment is medical in coping with the underlying septicemia. The mere discovery of microorganisms in the urine of a patient can no longer be regarded as indicating an infection within the urinary tract; this is sufficient to establish the thesis that all cases should be considered to have possible medical bearings until this is proved

not to be the case. Micro-organisms in the urine may indicate one of the following conditions: (1) A mere elimination of these from the blood stream without any urinary infection at all; (2) a focal infection at some point in the urinary tract; (3) a focal infection outside the urinary tract, but communicating with it either by gross continuity or by lymphatic spread; (4) a diffuse infection of the urinary tract; (5) that the urinary tract is a "carrier" of the microorganism, as seems the nature of some cases of bacilluria. With all these possibilities before one it is clear that a wide view should be taken of any case with which one has to deal.

2. Observations on Postural Proteinuria.—G. A. Harrison urges the importance of very careful investigation of cases of postural proteinuria lest a patient in the early stages of disease be allowed to pass untreated. Four cases are reported and data compared which lead to the following conclusions: (1) "True Proteinuria" probably never reappears in the recumbent position in cases of cyclic proteinuria. If proteinuria reappears while the patient is lying in bed an organic lesion should at once be suspected. (2) Posture appears to be an important factor in the causation, but not the only factor, because in three of the cases studied protein disappeared from the urine while still in the upright position. One of the cases is regarded as organic for the following reasons: Proteinuria occurred while recumbent on several occasions; a few granular casts and a few degenerate pus cells were found more than once; the patient, a boy 15 years of age, had an evening temperature of 99° to 100° Fahr., and a leucocytosis of 21,600, for which no cause was found unless it was kidney disease; occasionally the boy passed large amounts of protein. (4) The albuminuria of a small organic kidney lesion may be postural in type, or in other words, the amount of protein may fluctuate in organic albuminuria so as to simulate a condition of functional cyclic albuminuria. (5) It is possible that in certain cases of mild organic disease of the kidney (or other part of the urinary tract) the proteinuria is postural in type simply owing to the drainage of the foci of disease in the erect attitude. (6) The fact that in postural proteinuria the "albumin" may appear, then disappear, and then reappear (the erect posture being maintained throughout) should make one very chary of claiming cures as a result of any particular treatment.

3. The Essential Causes of Adenoids and Their Association with Rickets.—H. Merrall claims that the chief cause of adenoids, excluding the exanthemata, is the mainly disregarded frequently recurring colds. A nasopharyngeal catarrh results which extends into the alimentary tract and affects both digestion and assimilation. Hitherto the cause of rickets has in the main been held to be dietetic. Even if the two conditions are separate and distinct—about which there is at least an element of doubt—the gastric disturbances and defective assimilation held to be the causes of rickets may be due to the catarrhal condition of the mucous membrane lining the alimentary tract, rather than to starchy food. Extension of catarrhal inflammation into the stomach and intestines accounts for many of the symptoms of both adenoids and rickets, and has, in the writer's opinion, a much more pernicious influence than that caused by the swallowing of infected mucus. Such a catarrhal condition of the alimentary tract leads to exaggerated lymphocytosis, and the swollen lymph glands rapidly lose their protective influence owing to fibroid changes. The swallowing of large quantities of infected mucus causes a drain on the system from over-production of lymphocytes which causes anemia. At the same time, there is the abnormal secretion of the connective tissue element containing mucin and a lessened alkalinity of the blood.

7. Modern Footwear as a Cause of Fatigue, Muscular Rheumatism, and Flat-foot.—S. D. Fairweather states that when the heels are raised even a quarter of an inch from the ground the center of gravity is thrown forward, the plumb-line falling opposite the crown of the arch or even further forward, according to the height of the heel from the ground. In healthy feet the higher the internal malleolus is naturally from the ground the easier it is for the internal malleolus group of muscles to do their work, getting as they do a straighter pull than when the malleolus is low down. Artificially raised heels might therefore be expected to make the work easier, and this would undoubtedly be so were it not that the center of gravity is thrown forward, giving the muscles too much *constant* work. To relieve the strain of a misplaced center of gravity the feet are instinctively splayed, with the result that the muscles capable of making the arch strong and elastic are prevented or discouraged from acting effectively. To prevent and cure flat-foot and the other evil effects of heels, the boots should be so constructed that the metatarso-phalangeal joint of the big toe, all the toes, the outer side of the sole, and the heel shall rest on one place parallel to the ground. Under the arch of the foot the sole should be curved with the convexity upward and should be fairly flexible. The leather sole should conform to the natural shape of the foot, and the heel and sole must be of the same thickness. The mode of walking with this type of shoe is quite different from the modern artificial walk. Such a shoe is now on the market. A series of exercises for the correction of flat-foot is outlined.

British Medical Journal.

November 12, 1921, No. 3176.

1. The Fellowship Address on the Need for Cooperative Thought in Surgical Organization. Harold J. Stiles.
2. An Investigation into the Circulation through the Lungs. S. W. F. Underhill.
3. A Note on the Early Recognition and Corrective Treatment of Occipito-Posterior Presentations. R. C. Buist.
4. Pulmonary Tuberculosis in an Infant. A. G. Shurlock.
5. Discussion on Hemochromatosis. John Shaw Dunn and W. H. Maxwell Telling.
6. The Hemolytic Streptococci. J. M Beattie.
7. Streptococcus Classification. J. Henry Dible.
8. The Blood Picture in Scurvy, with Particular Reference to the Platelet. S. Phillips Bedson.
9. Chronic Duodenal Ileus. D. P. D. Wilkie.
10. Experimental Tar Cancer in Mice. James A. Murray.

2. An Investigation into the Circulation through the Lungs.—S. W. F. Underhill has imitated in animal experiments, as far as possible, the condition of embolism of one main branch of the pulmonary artery as it occurs in man, in the hope that new light might be thrown on the circulation in the lungs during collapse or consolidation. He summarizes his experiments as follows: (1) Ligature of the left pulmonary artery in cats (with the chest open and under artificial ventilation) causes a rise in pulmonary blood pressure of from 25 per cent. to 60 per cent., usually about 40 per cent. There is no effect on the carotid blood pressure, pulse rate, output of the heart, or its state of dilatation. (2) The healthy heart, therefore, can accommodate itself without difficulty to sending the same volume of blood through one lung only in a given time, as it previously sent through both. (3) No mechanism producing slowing of the heart from rise of pulmonary blood pressure was demonstrated in these experiments. (4) If the chest is closed after the artery has been ligatured, the animal remains in good condition—in fact, frequently its condition is improved. Its respiratory rate is usually faster than normal, frequently about double, but the depth tends to be shallow. (5) The saturation of the blood after ligature is about 75 per cent.; if the artificial ventilation is increased (within normal limits), complete saturation can be obtained. This has not been the case, however, with animals in which the chest has been closed and the artificial ventilation discontinued; in these the saturation remains at about 70 per cent. (6) Examination of the lungs shows an increased quantity of blood in the right lung, due to twice the normal volume flowing through it in a given time. The left lung after ligature of the left pulmonary artery, under artificial ventilation, contains almost no blood, except a little in the veins; on the other hand, after the chest has been closed and the animal allowed to breathe naturally, it contains usually more blood than the right lung, exhibiting a varying degree of congestion. This blood comes from the bronchial arteries and stagnates in the pulmonary capillaries. (7) Ligature of the right bronchus (in cats with the chest open and under artificial ventilation) causes a small immediate rise in pulmonary blood pressure without affecting the carotid pressure. (8) The saturation of blood has always been under 90 per cent., even when the artificial ventilation has been increased. (9) There is, therefore, presumably still a certain amount of cir-

culation through the right lung under these conditions.

5. Discussion on Hemochromatosis.—John Shaw Dunn describes this condition, which is characterized by accumulation of free iron containing pigment in certain parenchymatous organs and in the skin, associated with interstitial fibrosis of the liver and pancreas; in a certain number of cases glycosuria develops (bronzed diabetes). The earlier stages of the condition, so far as is known, are unassociated with any symptoms, and for any information in regard to them we are dependent on accidental post mortem findings in patients dying from other maladies. Three such cases are reported and the question brought up as to whether the pigmentation or the cirrhosis is the primary factor in the hemochromatosis. So far as these cases show anything neither factor is causative of the other, and presumably the two are due to some third unrecognized cause. Chemical analyses of the organs in hemochromatosis have thrown a certain amount of light on the pathology of the disease. In advanced cases of hemochromatosis there is no evidence of alteration in the total amount of iron in the blood, while the excess in the organs is very great. It is not exceptional for the iron in the liver to amount to 7 per cent. of the dried substance of the organ, that is about 100 times the normal percentage, and for the total amount of iron in the liver to exceed 30 grams. Considering the large size of this organ, it no doubt contains a large proportion of the total iron in the body, but the amount present in others is not negligible. If one considers the liver alone, and estimates the iron in the diet at 30 mg. a day—a figure well in excess of the known analyses—it would then take 1000 days for the accumulation of the 30 grams in the liver, assuming that none was excreted. From the few observations made on the iron metabolism in hemochromatosis it would seem that the period during which we must assume that a part of the alimentary iron undergoes retention must be greatly lengthened to explain the conditions found in advanced hemochromatosis. As regards the immediate source of the iron in the viscera in hemochromatosis, it was at first assumed to be derived from an excessive breakdown of hemoglobin in the blood, on the analogy of pernicious anemia and other hemolytic conditions where free iron is deposited in the organs. However, in the majority of cases of hemochromatosis which have been described, there has been no important alteration in the blood, and where the bone marrow has been examined it has shown no compensatory hyperplasia such as accompanies severe anemias. Certain observers have noted excessive fragility of the red corpuscles in their cases, but this cannot be taken as proof that *in vivo* the red corpuscles were being destroyed more rapidly than normal. The condition in hemochromatosis is very different from that in pernicious anemia, and even if the iron which accumulates in the viscera has first passed through the form of hemoglobin there is still some unrecognized factor which causes it to be retained in the system.

W. H. Maxwell Telling also writes on this subject. He says it is still an unsettled question whether hemochromatosis is a separate disease or just a stage of development of certain forms of cirrhosis of the liver. The tendency at present is to regard it as a separate morbid entity. He calls attention especially to the fact that there is little in the English medical literature about the disease, and that it cannot be doubted that many cases escape recognition owing to the disease being relatively unknown as well as rare. By placing early cases on record, particularly with the striking eventuation in malignant disease, more general attention will be directed to the disease, which will then probably be found to be less rare.

8. The Blood Picture in Scurvy, with Particular Reference to the Platelet.—S. Phillips Bedson reports that in scurvy produced experimentally in guinea-pigs and monkeys and in one human case the platelets were found to be normal in number. It is possible that very transient fluctuations in the platelet count occur in scurvy, and that it is during this period of platelet deficiency that the hemorrhages occur. It is hardly conceivable, however, that in making a comparatively large number of platelet observations such fluctuations should have been completely overlooked. Demmer cites a case of purpura hemorrhagica in which fluctuations in the platelet count, preceding the outburst of hemorrhages, occurred in a most regular manner. The red cells in some of the writer's cases showed an increase in number, this condition coinciding with a "prescurvy" or incipient scurvy stage. No variations in the total and differential leucocyte count were observed.

Bulletin of the Johns Hopkins Hospital.

October, 1921, xxxii, 368.

1. The Swelling of the Arm After Operations for Cancer of the Breast: *Elephantiasis Chirurgica*—Its Causes and Prevention. William Stewart Halstead.
2. Studies on Blood. The Vitally Stainable Granules as a Specific Criterion for Erythroblasts and the Differentiation of the Three Strains of the White Blood-Cells as Seen in the Living Chick's Yolk Sac. Florence R. Sabin.
3. Some Oxidation Mechanisms of the Cell. F. Gowland Hopkins.
4. Studies on Some of the Non-Lipoid Components of the Blood Serum in Relation to Its Antihemolytic Property. Hallie M. Clark, Rhea H. Zinck and Frank A. Evans.
5. The Nucleus in the Human Restiform Body. K. Hirose.

1. The Swelling of the Arm After Operations for Cancer of the Breast—Elephantiasis Chirurgica—Its Causes and Prevention.—William Stewart Halstead for many years has held the view that although blocking of the lymphatics and occasionally also of the veins was the underlying factor in causing swelling of the arm (sometimes a year or more after operation for cancer of the breast) infection played a conspicuous part in the determination of the amount of the swelling and the time of its manifestation. From observations in his own clinic and from the testimony of surgeons elsewhere he has been led to conclude that swelling of the arm follows the plastic operations in greater proportion and in more pronounced form than is seen in the cases treated by skin grafting. A study of cases operated on by the newer method has brought out the fact that the excision of the axillary and supraclavicular glands plus resection of the subclavian and axillary veins is rarely followed by noticeable swelling of the arm. On the other hand, it cannot be denied that obstruction of these lymphatics and venous channels might conceivably alone, without infection, suffice occasionally to produce a moderate amount of edema. But it is assuredly impossible to assert in any case that infection has played no part in the swollen arm. It is therefore important to discard operative methods which clearly predispose to infection, quite aside from the fact that these methods—the plastic ones—tend to deter the surgeon from sacrificing a sufficient amount of skin or, if perchance enough skin has been excised, to increase the danger of swelling and of restricting the range of movement of the arm. A recent search of the records of the Johns Hopkins Hospital for cases of swollen arm following operation for cancer of the breast supports the above views. If this view as to the cause of swelling of the arm following operations on the axilla should prove to be correct the term *surgical elephantiasis* might be an appropriate one. The writer reviews the clinical and experimental evidence bearing on the part played by streptococcal infection in the production of elephantiasis and elephantoid conditions as summed up by Matas, who says, "Lymphatic stasis, by itself, does not cause elephantiasis. The obstruction may cause lymph edema, but not a true hypertrophy of the edematous tissues. If an inflammation (infection) is acquired in a closed area of lymphatic congestion, an event which may result as the consequence of the slightest traumatism, elephantiasis will then develop."

4. Studies on Some of the Non-Lipoid Components of the Blood in Relation to Its Antihemolytic Properties.—Hallie M. Clark, Rhea H. Zinck, and Frank A. Evans, in this study of a substance or substances in the blood serum upon which the protective power against hemolysis depends, conclude as follows: (1) Treatment of serum which alters the physical state or removes all or a part of the proteins diminishes the protective power of the serum against hemolysis by sodium oleate and saponin. (2) Calcium alone is not the substance in serum upon which the protective power of the serum against hemolysis by sodium oleate and saponin depends. (3) Dextrose and soluble starch have no power

to protect against hemolysis by sodium oleate and saponin *in vitro*, and probably, therefore, carbohydrates exert no such influence in the blood. (4) Boric acid added to serum diminishes the protective power against hemolysis by sodium oleate, but does not influence the protection against hemolysis by saponin.

5. **The Nucleus in the Human Restiform Body.**—K. Hirose describes a nucleus which he has found in the restiform body of the human brain. Tracing the transverse section of the brain from below upward, the nucleus appears where the vago-glosso-pharyngeal root begins to disappear, and disappears where the accessory auditory nucleus begins to appear. This nucleus is found at the dorso-medial part of the restiform body on transverse sections, and extending in an elongated shape in the medulla oblongata. The nucleus has no definite shape and shows a considerable amount of variation in growth. On transverse section, the transections are different in form. Some have a hilum extending toward the medial direction, while the others present themselves as long masses extending from the dorso-medial direction to the ventro-lateral. Some of them also show the incomplete hilum-like parts in them, whereas others show only round masses. The nerve cells of the nucleus are practically identical in shape with those of the inferior olive. The nucleus is probably a portion of the inferior olive.

New Orleans Medical and Surgical Journal.

October, 1921, lxxiv, 4.

1 Malarial Hemoglobinuria. F. M. Thornhill.
2. Infection with Flagellates. Elliott C. Prentiss.
3. The Importance of Blood Sugar Estimations in the Diagnosis and Treatment of Diabetes. F. M. Johns.
4 Two Cases of Leprosy Cured by Anthrax Vaccine. J. N. Roussel.
5. Gall-Bladder Disease and Its Treatment. A. L. Levin.
6. Drug Addiction and Its Relation to Public Health. M. W. Swords.
7. The Neglected Teeth of Children. J. Ross Snyder.
8. Nerve Blocking Anesthesia. William Johnson.
9. Radium Therapy. Adolph Henriques.
10 The Fundamental Properties and Therapeutic Uses of Radium. Charles Henry Voss.
11. Acute Diffuse Gonorrheal Peritonitis without Tubal Rupture. Maurice J. Gelpi.
12. Kidney Surgery under Local Anesthesia. Carroll W. Allen.
13. A Statistical Study of Cases of Mental Disease. (An Addendum.) Henry Daspit.

2. **Infection with Flagellates.**—Elliott C. Prentiss states that in the Southwest patients harboring the *Trichomonas intestinalis* and other flagellates are very frequently seen, in fact, form a very considerable percentage of all patients seen by a physician limiting his practice to gastrointestinal work. In the last 112 patients seen by him, and whose feces were examined microscopically, twelve, or 10.7 per cent., had this infection. It is probable that these infections become more common as one goes further south. While many persons may harbor these organisms and never have any symptoms resulting from them, they certainly can, under conditions which we do not yet fully understand, produce a very severe catarrh of the whole intestine, which may even end fatally. When bacillary dysentery is suspected a culture of the feces should clear up the doubt. To confirm the diagnosis, administration of drugs injurious to the flagellates should quickly put a stop to the diarrhea, while it would not do so in cases of amebic dysentery, unless large doses of bismuth were given. While the diarrhea is usually stopped by the administration of methylene blue, bismuth, and other drugs, it is quite another matter to get rid of the parasite completely. The copper salts are extremely injurious to the flagellates, being fatal to them in a dilution of 1 part to 5,000,000 at least, and probably as high as 1 to 20,000,000. The writer uses the arsenite and gives it in doses of 1/100 to 1/50 of a grain three or four times daily. It usually has a decidedly good effect therapeutically, but does not kill all the parasites, as it is apparently readily absorbed and does not satisfactorily reach the organisms adhering to deep folds of the mucous membrane. Calomel he has used in a number of cases, two of which he reports, and while a cure was not obtained, the parasites were reduced in number and the toxemia was much benefited. He has not been able to kill all the parasites by means of hypertonic saline solutions given by duodenal lavage, as recommended by Dr. Anthony Bassler.

4. **Two Cases of Leprosy Cured by Anthrax Vaccine.**—J. N. Roussel reports two cases of clinical leprosy, in one of which the acid-fast bacilli were found, while in the other no bacilli were found. Both were clinically cured by the hypodermic use of liquid anthrax vaccine, administered for several weeks at intervals of four days. The writer does not claim that the use of anthrax vaccine in leprosy is original with him. It was first suggested by Dr. Campos of the State of Colombia in South America, who in turn does not claim originality. Whether the vaccine will cure all cases of leprosy remains to be seen, but that it will cure some there is no doubt in the writer's mind.

Brazil Medico.

October 15, 1921, xxxv, ii, 14.

Vitamine-Hormone Deficiency.—Riedel calls attention to dysharmonies in laboratory experiments along this line of investigation. Deprivation of the so-called vitamine of rice cortex may cause a beriberi syndrome in one genus of animal and a scorbutic syndrome in another. If the withheld substance is fed back to the animal, beriberi is relieved while scorbutus is not affected. These demonstrations by a Bahia physician whose essay was awarded a prize in 1917 seem to have passed unnoticed. Here is clearly evidence of the existence of specific deficiencies, showing the fallacy in reasoning from the behavior of one animal to that of another, and of hasty generalizations. We may speak, as the author does, of an Eijkmann's disease of pigeons and fowls due to withholding rice cortex, but not of a general condition affecting birds, mammals, and man due to the same cause. This specificity of action tends to make the subject one of biochemistry in which the molecule of the socalled vitamine must be studied in relation to the peculiar metabolism of the animal tested. Different animal species doubtless split off different aminoacids from their food; perhaps also the endocrine products of different species differ among themselves. Certain experiments appear to show that the endocrines are involved in the mechanism of deficiency diseases. In simple inanition there is a formation of various antienzymes, as shown by Abderhalden's reaction, evidently an expression of a defense reaction. These antienzymes have also been found in experimental scorbutus. The author has recently obtained positive reactions in pigeons with beriberi for liver, thyroid, and adrenal tissue. There is evidence that thyroid substance can antagonize fowl polyneuritis.

Hygiea.

October 31, 1921, lxxxiii, 20.

Mercurial Angina.—Almkvist states that formerly mercurial angina and mercurial stomatitis were considered together and that certain old clinicians such as Oppert and Dieterich gave full accounts of the former. At the present day there is but little literature on the subject. A general bibliography of works consulted by the author since 1860 shows but few specific accounts of mercurial angina. In 1908, Glawsche, a Russian, and Lanz, also a Slav, each published one. These were succeeded by a third by Magnus Möller (1911) and a fourth by the present author in 1912. Writers on diphtheria and Vincent's angina sometimes mention the mercurial form in differential diagnosis. The author has found notes of twenty-six cases since 1906. The angina is simply the same process as mercurial gingivitis with a different localization. The process apparently starts with infection of the tonsillar crypts by albumin-decomposing bacteria, just as the gingival lesion originates in the similar infection of gum pockets. The contents of the crypts and pockets in question are identical, and in both concrement formation may occur. Spreading of the infection and ulceration are seen in both conditions. Finally the treatment is identical—disinfection of the tonsillar crypts, as ordinarily carried out on the gingival pockets.

Arsenic and Tar Cancer.—Epithelioma in paraffin workers is naturally grouped with the same lesion in coal tar and wood tar workers; but since it has been shown that tar contains arsenic it must be proved that the latter is not responsible.—*Annales de Dermatologie.*

Book Reviews.

ELECTRO-THERAPEUTICS FOR PRACTITIONERS. By FRANCIS HOWARD HUMPHRIS, M.D. (Brux.), F.R.C.P. (Edin.), M.R.C.S. (Lond.), etc., etc. Second Edition, Revised and Enlarged. New York: Oxford University Press, American Branch, 1921.

THE original edition of this work appeared in 1913 and comprised 243 pages. The present volume contains an even 300, and comprises new chapters, including those on "Galvanism, Faradism, and the Sinusoidal Currents" and "Radiotherapy." The seven chapters on Static Electricity have been but little abbreviated. This amount of space seems disproportionate, for a single chapter covers the entire subjects of galvanism, faradism, and the sinusoidal currents; a single chapter covers diathermy and radiotherapy, respectively. There is but one chapter on phototherapy, and high frequency electricity receives no separate discussion, being covered in part under diathermy. Of the 30 chapters in the book, 16 are devoted to the treatment of disease and unusual modalities in treatment receive consideration under this head.

INFECTIONS OF THE HAND A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand, and Forearm. By ALLEN B. KANAVEL, M.D., Assistant Professor of Surgery, Northwestern University Medical School; Attending Surgeon, Wesley and Cook County Hospitals, Chicago. Fourth Edition, Thoroughly Revised. Illustrated with 185 Engravings. Price $5.50. Philadelphia and New York: Lea and Febiger, 1921.

THE title of this book is well chosen; it explains exactly what the book contains. It is a veritable "guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand, and forearm." The author's work is based on a thorough anatomical foundation reinforced by an ample clinical experience. The anatomical sections are of special value and show the relations of the various fasciæ, synovial sheaths, and tendons; the lymphatics of the parts are also thoroughly exhibited. These are all well illustrated by numerous cross-sections of each finger separately, and of the hand and forearm. The value of this work to the surgeon is obvious, but there are others who would do well to make themselves acquainted with it; such are physicians employed in places where the employees are liable to accidents involving the hands, and all who are interested in the questions of re-education and restoration of function after infections of the hands. The outstanding characteristics of this book are its practical character, its thoroughness, and its tone of authority.

INDISPENSABLE ORTHOPÆDICS. By F. CALOT, Chief Surgeon to the Hôpital Rothschild, Hôpital Cazin, Hôpital du Departement de l'Oise, Institut Orthopédique de Berck, etc. Second English Edition, Seventh French Edition. Translated by A. H. ROBINSON, M.D., M.R.C.S. Two Volumes. Price $14. St. Louis: C. V. Mosby Company, 1921.

THESE volumes present a rather unusual contrast to present-day medical literature in that they are emphatically the expression of the author's personal opinions alone. The views of others who possibly might be regarded as his peers are either ignored or mentioned only to be rejected. The reviewer cannot but feel that the occasional recognition by name of the originators of various operative and therapeutic procedures of which Doctor Calot makes use would have been an acknowledgment which might have mitigated somewhat the acerbity of his comments upon the methods which he discards.

The construction of the work is loose and its style colloquial. The emphasis throughout is upon therapeutics, while etiology and diagnosis are rather summarily dismissed. The first volume is practically entirely devoted to bone tuberculosis and its treatment by plaster of Paris apparatus at Berck sur Mer. The operative treatment of Pott's disease is not mentioned. The second volume is expansive upon congenital dislocation of the hip, and dismisses scoliosis, Little's disease, clubfoot, fractures, etc., very briefly. In the chapter on acute chronic osteomyelitis there is no reference to the Carrel-Dakin treatment.

The book is frankly written by a specialist for the general practitioner, and thus, perhaps, Dr. Calot has included only such material as he feels his audience qualified to digest. From the practitioners' standpoint the details of the technique of the proper application of plaster retention apparatus and the conservative treatment of bone and glandular tuberculosis cannot but be of value. No advocate of rest, fresh air, and sunshine can lead one very far astray. To the specialist the book will be of interest as an exposition of the views of an authority in whose mind plaster of Paris and orthopedics are practically synonymous.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. By G. H. MONRAD-KROHN, M.D. (Shristiania), M.R.C.P. (Lond.), M.R.C.S. (Eng.), Lecturer in Neurology at the Royal Frederick University, Christiania; Physician to the Neurological Section of the State Hospital, Christiania; also in charge of the Hospital's Out-Patient Department for Nervous and Mental Diseases. With a Foreword by T. GRAINGER STEWART, M.D., F.R.C.P., Physician to Out-Patients, National Hospital for the Paralyzed and Epileptic, Queen Square; Physician to the West London Hospital; Physician to the Central London Ophthalmic Hospital; Neurologist to the Special Surgical Hospital (Ministry of Pensions). Price six shillings. London: H. K. Lewis & Co., Ltd., 1921.

IN this little book the author describes the routine method of examination which he has used in his neurological clinic; he also gives an outline of the various clinical tests which he has found to be the most serviceable. Some such method as this is absolutely necessary for the practitioner; and this is particularly so in the case of nervous and mental diseases. The author is careful to emphasize the importance of clinical work; by this alone can proficiency be obtained. He assumes that the student of neurology is also a student of psychiatry, and he, therefore, includes an outline of the examination of the mental state of the patient. An unusually complete index renders the contents of the volume readily available.

DIAGNOSTIK UND THERAPIE DER LUNGENTUBERKULOSE. Von HEINRICH GERHARTZ. Dritte, verbesserte Auflage. Price, 72 marks. Berlin and Vienna: Urban & Schwarzenberg, 1921.

THE first edition of this work appeared in 1913 and the second, issued the following year, was merely a reproduction of the first due to unexpected exhaustion of the latter. The present edition contains considerable new material, both personal and alien, while many sections have been completely rewritten. There are nearly 300 pages of text with 67 text illustrations and 16 colored plates and radiographs. One hundred and forty pages are devoted to diagnosis and 143 to treatment, including a list of the leading sanatoria.

ROENTGEN INTERPRETATION—A MANUAL FOR STUDENTS AND PRACTITIONERS. By GEORGE W. HOLMES, M.D., Roentgenologist to the Massachusetts General Hospital and Instructor in Roentgenology, Harvard Medical School; and HOWARD E. RUGGLES, M.D., Roentgenologist to the University of California Hospital and Clinical Professor of Roentgenology, University of California Medical School. Second edition; thoroughly revised; illustrated with 184 engravings. Price, $3.25. Philadelphia and New York: Lea & Febiger, 1921.

IN its second edition Holmes' and Ruggles' Roentgen Interpretation presents a moderate enlargement and some revision and correction of the few imperfections presented by the first edition. A conspicuous change is the addition of arrows pointing out the site of pathology in those illustrations where the novice may mistake the lesion. The already extensive bibliographic list that characterized the first edition is in many cases considerably augmented.

The authors modestly claim for their book the presentation of essentials of roentgen interpretation in a comprehensive and compact form for those seeking a working knowledge. It is manifestly obvious that their claim has been met; and those who master the principles outlined in the text, and who refer with diligent study to the bibliography, will acquire a sound and intensive training from which only expert *x*-ray ability can result.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 17, 1921.

THE FIRST VICE-PRESIDENT, DR. CHARLES H. PECK, IN THE CHAIR

THIS meeting was held under the auspices of the Section on Medicine.

Exercise in the Treatment of Hypertension.—Dr. C. WARD CRAMPTON made this presentation, which was illustrated by lantern slides. He defined hypertension as a symptom rather than a disease, a hypertonic state of the bloodvessels, particularly those of the smaller caliber. This state was a physiological reaction of the bloodvessels to vasotonic influences which were usually toxic and acted directly upon the arteries or indirectly through the nerves. These vasotonic influences were in turn caused by (1) infections; (2) enterogenous poisons; (3) exterogenous poisons; (4) strains; (5) metabolic and endocrine (primary and secondary) disharmonies. There were two stages of hypertension, namely, the functional and the structural. Hypertension might be complicated or uncomplicated. The treatment of hypertension should be directed toward: (*a*) The hypertension, for it in itself might do harm; but no greater mistake could be made than to treat the hypertension alone. (*b*) The associated diseases of the arteries, kidneys and heart and the nervous system. (*c*) The sources of the symptoms and diseases, as mentioned in the five classes above. The errors to be avoided were: (1) Treating the symptom and neglecting the underlying pathological process. (2) Treating the pathological process and neglecting the patient. (3) Giving up in despair. (4) Relying on any one drug or even on any one line of treatment. (5) Fads, cranks, electricity, exercise, as panaceas. Before treatment there must be a thorough medical search of the whole patient, and one should not rest content with the finding of but one cause. There must be a thorough search of the daily life, including diet, rest, exercise, habits, particularly sex habits, etc. This should include a thorough testing out of the circulation. The information that could be gained of the heart and arteries with the patient at rest is incomplete; functional tests serve to reveal more of the probable future of the circulation. The tests used were carefully graduated loads, such as the Barringer test, and those of Schneider, Sewell and Crampton. The various procedures to be used in the treatment of hypertension include drugs, surgery, electricity, psychotherapy, massage hydrotherapy and exercise, diet and rest. Exercise, Dr. Crampton pointed out, was used less than it should be because of the relative unfamiliarity of physicians with the subject, the ignorance of physical training teachers despite their extravagant claims, and the apathy and absorption of the patient. The dangers incurred from exercise not regulated and restricted with sufficient care were (*a*) increase in tension; (*b*) fatigue or excitement beyond repair ability of the body to perform; (*c*) increase of an existing pathological process. Dr. Crampton then described and showed illustrations of typical exercises, including bed exercises, breathing exercises, anti-constipation exercises and recreative exercises, and stated most emphatically that while exercise was an important element to be considered in the treatment of every case showing hypertension, under no circumstances should it be put forward as a treatment sufficient in itself or even as the most important element in the treatment of the case. However, it had a place in the treatment of most cases of hypertension and in some cases a very large place; its omission was frequently the only barrier to recovery. Dr. Crampton's favorite prescription was for from three days to three weeks in bed and the use of purges, salines, vasodilators, digitalis, atropine, thyroid and radium according to indications. Important points to consider in prescribing exercise were: (1) A clear understanding of the results desired from the exercise; (2) selection of the best exercise adapted to the purpose in view; (3) clear and explicit instructions to the patient as to all the details, laying special emphasis on breathing with effort to prevent closure of the glottis, intervals of rest, intervals of breathing exercises. Exercises should be varied, mixing games and formal work and an endeavor should be made to supply the patient with motives and incentives to exercise. To this end the assistance of others—competitors, masseurs, teachers—should be enlisted. The further advanced the disease the milder the exercise should be. In the earlier stages the full program of the adult should be used: 1. Morning exercise, twelve minutes. 2. Walk three-quarters of an hour. 3. Vigorous exercise with sweating three times a week. 4. In the open half a day. The results of systematic carefully prescribed exercise were: 1. Decrease in diastolic blood pressure and later in systolic blood pressure. 2. Improvement of muscular tone. 3. Improvement of digestion and nutrition. 4. Improvement in posture. 5. Improvement in arterial state. 6. Improvement of myocardium. Improvement of *psychological* state. As an illustration of the results brought about in hypertension, Dr. Crampton cited the case of a man sixty-eight years of age who had a systolic blood pressure of 240 to 200 mm. and a diastolic pressure of 110 to 120 mm., who, after four months' treatment along the lines described, showed a systolic blood pressure of 140 mm. and a diastolic pressure of 90. Other cases, previously refractory, dropped from 220 systolic to 130; 190 to 135; 215 to 140, etc., and promised to remain there.

DR. THEODORE B. BARRINGER, Jr., said he thought Dr. Crampton had done a distinct service in calling our attention to the possibility of treating hypertension by exercise. He felt that if exercise was ever to become a rational means of treatment in certain selected cases of hypertension considerable clinical experimentation would be necessary to place it on a sound basis. It might be well to recall that in normal people the effect of exercise, no matter what the exercise was, was to raise the blood pressure during and for a brief period after exercise, the pressure then rapidly subsiding to normal. In people with low blood pressure the same results were observed, namely, a rise in blood pressure during exercise and after exercise the pressure returning to about the same level it was before. These statements were based upon experimentation. Patients with hypertension reacted differently to exercise. For instance, a man forty years of age, apparently in good health, and playing golf, eighteen holes twice a week, had a blood pressure of diastolic 210, and systolic 110 with normal urine. On climbing a flight of stairs fifteen feet in height his systolic blood pressure rose from 210 to 236. This exercise was repeated twice. Five minutes after the last exercise it had subsided to diastolic 180, systolic 102. That was not at all an unusual reaction in certain cases of hypertension. The longest time he had seen it stay down was one-half hour. In the present state of our knowledge considerable discrimination in the selection of cases suitable for treatment by exercise should be employed. His experience in this matter was limited to a comparatively small number of patients and was well illustrated by the following case. The man, forty-five years of age, had a blood pressure of diastolic 170, systolic 90 with normal urine and blood findings. He was given regular graduated exercise with dumbbells and put on a diet for weight reduction. At the end of a month he had lost ten pounds in weight and his blood pressure was diastolic 120, systolic 70. Possibly the loss of weight was a significant factor in bringing about the improved condition. The main point he wished to emphasize was that considerable discrimination must be used in selecting cases of hypertension suitable for treatment by prescribed exercises. His belief was that only those cases showing a minimal amount of kidney trouble, no myocardial involvement and no angina were suitable for this form of treatment.

DR. ELI MOSCHCOWITZ said that Dr. Crampton's paper had struck a sympathetic chord in his mind. Dr. Moschcowitz had discussed the use of exercise in the treatment of hypertension in a paper published some years ago. Exercise in the treatment of hypertension had its indications, and contraindications, as both Dr. Crampton and Dr. Barringer had emphasized, and to his mind the indications were quite clear. Patients with hypertension had their phases of compensation and decompensation, just as patients with valvular dis-

ease. In the compensated phases exercise was indicated, in the decompensated phases it was obviously contraindicated. As Dr. Crampton had insisted, exercise was only a part of the broader treatment of hypertension. How it acted beneficially, Dr. Moschcowitz did not know precisely, but it seemed to him that the effects could be explained in two ways. First, in reducing the patient's weight and so relieving the patient's heart. The vast majority of patients with hypertension were above weight, and it was quite remarkable to witness the beneficial effect of even the loss of a few pounds in weight in such patients. Second, exercise was of value in such patients in introducing the element of play into their lives. Patients with hypertension, as a rule, were of a characteristic type, as Dr. Moschcowitz had pointed out some years ago. Briefly, these patients might be described as the antithesis of the child type. They were tense, nervous individuals, with a narrow mental range, but within this range terribly intense. Anything, therefore, which took the patient out of this intensity must necessarily be of value. That was why Dr. Moschcowitz emphasized the value of play in these people's lives. Dr. Moschcowitz made one more point, and that was that the benefit of exercise was sometimes of positive value even though the effect on the blood pressure was not marked. The patient's efficiency was certainly improved even though the patient's systolic pressure remained the same, while the diastolic pressure sank but a few points. As a rule, it was the diastolic pressure rather than the systolic that was affected by exercise and was the better index of the efficiency of the individual.

Dr. H. O. MOSENTHAL said it was not possible to formulate an answer, applicable to every case of hypertension, to the problem of whether or not exercise was to be employed as a therapeutic measure. The treatment of increased blood pressure presented many phases, all of which had to be given due attention if physical exertion was to be considered as a means of treatment. It had been established today that in the majority of instances of hypertensive disease renal insufficiency was not the cause of the altered blood pressure. As far as we know the increased arterial pressure compensated for no organic pathological state and we were therefore perfectly justified in attempting to reduce the blood pressure. This attitude was entirely different from that which was adhered to a few years ago, when it was believed that a hypertension was a compensatory phenomenon which should not be interfered with if the best interests of the patient were to be considered. Today we had very good grounds for attributing a more or less constant increase in arterial tension to a faulty nervous control of the vascular mechanism. The heart might beat with greater force than usual, bringing about an increased systolic pressure, or there might be an augmented tone in the smaller peripheral vessels, which would cause a rise in both systolic and diastolic readings. Exercise, as Dr. Barringer had mentioned, and as Dr. Ernst Boas had noted in a recent publication, would effect a rise in blood pressure followed by a drop which often fell considerably below the level existing before the physical exertion took place. Thus a therapeutic effect was brought about. It was worthy of note that in young, strong individuals vigorous exercise, such as a hard tennis match, was often followed by a sense of well being. The findings of Dr. Barringer and Dr. Boas might serve to explain this. In most instances certainly mild exercise was to be preferred to the more exhausting forms of physical effort. There were two reasons for this: In the first place, it was a fact, established especially by the statistical publication of the late Theodore C. Janeway, and since then amply confirmed by clinical experience, that most individuals suffering with hypertension met their end because of a failing heart. In the second place, in most patients the blood pressure was a barometer of their nervous tension; irritation was accompanied by a rise and mental relaxation by a fall in blood pressure; a drop or rise of 60 points within five minutes, according to the nervous and mental stimuli the patient was receiving, was not unusual. It became obvious that exercise in these cases must be adjusted to the capacity of the heart muscle and to the temperament of the individual. There were still other sides to this problem that deserved careful consideration. An increased blood pressure was often the accompaniment of obesity and here exercise had its obvious place in treatment. On the other hand, hypertension in the long run was followed by arteriosclerosis and apoplexy, angina pectoris, and arteriosclerotic kidneys; if these conditions existed or gave indications of becoming serious factors in the management of any case, physical exertion must be adapted to the individual. From what we had heard tonight it was evident that no formula for exercise could be made which would meet the needs of every case of increased arterial pressure. Each patient presented symptoms and signs which had to be met. Physical exertion properly regulated and adjusted would fill some of these needs. Exercise skilfully interwoven with other forms of treatment such as rest, diet, and drugs and properly adjusted to the requirements of the individual patient was of inestimable value in the treatment of hypertension.

Dr. CRAMPTON, in closing the discussion, said there were one or two points he wished to bring out. First, he wished to emphasize that exercise was a two edged sword; it would cut right or wrong, depending upon the handling of the particular implement. We must learn about it so as to use it efficiently. There were some exercises which elicited local vaso-dilatation without central stimulation of the heart and splanchnic area, which were the two means of raising blood pressure. It was their duty to know the uses of exercise which would not increase the blood pressure but would elicit a local reaction without a central stimulation; such a local response caused an opening of the peripheral vessels and a drop in the blood pressure. In other words, physicians ought to know they could, if sufficiently skilful, lower blood pressure by exercise without first raising it. Of course, it must be remembered that if a patient had bad kidneys he should not be given the same kind of exercises as the patient with a simple hypertension, and the same was true of myocardial involvement and angina. The point brought out by Dr. Moschowitz in reference to the advantages of play was excellent, and Dr. Mosenthal's expression of "exercise skilfully interwoven in the scheme of treatment" was the best characterization of the whole subject.

The Cardiac Mechanism After Administration of Quinidine to Patients with Auricular Fibrillation, with Consideration of Certain Toxic Effects of the Drug.—Dr. ROBERT L. LEVY presented this study from the Hospital of the Rockefeller Institute for Medical Research. He said the introduction of quinidine into clinical medicine as a cardiac remedy might well be regarded as the most important advance in the drug therapy of heart disease since Withering's account of the foxglove in 1785. Furthermore, this alkaloid was unique as a pharmacotherapeutic agent, since it served to restore to normal a disturbed physiological mechanism. In 1914, Wenckebach reported two cases of auricular fibrillation in which, after administration of 1 gram of quinine, the normal rhythm was restored for a short period of time. Stimulated by this observation, Frey, in 1918, undertook a systematic study of various cinchona derivatives in patients with auricular fibrillation. The most effective therapeutic agent was quinidine, and because of its better solubility, quinidine sulphate, rather than the pure quinidine alkaloid, was chosen for more extensive use. In his first communication Frey reported ten cases, in six of which he was able to convert the fibrillatory mechanism into the normal sinus rhythm. During the past three years about 200 cases of auricular fibrillation treated with quinidine had appeared in the literature; in approximately 50 per cent. the normal rhythm had been restored. Factors determining the success or failure of treatment were not yet clear. The present report dealt first with a detailed study of the cardiac mechanisms which had been observed in the first eleven cases which had received quinidine in the hospital of the Rockefeller Institute, and second, with certain toxic effects of the drug and their significance for clinical medicine. Five hundred and seven electrocardiograms were made in these eleven patients. After a small preliminary dose to test for idiosyncrasy to members of the cinchona group, quinidine sulphate, 0.4 gm., was administered by mouth either three times daily or every two hours until either the onset of normal rhythm or the appearance of toxic symptoms indicated the cessation of therapy. Curves were made, usually every two hours, on

the days on which the drug was given, and at least once daily during the period of subsequent observation. When a change in rhythm was anticipated, electrocardiograms were taken as often as every five minutes. In three patients who received, in all, ten courses of quinidine, restoration of the normal mechanism was accomplished nine times. The first effect noted was usually an acceleration of ventricular rate, this being followed at times by the appearance of premature beats arising commonly in the right, but occasionally in the left ventricle. If electrocardiograms were taken at sufficiently frequent intervals, the transitional mechanisms, in the common order of their appearance, were: Coarse fibrillation, which might be taken to indicate a slowing of auricular rate, impure flutter, flutter, and normal rhythm. In one patient the transition from auricular flutter to the normal rhythm was photographed in the second lead. The change was rather abrupt, there being noted a period of fluctuating auricular activity, slowing of ventricular rate for several beats, a relatively long period of asystole of both auricles and ventricles, and then prompt resumption of the sinus rhythm. During the time the normal rhythm prevailed it was common to see occasional auricular premature beats. At times these, together with ventricular premature contractions, when these were present, could be abolished by giving more of the drug. The T wave often tended to reverse its direction and change its voltage after the normal rhythm was restored, returning to its original form after the reversion to the fibrillatory mechanism. In one patient paroxysms of ventricular tachycardia preceded the onset of impure flutter, which, in turn, was followed by the normal rhythm. In this same patient, sino-auricular block and paroxysms of auricular tachycardia were also observed when the sequential rhythm prevailed. The duration of the normal rhythm after a single course of quinidine varied from a few hours to twenty-three days. In one patient it had been possible, by means of properly spaced intermittent quinidine therapy, to maintain the normal rhythm for six months, with coincident marked clinical improvement. In eight patients, eleven courses of quinidine were administered without success as concerned resumption of the sinus rhythm. As in the group just described, tachycardia was commonly the first effect. Slowing of auricular rate, as evidenced by coarser fibrillatory oscillations, was seen. In two cases auricular flutter occurred. Paroxysms of ectopic ventricular tachycardia were noted three times. Although of short duration, they served to indicate that quinidine, as a therapeutic agent, was not to be administered indiscriminately, for ventricular tachycardia occurring in dogs poisoned by digitalis or strophanthin was not infrequently the precursor of ventricular fibrillation. In one individual quinidine caused marked increase in ventricular rate, with onset of symptoms of heart failure without alteration in the cardiac mechanism; these symptoms were promptly relieved by digitalis medication. Cases had been described in which, following resumption of normal rhythm after quinidine, embolic phenomena had occurred, presumably as the result of expulsion of portions of clot from the auricles. The possibility of the occurrence of this accident must be borne in mind, though it was apparently a rare happening. For the present it would seem wise to administer quinidine to patients who were either in a hospital or at home in bed under proper nursing care.

Dr. H. E. B. Pardee stated that they were all indebted to Dr. Levy and the Rockefeller Institute for this study of quinidine. It was a revelation to know that auricular fibrillation could be stopped in 50 per cent. of the cases. Now what they desired to know was: "What does it do to the patient?" He had not had the opportunity of following patients with the electrocardiograph, as Dr. Levy had done, so he could not speak except in approbation of the work. However, he had been treating a number of cases with quinidine for about six months. He had been unable to maintain any in normal rhythm for the full period; though it had been possible to return them to normal rhythm, they went back to fibrillation. All the patients he had treated were ambulatory cases. He had given them 0.4 of a gram of quinidine three or four times a day, depending on their toleration as tested by a single dose. He had treated some patients in the hospital with 0.4 gm. every four hours, and these had complained of dizziness, headache, nausea, and vomiting, and were so uncomfortable that he had stopped giving the quinidine at such frequent intervals. Nor did the frequent intervals seem necessary, for quinidine was absorbed very soon after administration, and only one-half of the dose was excreted in the next six hours, so one should be able to produce the effect by giving it at the longer intervals. That the lesser dosage was effectual for the purpose was shown by the fact that he had had the usual percentage of returns to normal rhythm, in fact, 60 per cent., but he attributed the additional 10 per cent. simply to luck. He had not found that digitalis exerted any effect either in favoring or inhibiting the action of quinidine. All of his patients were under digitalis at the time they were given the quinidine, as it was customary for him to keep cases of auricular fibrillation digitalized. Since in auricular fibrillation they were dealing with a fundamental pathological condition of the auricle, it was not surprising that one could not maintain these hearts at a normal rhythm by the drug. Extrasystoles developed and the fibrillation returned. Some unpleasant happenings had occurred in connection with the administration of quinidine. One patient fell in the street at the time of loss of normal rhythm and return to fibrillation. Another complained of great discomfort. In none was he able to maintain the normal rhythm continuously, but he had not attempted to give the drug continuously because of the symptoms induced. There was only one patient who was better physically when he had sinus rhythm than with the fibrillation. Where with fibrillation his rate without digitalis was sixty or under, and he had frequent dizzy attacks and faint spells, after return to normal rhythm the rate ran about seventy, and he did not have dizziness or fainting. In one patient quinidine apparently produced harm. The drug was given for the purpose of changing an auricular fibrillation to a normal rhythm; the heart did not go back to normal rhythm, but the patient developed a degree of cardiac failure which made rest in bed advisable. In this case, as in Dr. Levy's, the harm might come perhaps because of the rapid heart rate which often resulted from quinidine. It might be that quinidine had a direct harmful action on the muscle; he could not say. There were two other patients whose general condition became worse during or just after quinidine administration, though he could not be sure that their decompensation might not have been due to another factor. The situation at the present time might be summed up by saying that we had a powerful drug which we did not yet know how to handle properly. When we knew how to give it we might be able to maintain the sinus rhythm for a considerable length of time and we might then be able to accomplish great benefit. It was not necessary to have the patient in bed when the drug was given if the doses were not too large. He had seen no harm result from giving it to his series of eighteen ambulant patients. So he could agree with Dr. Levy that the drug marked a great advance in cardiac therapeutics and hoped that in a short time they would be able to use the drug so as to maintain normal rhythm for a considerable length of time.

Dr. Alfred E. Cohn said that he had nothing to add either in detail or as to the theory to the account Dr. Levy had given. He thought it would be more interesting to say something on the pharmacology of the drug and of its relation to the general problem of fibrillation of the auricles. The history of experiments dealing with fibrillation was a long one. It was a pleasure to recall that experiments dealing with it, and having a clinical bearing, were begun as early as 1912 in America by Garrey and completed by him in 1914. Simultaneously, G. R. Mines came on the basis of his experiments to conclusions having the same direction as Garrey's. It was Garrey's idea that fibrillation depended upon a circus movement of the excitation wave in muscle, the maintenance of the circuit depending upon three things: first, the length of the circumference of the circle, followed by the excitation wave; second, the rate at which the excitation wave traveled; and third, whether the muscle was still refractory at the time when the excitation wave returned to the point at which it started. If the

muscle was still refractory at that time, it would, of course, resist re-excitation. Since then, within the last two years, Lewis and his assistants have done genuinely brilliant work in elucidating this problem, following the theory of Garrey and of Mines, by experiments on the hearts of dogs. More recently they have extended the application of this theory to the actual condition of flutter and fibrillation of the auricles in the human heart and had come measurably close to demonstrating that the theory held in the clinical condition. The depressant action of drugs of the cinchona group was mentioned by other speakers. Dr. Cohn called attention to the experiments performed by him and Dr. Levy with quinidine on the hearts of dogs, in which it was shown that there was an increase in the degree of muscle shortening when quinidine was injected intravenously. In the sense, therefore, that this represents an augmented action in the muscle, it was scarcely correct when speaking of this cardiac function to regard the action of the drug as depressant. It might be pointed out that in those experiments in which a depressant action was reported the hearts of the animals operated upon were isolated. This difference in the experimental technique might account for the difference between the results of other investigators and those now described. The action of quinidine on the contraction wave was different from that of hemorrhage or of histamine, so that the conclusion might be drawn that the fall in blood pressure which quinidine occasioned and which came on simultaneously with its injection was not due to effects such as resulted from hemorrhage and from injecting histamine. Other experiments were now in progress dealing with the more detailed examination of the action of quinidine on auricular muscle. These effects had to do with the refractory period and the conduction time. These were the phases of muscular action now generally regarded as at the basis of the fibrillatory process, but time did not permit of an account of these experiments.

Dr. CARY EGGLESTON said that in the last seven cases of auricular fibrillation in which he had attempted to administer quinidine, giving 0.2 of a gram every two hours, three cases were unable to take the drug because of cinchonism. He was inclined to agree with Dr. Pardee, in so far as his experience went, namely, that he questioned seriously the uniform benefit, at least clinically, of changing the fibrillation back to sinus rhythm. Some patients had been changed from a high degree of cardiac failure to a degree of compensation with the restoration of sinus rhythm, and the change was accompanied by diuresis and relief of cyanosis and a general improvement. On the other hand, one or two had not been improved by a return to sinus rhythm. One difficulty was the inability to foretell whether one was going to get a return to normal rhythm or not. In the paroxysmal cases one might anticipate that the drug might be more effective. He had not yet studied many cases of this kind in connection with the action of quinidine, but in the last case of the paroxysmal type the administration of quinidine had no influence; the heart still fluctuated spontaneously. As to the administration of quinidine, he did not think enough was known about it to administer it with safety to ambulatory patients. He believed the patient should be under constant observation until we had learned more about the action of the drug before it could be considered a safe clinical agent.

Dr. LEWIS A. CONNER said that his experience with the drug had not been that of Dr. Eggleston, who had failed to see much clinical benefit from restoration of the normal heart rhythm. Dr. Conner had followed several cases in which the improvement in the symptoms had been great. In one case observed over a period of five months there had been the gradual disappearance of marked dropsy and orthopnea and the restoration of a considerable degree of compensation. While it was true that not all cases seemed to be benefited, some of them certainly were. We were so accustomed to feel that when once auricular fibrillation had been firmly established no return to normal rhythm was possible, that the sudden restoration of the normal rhythm under the influence of a few doses of quinidine in hearts which had been fibrillating for months or years was a most dramatic and astounding event. Although we were only at the threshold of our knowledge of the possibilities and the limitations of quinidine, he was disposed to feel with Dr. Levy that the use of quinidine might prove to be the most important contribution to the medicinal therapeutics of heart disease since Withering's discovery of digitalis.

Dr. B. S. OPPENHEIMER said he agreed with Dr. Levy that the discovery of the action of quinidine in arresting fibrillation of the auricles marked an epoch in cardiac therapy. Dr. Cohn had called attention to the work of two investigators, Mines and Garrey, but we could feel also a justifiable pride in the still earlier demonstration of circus waves in 1908 by an American biologist, Alfred G. Mayer. With Dr. Huber Mann he had observed twenty-seven unselected cases of auricular fibrillation at Mount Sinai Hospital, twelve of which had responded to quinidine administration by a change to normal sinus rhythm and two by transitions to impure or pure flutter. If one added these cases to those already published in the literature, there were now 205 cases of auricular fibrillation treated with quinidine, in 104 of which the fibrillation had been interrupted or abolished. Dr. Mann and his experience in regard to toxic effects had been similar to that of others. The patients had sometimes complained of flushing, headache, palpitation, vomiting, of motiveless laughing and crying; one case of exophthalmic goiter had developed a mild psychoses; but no grave or alarming symptoms such as had been described by Frey were observed. As to the increased danger of embolism during the transition from fibrillation to coordinate contraction of the auricles—a possible danger pointed out by Sir James Mackenzie—that was to be seriously considered. With Dr. Felberbaum of Montefiore Hospital he had quickly collected six cases of auricular fibrillation which had developed symptoms of embolism during their fibrillation; four of these had suffered from cerebral embolism. One woman had had a cerebral embolism with crossed paralysis about a year ago; recently while at Montefiore Hospital she had been given quinidine and her fibrillation had changed to sinus rhythm, but no embolic phenomena had followed the change. Since by permitting the fibrillation to continue uninterruptedly the danger of embolism was not avoided, he thought it was justifiable to administer quinidine if there were indications. There was still the doubt in many minds whether the patient derived any benefit from the change from fibrillation to sinus rhythm. On the whole, they could say the patients were better off during the periods of normal rhythm, but much depended upon the underlying condition which had played a rôle in producing the incoordination. In such instances of fibrillation as had been associated with temporary etiological factors, as trauma, thyrotoxicosis, etc., it was possible that the abolition of fibrillation might prove to be permanent. The duration of normal sinus rhythm following a single series of quinidine had been variable; one case was still regular five and one-half months, another four and one-half months after a single series of quinidine. Other cases, however, required interrupted treatment. It had been impossible to predict which cases would respond and which would not. There had been success and failure in the three ordinary groups of cases, valvular, cardiac-vascular-renal, and thyrotoxic. One man with fibrillation associated with thyrotoxic adenoma had developed a regular rhythm after a single dose of 3 grains of quinidine and his mechanism had remained regular for six days. Dr. Oppenheimer called attention to the explanation of Sir Thomas Lewis and his collaborators of the fact that 50 per cent. of the cases responded to quinidine by change to sinus rhythm; in these they supposed the effect of quinidine in prolonging the refractory period predominated over its tendency to slow the rate of conduction. Finally, he had one case in which quinidine, in sufficient dosage, caused the disappearance of previously persistent extrasystoles of ventricular origin; the premature beats tended to reappear on discontinuing quinidine.

Dr. E. LIBMAN expressed the opinion that one need not have much concern in regard to embolism. A study of embolisms in the lung shows that these were but very infrequently due to thrombi on the right side of the heart. They were most frequently due to the presence of thrombi in the veins of the lower extremities or the pelvis.

The Relation of Blood Cholesterol and Protein Defi-

ciency to Basal Metabolism.—Dr. ALBERT A. EPSTEIN and Dr. HERMAN LANDE made this contribution. They stated that the material presented showed a relationship existing between the metabolic rate and the blood cholesterol in thyroid disease. The blood cholesterol was low when the metabolic rate was increased and high values were obtained when the basal metabolism was depressed. This might be due to differences in the rate of combustion or oxidization of the lipoids and fats occurring with changes in the basal metabolic rate. However, it might be the result of changes occurring in the mechanism regulating the synthesis and destruction of fat and lipoids in the body. Wasting diseases other than hyperthyroidism were associated with a low blood cholesterol, hence the diagnostic value of a low cholesterol must be uncertain, but a normal or elevated figure of cholesterol in the blood was undoubtedly a rare finding in exophthalmic goitre or hyperthyroidism. When the question of hyperthyroidism or thyrotoxicosis was once established the cholesterol findings in the blood had a prognostic significance. In myxedema the cholesterol in the blood was very much increased. Upon the administration of adequate amounts of thyroid extract the cholesterol fell inversely as the basal metabolism rose, and hence the blood cholesterol could serve as a guide in the therapy of such cases. In nephrosis, a condition believed to be closely allied to myxedema, the basal metabolism was reduced. Thyroid therapy in such cases, as an adjunct to high protein feeding, was indicated by the basal metabolism determinations and the corresponding increase in blood cholesterol. The subnormal metabolism found in these cases was not necessarily due to a hypothyroidism but to a defective protein metabolism, with its associated diminution of the specific dynamic energy normally imparted by products of protein catabolism. In this way the basal metabolism determinations served as an indirect measure of protein deficiency. The authors believed that the beneficial effect of thyroid was not due entirely to its stimulative action on the rate of oxidation, as a subnormal metabolism in itself was not sufficient to produce edema. The effect of thyroid in promoting the utilization of protein probably explains its ultimate influence on edema.

Dr. EUGENE F. DU BOIS stated that they were very much indebted to Dr. Epstein and Dr. Lande for this important demonstration of the inverse relationship between blood and cholesterol and basal metabolism. The subject was extremely complicated and, as Dr. Epstein had said, we must be very cautious in making hypotheses. Personally he did not feel that the relationship between blood cholesterol and basal metabolism had been explained. It was difficult to conceive of these two factors as cause and effect. It was quite probable that they were both caused by some unknown factor. We must be cautious in taking the blood cholesterol as an index of thyroid function until we had more figures. So many estimates of thyroid activity had been made and then found to be unreliable that we must use particular caution in making such estimations. The observations made in regard to the menopause were very interesting because they were the first that showed a distinct increase in the metabolism associated with the menopause. They should be taken into consideration in estimations of basal metabolism made in this period of life.

Dr. LIBMAN said that, as Dr. Du Bois had brought out and as Dr. Epstein himself maintained, some of the points which the latter had made were definitely proven and the others were put out as suggestions. In fact, Dr. Epstein had made many suggestions of value for other investigators who wished take up this line of study. Dr. Libman said it was interesting to note that the age at which the cholesterol content of the blood normally increased (the menopause) was the same age at which atherosclerosis was apt to develop. The lipoids were believed by some to have a relationship to the development of atherosclerosis. Because of the increase in cholesterol at the time of the menopause, it was unwise to lay stress on increased cholesterol content of the blood for the purpose of diagnosing cholelithiasis. It was pointed out by Dr. Libman that when Dr. Epstein first introduced the high protein diet in the treatment of nephrosis the method was rather scoffed at in this country, but was taken up abroad. Now it was being more and more employed by clinicians in this country and rapidly increasing evidence of its value was at hand. It could be regarded as one of the most valuable contributions to therapy made in recent years. As a rule, the method was used only after all other methods had failed. It was important to get a method by which one could determine when it should be the first method of treatment to be tried. Dr. Epstein's attempt to get data for this purpose was a valuable one. If one had ever seen one of these cases yield to treatment by the use of the high protein diet he would consider it one of the most remarkable clinical phenomena he had ever witnessed. The conception of nephrosis was not yet a clean-cut one. The fact, however, that there were cases which on the high protein diet lost not only the edema but also the albumin casts, indicated that there was a group of cases which could not be considered to properly belong to the class of cases which were called nephritis.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF WYOMING.

Cheyenne, June 6-8, 1921.

ANATOMY AND HISTOLOGY.

1. Give the nerve supply of the arm, forearm, and hand.
2. Describe the stomach.
3. Give the origin, insertion, and nerve supply of the following muscles: Deltoid, sternocleidomastoid, digastric, sartorius, quadriceps extensor.
4. Give the histology of the skin.
5. Name the veins of the upper extremity.
6. Describe the coverings of the brain.
7. What is protoplasm?
8. Name the bones of the wrist.
9. Name the branches of the abdominal aorta.
10. Give the origin, course, and distribution of the right and left phrenic nerve.

PHYSIOLOGY.

1. Name the cranial nerves and state the functions of each.
2. What are the functions of the liver?
3. What is blood pressure? State the physiological causes of alteration in blood pressure.
4. Describe the process of the coagulation of the blood.
5. Classify foods according to their chemical character and give an example of each in a common diet.
6. What are the salivary glands? What part does saliva play in digestion? What is its active ferment?
7. What are the ductless glands? State the functions of each.
8. State the mechanism involved in referred pains.
9. Describe metabolism.
10. Following certain spinal injuries the nerve tracts of the cord will degenerate either above or below the injury. What causes this? What is this called? Name the tracts of ascending and those of descending degeneration.

ANSWERS.

ANATOMY AND HISTOLOGY.

1. *The nerve supply of the arm.*—Median, ulnar, musculospiral, and musculocutaneous nerves.

The nerve supply of the forearm.—Median, ulnar, radial, and posterior interosseous nerves.

The nerve supply of the hand.—Ulnar, median, and radial nerves.

2. The *stomach* is that pouch-like portion of the alimentary canal which is situated between the esophagus and the small intestine. It is conical, with base to left side; the upper border is concave, and is called the *lesser* curvature; the lower border is convex, and is named the *greater* curvature. The left extremity is known as the *fundus*, above and to the right of which is the *cardiac* orifice, and the right or small end is termed the *pyloric* extremity. It occupies left hypo-

chrondriac and epigastric regions. Its *orifices are cardiac*, above, communicating with the esophagus; *pyloric*, at the right extremity, passing into the duodenum. It is 10 to 12 inches long, 4 to 5 inches in diameter at widest part. Its *left* or *cardiac end* is fixed by esophagus and gastrophrenic ligament to diaphragm, lying beneath the seventh left costal cartilage, one inch from sternum; it is connected with the spleen by the gastrosplenic omentum. The *right* or *pyloric end* reaches the gall-bladder, touching under part of quadrate lobe of liver; is very movable; when stomach is empty is in midline four inches below tip of gladiolus. *Anterior surface*, which also looks upward, is in contact with, from left to right, diaphragm, abdominal parietes (epigastric region), under surface of liver. *Posterior surface* is separated from pancreas, crura of diphragm, aorta, vena cava inferior, and solar plexus, by lesser sac of peritoneum. *Superior border* is attached to liver by small omentum. *Inferior border* gives attachment to great omentum. *Coronary* and *pyloric* arteries run along lesser curvature; *right* and *left gastroepiploic*, along inferior or greater curvature; *vasa brevia*, from the splenic to fundus. *Right pneumogastric* nerve supplies the posterior surface; *left pneumogastric*, the anterior surface; *sympathetic* from the solar plexus, both surfaces.—(*Aids to Anatomy.*)

3. DELTOID. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus. *Action:* It raises the arm from the side so as to bring it at right angles with the body; its anterior fibers draw the arm forward; its posterior fibers draw the arm backward. *Nerve supply:* The circumflex.

STERNOMASTOID. *Origin:* Upper and outer part of the anterior surface of the manubrium sterni, and upper surface of the clavicle at its sternal end. *Insertion:* Outer surface of mastoid process of the temporal bone, and outer part of the superior curved line of the occipital bone. *Action:* To flex the head to the same side as the muscle; the two acting together flex the head on the thorax and also raise the upper thoracic wall in forced inspiration. *Nerve supply:* The spinal accessory nerve and a branch from the cervical plexus.

DIGASTRIC. The posterior belly arises from the digastric groove on the internal surface of the mastoid process of the temporal bone; the anterior belly from a depression on the inner surface of the lower border of the inferior maxilla, near the symphysis. These two bellies are connected by a central tendon which perforates the stylo-hyoid, and is bound down to the greater cornu of the hyoid bone by a process of fascia. *Action:* It raises the hyoid bone and depresses the lower jaw. *Nerve supply:* The posterior belly is supplied by the facial; the anterior belly by the mylohyoid branch of the inferior dental.

SARTORIUS. *Origin:* Anterior superior spine of ilium and upper part of notch. *Insertion:* Internal surface of shaft of tibia, just behind the tubercle. *Action:* It flexes the knee joint, the hip joint, and the pelvis upon the thigh; it is an internal rotator of the leg, and an external rotator and abductor of the thigh. *Nerve supply:* Anterior crural nerve.

QUADRICEPS EXTERIOR is composed of:

(*a*) VASTUS EXTERNUS. *Origin:* Neck, and great trochanter, and line from great trochanter to linea aspera of femur, and from intermuscular septum. *Insertion:* The common extensor tendon, and outer side of patella. *Nerve supply:* Anterior crural.

(*b*) VASTUS INTERNUS. *Origin:* Linea aspera, and lower part of spiral line on femur, and tendons of adductor longus and adductor magnus. *Insertion:* The common extensor tendon, and inner side of patella. *Nerve supply:* Anterior crural.

(*c*) CRUREUS. *Origin:* Upper two-thirds of the anterior and outer surfaces of the shaft of femur, and lower half of the external intermuscular septum. *Insertion:* The common extensor tendon. *Nerve supply:* Anterior crural.

(*d*) RECTUS FEMORIS. *Origin:* Anterior inferior spine of ilium, and the groove above the acetabulum. *Insertion:* The common extensor tendon, and upper border of patella. *Nerve supply:* Anterior crural.

The common extensor tendon is inserted into upper border and two sides of patella and is also continued into the ligamentum patellæ.

4. "The *skin* is composed of two parts, the epidermis and cutis vera. The *Epidermis* consists of stratified squamous epithelium, the cutis vera of fibrous tissue. Processes of these interdigitate. The deeper layers of the epidermis are soft, and constitute the rete mucosum, or stratum Malpighii. The cells of the deepest layer are columnar in shape, and in dark races they contain pigment. In the layers above the cells become polygonal or rounded. Narrow clefts between the cells are bridged by fine protoplasmic processes (prickle cells). The superficial layers are horny. In the layers of cells (stratum granulosum) next the stratum Malpighii granules of a substance called "eleidin" accumulate. In the layers superficial to this (stratum lucidum) the cells contain large droplets of a similar substance (kerato-hyalin), which tend to run together and obscure the characters of the cells and render their outline indistinct, giving the layers a clear appearance. The surface layers take the form of long, thin, flat cells, whose nuclei have been obscured by kerato-hyalin. These constitute the stratum corneum. Cells of the surface layer are always being lost, and are replenished from the cells of the deeper layers. The young cells formed in the deep layers push the older cells toward the surface, and as they pass outward the cells begin to accumulate granules, and then become transformed to the type found in the stratum corneum. The *Cutis Vera* is composed of dense fibrous tissue, which rises up into papillæ, indenting the epithelium. In the deeper part the fibrous tissue becomes looser, and merges indefinitely into the reticular tissue of the subcutaneous layer. In the papillæ are loops of capillary vessels, and in the palm and sole there are tactile corpuscles. Bloodvessels form a capillary network near the surface of the true skin, and send up loops into the papillæ and supply branches to the hairs, sweat glands, etc.; but vessels do not pass into the epidermis. Nerves pass into the Malpighian layer, and some of the varicose branches form flattened menisci between the layer of cells. Medullated nerves end in touch-corpuscles in the fibrous papillæ."—(*Aids to Histology.*)

5. The VEINS OF THE UPPER EXTREMITY consist of two sets, the superficial and the deep. *The superficial veins*, are: Radial, anterior ulnar, posterior ulnar, median, median cephalic, median basilic, cephalic, and basilic. *The deep veins*, are: Axillary and subclavian.

6. The COVERING OF THE BRAIN. "The *Dura Mater*, the most external, is a dense fibrous membrane, which is closely attached to the bones of the skull, forming their internal periosteum. The inner surface is smooth, and covered with endothelium. It is continuous with the dura mater of the spinal cord through the foramen magnum. The fibrous part of the dura mater is divided into two layers, an outer, forming the periosteum, and an inner, lying under the endothelium, forming certain processes, and which, by its separation in certain situations, forms the *sinuses*. On the upper surface, near, and projecting into the longitudinal sinus, are the *Pacchionian bodies*, which are enlarged villi of the arachnoid projecting through the layers of dura mater.

Processes of the dura mater:

"The *falx cerebri:* placed vertically between the two hemispheres of the cerebrum, attached in front to the crista galli, behind to the upper surface of the tentorium, and between these above to middle line of internal surface of skull, while the lower border is concave and free. In relation with it are the superior and inferior longitudinal and the straight sinuses.

"The *tentorium cerebelli* is a crescentic fold of dura mater placed between the cerebrum and the cerebellum. It has an outer convex border, by which it is attached in front to the posterior clinoid processes, superior edge of the petrous bone, and behind to the margins of the groove for the lateral sinus. The inner concave border is free posteriorly, and forms the opening through which the crura cerebri and the posterior cerebral arteries pass from the posterior into the middle cranial fossa; in front this border passes over the attached border, and is attached to the anterior clinoid processes. The tentorium is a tent-like process, high-

est above and in front, at its most anterior point of attachment of the falx cerebri by which the tentorium is suspended, and from this point descending on all sides. In relation to it are the lateral, superior petrosal, and straight sinuses.

"The *falx cerebelli* reaches vertically from the tentorium to the foramen magnum, dividing the two hemispheres of the cerebellum. It is attached posteriorly to the vertical crest of the occiput, where it encloses the occipital sinus, and below to each side of the foramen magnum.

"The *pia mater* consists of a delicate stroma supporting bloodvessels, and closely invests the brain, dipping into the sulci. At the transverse fissure it is prolonged into the lateral ventricles and over the 3rd ventricle, pushing the endothelial lining of those cavities in front of it, and forming the *velum interpositum* (tela choroidea) and choroid plexuses of the lateral and 3rd ventricles. It is prolonged over the roof of the 4th ventricle, sending inwards two vascular fringes, the choroid plexuses of that cavity.

"The *arachnoid* is a thin membrane lying outside the pia mater, but is not so closely applied to the brain, as it passes over the sulci without dipping into them. Between the pia mater and the arachnoid is the *subarachnoid space*, containing the cerebro-spinal fluid. The space between the dura mater and arachnoid is now known as the *subdural space*."—(*Aids to Anatomy.*)

7. *Protoplasm* is living substance; it is said to be the physical basis of life; it is not a single substance, but is composed of several substances. It is generally viscid, almost transparent and colorless, and somewhat fluid.

8. *The bones of the carpus or wrist*, are: Scaphoid, semilunar, cuneiform, pisiform, trapezium, trapezoid, os magnum, and unciform.

The bones which enter into the wrist joint, are: Radius, scaphoid, semilunar, and cuneiform.

9. *The branches of the abdominal aorta*, are: Inferior phrenic, celiac axis (giving off gastric, hepatic, and splenic), suprarenal, superior mesenteric renal, spermatic (or ovarian), inferior mesenteric, lumbar, middle sacral.

10. The *phrenic nerve* is derived from the third, fourth, and fifth cervical nerves; it lies in front of scalenus anticus, descends inward on it in front of subclavian artery to enter the chest, having crossed the internal mammary artery at origin, behind the subclavian vein. In the thorax it descends in front of the root of the lung, being between the pericardium and the mediastinal pleura, to the diaphragm, which it perforates, and is distributed on its abdominal surface. The *right* nerve lies outside right innominate vein and superior vena cava. The *left* nerve in the neck is crossed by the thoracic duct, and below crosses the arch of the aorta and left pneumogastric, and is longer than the right. Filaments from each supply the pericardium and pleura. *Deep branches*, are: *Communicating:* to spinal accessory in sternomastoid and trapzius muscles. *Muscular:* to sternomastoid, levator anguli scapulæ, scalenus, and trapezius.—(*Aids to Anatomy.*)

PHYSIOLOGY.

1. CRANIAL NERVES WITH FUNCTIONS: 1. *Olfactory*, special sense of smell. 2. *Optic*, special sense of sight. 3. Motor oculi, motor nerve to muscles of the eye. (Superior rectus, inferior rectus, internal rectus, inferior oblique and levator palpebrarum muscles). 4. *Trochlear*, motor nerve to superior oblique muscle of the eye. 5. *Trifacial: First, or ophthalmic branch*, supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal gland, and skin of nose. *Second, or superior maxillary branch*, supplies sensation to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Third, or inferior maxillary branch*, supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two thirds tongue, lower teeth, and skin of lower part of face. This branch, in addition, supplies motion to the muscles of mastication (Masseter, temporal, external, and internal pterygoids), and the mylohyoid and anterior belly of the digastric. 6. *Abducens*, motor nerve to the external rectus muscle of the eye. 7. *Facial*, motor nerve of the muscles of expression, also of the platysma and the buccinator; it also supplies the muscle of the external ear; the stylohyoid, and the posterior belly of the digastric; through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands. 8. *Auditory*, special sense of hearing. 9. *Glossopharyngeal*, motor to muscles of pharynx; sensation to tympanic cavity and posterior third of tongue; special sense of taste to posterior third of tongue. 10. *Pneumogastric* (1) *motor* to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* to the same regions; (4) *inhibitory* to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc. 11. *Spinal accessory*, motor to sternomastoid, trapezius, and muscles of larynx. 12. *Hypoglossal*, motor to muscles of the tongue.

2. The *functions of the liver* are: (1) the secretion of bile; (2) the formation and storage of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat; (5) the formation of creatinine; (6) the production of antithrombin; (7) the conversion of poisonous and harmful into inert material; (8) it is also a reservoir for blood on its way to the heart.

3. *Blood pressure* is the pressure of the blood due to the ventricular systole, the elasticity of the arterial walls, and the resistance of the capillaries. The normal arterial blood pressure varies; the systolic pressure being (in males) about 120 to 150 mm. of mercury, and the diastolic from about 90 to 120 mm. of mercury. In females, the pressure is from 10 to 15 mm. lower. Blood pressure is *maintained* by the contraction of the heart, the peripheral resistance, and the elasticity of the arterial walls.

Blood pressure:

May be raised—	May be lowered—
1. By the heart beating more quickly.	1. By the heart beating more slowly.
2. By the heart beating more powerfully.	2. By the heart beating more feebly.
3. By contraction of the arterioles.	3. By dilatation of the arterioles.
	4. By deficient supply of blood to the left ventricle.

4. When blood is withdrawn from the blood vessels of the living body, it first becomes viscid, then sets, and is converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts, forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear: and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats in the serum. The process is thus summed up by Halliburton: In the plasma a proteid substance exists, caller Fibrinogen. From the colorless corpuscles a nucleo-proteid is shed out, called Prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or Thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed; one of these is unimportant and remains in solution; the other is important, viz., Fibrin, which entangles the corpuscles, and so forms the clot.

5. *Foods are divided into:*

I. Inorganic. { Water. / Salts.

II. Organic. { Non-nitrogenous. { Carbohydrates. / Fats. } / Nitrogenous—Proteids.

Examples of each: *Carbohydrate*, sugar and starches; *Fat*, fat of meat, and butter; *Proteid*, flesh of animals, and white of eggs; *Salt*, sodium chloride, and calcium phosphate.

6. The *salivary glands* are the two parotids, two submaxillary, and two sublingual glands. *Saliva* converts cooked starches into maltose and dextrose. The active ferment is ptyalin.

7. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, coccygeal, pituitary, and pineal glands.

The function of the spleen: The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

The function of the thyroid is not definitely settled: (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

The *function of the thymus* is not settled; it is said: (1) To be a blood-forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The function of the suprarenals is not definitely settled; they produce an internal secretion which is probably necessary to life. This secretion causes constriction of arterioles, raises blood pressure, and stimulates muscle fibers which are supplied by the sympathetic system. There is supposed to be some connection between the adrenals and the thyroid and pituitary bodies.

The function of the pituitary body: Complete removal of whole gland or of anterior lobe is followed by death; the anterior lobe is connected with growth, if the gland hypertrophies there follows overgrowth of the skeleton, and partial removal leads to failure of development of the body as a whole and of the sexual glands. The posterior lobe is believed to cause constriction of arterioles, rise of blood pressure, contraction of the involuntary muscles in many viscera, increased flow of urine, and increased secretion of milk.

8. *Referred pains.*—"It is found that after opening the abdominal cavity under local anesthesia, cutting and suturing of the viscera may be continued without causing any pain. When the viscera are inflamed however, and under certain conditions of stimulation, such as the distention of the bile ducts with biliary calculi, or the violent contraction of the intestines, excruciating pain may be evoked. This pain is frequently not localized in the viscera, but is referred to certain parts of the surface of the body, and it has been shown by Mackenzie and by Head that it is referred to the area of skin which is supplied with sensory nerves by the same segment as that to which the afferent autonomic fibers of the particular viscus run. It has further been shown that vascular disease may cause sensitivity of the corresponding cutaneous areas."—(Macleod's *Physiology and Biochemistry.*)

9. *Metabolism.*—"The food-stuffs, after being digested and absorbed into the blood or lymph, are carried to the tissues, in which they pass through a series of complex chemical transformations, the end products of which leave the tissues and are removed from the body by the lungs and kidneys. This series of chemical changes constitutes *metabolism*, and the metabolic activities of the tissues are of two kinds. On the one hand, the living tissues are constantly undergoing changes whereby a portion of their substance is broken down and removed from the body; on the other hand, this loss is replaced by the building up of fresh tissue from the nutritive materials supplied in the blood. The former of these processes is called *katabolism*, and the latter *anabolism*.

"These changes involve the consumption of a large amount of oxygen, and the evolution of energy in the form of heat and muscular work. The food-stuffs are protein, fat, and carbohydrate, 90 to 94 per cent. of those consumed on an ordinary diet being absorbed into the blood stream, and the remainder being lost in the feces. The fats and carbohydrates are completely converted into carbonic acid and water, and the proteins partly into carbonic acid and water, the nitrogen, being excreted as urea and other incompletely oxidized substances in the urine. The carbonic acid is removed from the body almost entirely through the lungs, and the water by the lungs, kidneys, and skin. The changes undergone by the food-stuffs in the body may, therefore, be studied in three ways, namely (1) by measuring the total amount of heat evolved in their oxidation, (2) by determining the quantity of oxygen required for the carrying out of these oxidations, and (3) by measuring the amount of the end products which are formed. We may also attempt to follow out the series of changes taking place in the individual food-stuffs in the tissues themselves."—(Bainbridge and Menzies' *Essentials of Physiology.*)

10. The *cause* of the degeneration is that the nerve tract involved is cut off from the nerve cells which nourish it. This degeneration is called Wallerian degeneration.

Tracts of ascending degeneration.—Column of Goll; column of Burdach; Lissauer's bundle; direct cerebellar tract; anterolateral ascending tract.

Tracts of descending degeneration.—Direct pyramidal tract; crossed pyramidal tract; rubrospinal tract; olivospinal tract; comma tract; cerebellospinal tract of Lowenthal.

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE GLANDS REGULATING PERSONALITY. By LOUIS BERMAN. 300 pages. Published by The Macmillan Company, New York.

THE SPHYGMOMETER. By WILLIAM RUSSELL, M.D. 145 pages with illustrations. Price, $2.50 net. Published by William Wood & Company, New York.

MEDICAL RECORD VISITING LIST FOR 1922. Sixty patients. Price, $2.00. Published by William Wood & Company.

THE STOMACH AND ABDOMEN. By WILLIAM RUSSELL, M.D. 329 pages with illustrations. Price, $4.00 net. Published by William Wood & Company, New York.

THERAPEUTIC IMMUNIZATION. By W. FORD ROBERTSON. 278 pages. Price, $4.00. Published by William Wood & Company, N. Y.

VETERINARY HYGIENE. By R. G. LINTON. 429 pages with illustrations. Price, $6.00. Published by William Wood & Company, New York.

RADIOGRAPHIC TECHNIQUE. By T. THORNE BAKER. 196 pages with illustrations. Price, $3.50. Published by William Wood & Company, New York.

ESSENTIALS OF VETERINARY PHYSIOLOGY. By Drs. PATON AND ORR. 674 pages with illustrations. Price, $6.50. Published by William Wood & Company, New York.

TEXT-BOOK OF EMBRYOLOGY. By F. R. BAILEY. 663 pages with illustrations. Price, $6.00. Published by William Wood & Company, New York.

LOCAL ANAESTHESIA. By NORMAN BLACK 73 pages. price, $1.50. Published by William Wood & Company, New York.

DISEASES OF THE SKIN. By HENRY W. STELWAGON, M.D. 1313 pages with 401 text illustrations and half-tone plates. Price, cloth, $10.00. Published by W. B. Saunders Company, Philadelphia.

THE SPLEEN AND SOME OF ITS DISEASES. By SIR BERKELEY MOYNIHAN. 129 pages with 13 full page diagrams. Price, cloth, $5.00. Published by W. B. Saunders Company, Philadelphia.

TRAITÉ D'UROLOGIE.. Vols. I and II. By G. MARION. 1052 pages with 418 figures and 15 colored plates. Price, 120 francs. Published by Masson & Cie., Paris.

PRINCIPLES OF MEDICAL TREATMENT By GEORGE C. SHATTUCK, M.D. 309 pages. Published by W. M. Leonard, Inc., Boston.

Medical History.

NEW BOOKS AND OLD.

XX. WILLIAM WITHERING AND HIS BOOK ON THE FOXGLOVE.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

WITHERING has not come in for his due share of biographical notice. Five short sketches and the usual notes in the ordinary sources are all I have discovered, though my search has been none too diligent: Kolipinski in the MEDICAL RECORD for July 14, 1914; Moschowitz in the *Medical Pickwick* for February, 1915; Cushny in the Proceedings of the Royal Society of Medicine, section on the History of Medicine, March, 1915; and Boulger in the Dictionary of National Biography. There is also a sketch of his life by his son prefacing the Miscellaneous Tracts. From the first four I have borrowed extensively.

William Withering was born March 17, 1741, at Wellington in Shropshire, England. As in the case of so many family names there were variations in his and previously it had been spelled Witherings, Widdrington, and Witherington. On his mother's side he had people of ability, witness Richard Hurd, Bishop of Worcester. His father, Edmund Withering, was an apothecary in Wellington, and his mother's brother a physician in Lichfield. This relation to the medical profession probably influenced him in the choice of his life's work. Having decided to become a physician he went to Edinburgh, at that time the ranking British School of Medicine. This was in 1762. Here he studied assiduously, working especially in chemistry and anatomy. After a year or two he started writing and produced papers on Topical Bloodletting, Inflammation of the Pericardium, on Dropsy, and on Rickets. His inaugural dissertation was on "De Angina Gangrenosa." On July 31, 1766, he was graduated M.D.

While at the University Withering sat under such teachers as Hope, the botanist; Monro *secundus*, the anatomist; Whytt in medicine, the author of one of the most remarkable medical monographs ever written "On Dropsy of the Brain." Cullen perhaps influenced him most of all. He was Withering's instructor in chemistry. Cullen in his treatise on Materia Medica did not describe digitalis at all but referred the reader to Withering's book, which he said should be in the hands of every practitioner of physic.

Withering was no recluse. He enjoyed human society and during his Edinburgh days numbered among his friends were Fowler, whose solution of arsenic is still used; Percival, afterward a reformer in sanitation at Manchester; Arnold, who later wrote about insanity, and Rogerson, who became physician to Catherine of Russia.

Leaving Edinburgh Withering traveled, visiting Oxford, London, and Paris. In France he had difficulties with the language and when his traveling companion died he returned to England.

He began practice in Stafford in 1767 and continued until 1775, but from a financial standpoint this period was not a success, so when Dr. Small of Birmingham died he repaired thither and soon built up a practice as large as any enjoyed by the physicians of London. Patients from afar sought him out and among those of note is the name of Benjamin Franklin.

His leisure while at Stafford was profitably employed in studying plants. Part of this enthusiasm may have been due to the lady who subsequently became his wife, as much of his collecting was done for her. In botany he was a distinct success, modifying the Linnæan system somewhat and publishing in 1776 "A botanical arrangement of all the vegetables naturally growing in Great Britain, according to the system of Linnæus; with an easy introduction to botany." This become very popular and a second enlarged edition appeared in 1787, a third volume was added in 1792, and a fourth in 1796. This work went into eight editions, the last appeared in three volumes in 1852. He also aided John Talbot Dillon with chemical and botanical notes to his "Travels through Spain." In 1778 he published his "Scarlatina Anginosa." In 1783 he translated Sir Torbern Bergmann's "Sciagraphia Regni Mineralis" which he published with notes by himself under the title of "Outlines of Mineralogy."

In 1790 he had an attack of pleurisy and pneumonia, from which he suffered the following year. This led to two trips to Portugal which he did not consider an ideal health resort. While there he wrote of the mineral waters and continued the study of botany which resulted in the "Floræ Ulyssiponensis Specimen" published in 1792.

He was a free mason, played the flute and harpsichord, wrote poetry, belonged to the Society for Promoting the Abolition of the Slave Trade, and did all the things of a man in active professional life. He was a member of the famous Lunar Society, so called because of the monthly meetings, which included such men as Priestley, the chemist, James Watts, and Matthew Boulton. In 1791 he was made a member of the Linnæan Society. His studies in chemistry and mineralogy were rewarded by a fellowship of the Royal Society, to which he was elected in 1784 and his work on barium carbonate led to the name of Witherite for that mineral. L'Héritier named one of the *Solanaceæ* after him, the Witheringia, which with the foxglove is graven on his tomb in Edgbaston. For thirteen years Withering was Physician in Chief to the Birmingham General Hospital, the buildings of which were completed in 1778, largely through his efforts. He did not mingle in politics. Indeed it is said he declined an invitation to the famous dinner at Priestley's house, given to celebrate the anniversary of the French Revolution. This led to a riot or was at least the pretext for one during which Priestley's house was sacked and partly destroyed. Withering was threatened and left his house hurriedly carrying off his books and botanical specimens in wagons, under piles of hay or straw. The animosity against him did not last long.

His portrait was painted by Frederick William Breda and comes down to us in his "Miscellaneous Tracts," published in 1822 by his son, in the engraving by W. Bond. The portrait was also engraved by Ridgley for Thornton's "Sexual System of Linnæus," 1801.

In 1776 he had fever and was far from well, but it was not until 1790 that his health grew much worse. After trying the Isle of Wight with little result, he purchased Priestley's house, "The Larches," formerly sacked by the mob. Here he passed his days indoors in an artificial temperature of 65° F. From now on he suffered from hemorrhage and dyspnea. During this time some one perpetrated the ghastly pun that "The flower of physicians is indeed Withering." He died October 6, 1799. He lies buried in the church at Edgbaston. His tomb bears the following inscription and poetic effusion:

Sacred
to the Memory of
William Withering, M.D., F.R.S.
&c., &c.,
Who Was Born March 28, 1741,
And Died October 6, 1799,
Aged 58 Years

While heav'n born Genius drops on earth a tear,
And Science, drooping, mourns o'er Withering's bier;
While Pity sighs to find that bosom cold
Where late she reigned, dispensing good untold;
While Memory's voice each virtue telling o'er,
But deeper wounds the peace she would restore;
Hope smiles serene, her eye upturned to Heav'n,
Where Virtue's never-fading crown is giv'n,
Sheds o'er the weeping sorrowers below,
That calm a Christian's grief alone can know.
Yes! on that day, when Nature's ruin'd frame
Shall form a grave for each illustrious name,
And Science's star, on earth so seeming bright,
Shall be eclips'd in universal light;
Then shall the sainted sage that bliss receive,
Which here no tongue can paint, no heart conceive;
While Angel choirs with plaudits justly giv'n
Proclaim his triumph to the hosts of Heav'n.

He was a good observer, a clear thinker, and an industrious worker, three of the essentials for a successful physician; that is successful in the true sense of the word. Withering passed in Stafford his lean years. In Birmingham he stepped almost at once into the "cakes and ale" stage. His financial success equalled his medical labors and his practice reached as high as two thousand pounds a year.

Space prevents going into his work more fully but some idea of his remarkable power of observation may be gained by what he wrote of pulmonary consumption: "and not many medical men are sufficiently aware that phthisis is contagious. Though some writers positively deny that phthisis pulmonalis is infectious, the contrary fact is to me indisputable."

In 1785 there appeared a little book entitled "An Account of the Foxglove, and Some of Its Medical Uses, with Practical Remarks on Dropsy and Other Diseases," by William Withering, Physician to the General Hospital at Birmingham, "*nonumque prematur in annum*," Horace. This little book is one of the great medical classics and insures Withering a place in the foremost ranks of the medical benefactors of mankind. Practically unaided he gave to the world one of the few reliable medicines, one of the greatest boons ever conferred on mankind. From the preface of this remarkable work I quote the following:

After being frequently urged to write upon this subject, and as often declining to do it, from apprehension of my own inability, I am at length compelled to take up the pen, however unqualified I may still feel myself for the task.

The use of the Foxglove is getting abroad, and it is better the world should derive some instruction, however imperfect, from my experience, than that the lives of men should be hazarded by its unguarded exhibition, or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable.

It is now about ten years since I first began to use this medicine. Experience and cautious attention gradually taught me how to use it. For the last two years I have not had occasion to alter the modes of management; but I am still far from thinking them perfect.

It would have been an easy task to have given select cases, whose successful treatment would have spoken strongly in favor of the medicine, and perhaps been flattering to my own reputation. But Truth and Science would condemn the procedure. I have therefore mentioned every case in which I have prescribed the Foxglove, proper or improper, successful or otherwise. Such a conduct will lay me open to the censure of those who are disposed to censure, but it will meet the approbation of others, who are the best qualified to be judges.

. . . . . .

There are men who will hardly admit of anything which an author advances in support of a favorite medicine, and I allow they may have some cause for their hesitation; nor do I expect they will waive their usual modes of judging upon the present occasion.

. . . . . .

After all, in spite of opinion, prejudice, or error, TIME will fix the real value upon this discovery, and determine whether I have imposed upon myself and others, or contributed to the benefit of science and mankind.

Digitalis was not unknown. Withering quotes some of the writers who preceded him and Kolipinski gives other references. The drug had been used experimentally in turkeys but its real virtue was unsuspected until Withering, following a clue, found its true worth. The story of the discovery of the drug, one of the many wonderful stories in the history of medicine, he tells as follows:

In the year 1775, my opinion was asked concerning a family receipt for the cure of the dropsy. I was told that it had long been kept a secret by an old woman in Shropshire, who had sometimes made cures after the more regular practitioners had failed. I was informed, also, that the effects produced were violent vomiting and purging; for the diuretic effects seemed to have been overlooked. This medicine was composed of twenty or more different herbs; but it was not very difficult for one conversant in these subjects to perceive that the active herb could be no other than the Foxglove.

My worthy predecessor in this place, the very humane and ingenious Dr. Small, had made it a practice to give his advice to the poor during one hour in a day. This practice, which I continued until we had a hospital opened for the reception of the sick poor, gave me an opportunity of putting my ideas into execution in a variety of cases; for the number of poor who thus applied for advice, amounted to between two and three thousand annually. I soon found the Foxglove to be a very powerful diuretic; but then, and for a considerable time afterwards, I gave it in doses very much too large, and urged its continuance too long; for misled by reasoning from the effects of the squill, which generally acts best upon the kidneys when it excites nausea, I wished to produce the same effect by the Foxglove. . . . It was from this kind of experience that I ventured to assert, in the Botanical Arrangement published in the course of the following spring, that the Digitalis purpurea "merited more attention than modern practice bestowed upon it."

I had not, however, yet introduced it into the more regular mode of prescription; but a circumstance happened which accelerated that event. My truly valuable and respectable friend, Dr. Ash, informed me that Dr. Cawley, then principal of Brazen Nose College, Oxford, had been cured of a hydrops pectoris, by an empirical exhibition of the root of the Foxglove, after some of the first physicians of the age had declared they could

do no more for him. I was now determined to pursue my former ideas more vigorously than before, but was too well aware of the uncertainty which must attend on the exhibition of the root of a biennial plant, and therefore continued to use the leaves. These I had found to vary much as to dose, at different seasons of the year; but I expected, if gathered always in one condition of the plant, viz., when it was in its flowering state, and carefully dried, that the dose might be ascertained as exactly as that of any other medicine; nor have I been disappointed in this expectation. The more I saw of the great powers of this plant, the more it seemed necessary to bring the doses of it to the greatest possible accuracy. I suspected that this degree of accuracy was not reconcilable with the use of a decoction, as it depended not only upon the care of those who had the preparation of it, but it was easy to conceive from the analogy of another plant of the same natural order, the tobacco, that its active properties might be impaired by long boiling. The decoction was therefore discarded, and the infusion substituted in its place. After this I began to use the leaves in powder, but I still very often prescribe the infusion.

Further experience convinced me that the diuretic effects of this medicine do not at all depend upon its exciting a nausea or vomiting; but, on the contrary, that though the increased secretion of urine will frequently succeed to, or exist along with these circumstances, yet they are so far from being friendly or necessary, that I have often known the discharge of urine checked when the doses have been imprudently urged so as to occasion sickness.

If the medicine purges, it is almost certain to fail in its desired effect; but this having been the case, I have seen it afterward succeed when joined with small doses of opium, so as to restrain its action on the bowels.

. . . . . .

I use it in the ascites, anasarca, and hydrops pectoris; and so far as the removal of the water will contribute to cure the patient, so far may be expected from this medicine; but I wish it not to be tried in ascites of female patients, believing that many of these cases are dropsies of the ovaria; and no sensible man will ever expect to see these encysted fluids removed by any medicine.

It would be interesting to quote a number of the case histories. Space prevents, but I cannot refrain from two short ones.

Case XIII.—October 9. Mrs. B., æt. 40. An ovarium dropsy. Took a decoction of digitalis without effect. Her life was preserved for some years by repeated tapping.

Case XLI.—July 6. Mr. E., æt. 57. Hydrothorax and anasarca; his breath so short that he could not lie down. After a trial of squill, fixed alkaly, and dulcified spirit of nitre, I directed pulv. digital. gr. 2, thrice a day. In four days he was able to come downstairs; in three days more no appearance of disease remained; and under the use of aromatics and small doses of opium, he soon recovered his strength.

Withering's conclusions are remarkable, showing what a clear-headed genius he was. They are:

I. That the digitalis will not universally act as a diuretic.

II. That it does do so more generally than any other medicine.

III. That it will often produce this effect after every other probable method has been fruitlessly tried.

IV. That if this fails, there is but little chance of any other medicine succeeding.

V. That in proper doses, and under the management now pointed out, it is mild in its operation, and gives less disturbance to the system, than squill, or almost any other active medicine.

VI. That when dropsy is attended by palsy, unsound viscera, great debility, or other complications of disease, neither the digitalis, nor any other diuretic can do more than obtain a truce to the urgency of the symptoms; unless by gaining time, it may afford opportunity for other medicines to combat and subdue the original disease.

VII. That the digitalis may be used with advantage in every species of dropsy, except the encysted.

VIII. That it may be made subservient to the cure of diseases unconnected with dropsy.

IX. That it has a power over the motion of the heart to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends.

And now we must take leave of Withering and his book, but not without reprinting two of the poetical effusions in praise of digitalis.

Cushny quotes the following lines by "S. H.," which he found in a late edition of Withering's Botany:

The foxglove's leaves, with caution given,
Another proof of favoring Heav'n
Will happily display;
The rapid pulse it can abate;
The hectic flush can moderate
And, blest by Him whose will is fate,
May give a lengthen'd day.

Erasmus Darwin, author of the "Loves of the Plants" and "Zoönomia," like so many other good men of scientific turn of mind wrote verse, among other things a long poem entitled the "Botanic Garden." From this Kolipinski quotes the following lines to the Foxglove:

Bolster'd with down, amid a thousand wants,
Pale Dropsy rears his bloated form, and pants;
"Quench me ye cool pellucid rills," he cries,
Wets his parched tongue and rolls his hollow eyes.
So bends tormented Tantalus to drink
While from his lips the refluent waters shrink;
Again the rising stream his bosom laves
And thirst consumes him mid circumfluent waves.
Divine Hygeia from the bending sky
Descending, listens to his piercing cry;
Assumes bright Digitalis dress and air;
Her ruby cheek, white neck and raven hair;
Four youths protect her from the circling throng,
And like the Nymph the Goddess steps along.
O'er him she waves her serpent wreathed wand,
Cheers with her voice and raises with her hand
Warms with rekindling bloom his visage wan,
And charms the shapeless monster into man.
—Botanic Garden, Part 2, Canto 2.

Twenty-fifth Anniversary of the Foundation of the "Revista de Medicina y Cirugia de la Habana."—The anniversary issue of this well-known Cuban periodical comprises 744 pages, well printed and illustrated. In addition to its historical side, the volume is a directory to the medical and allied institutions of the island—hospitals, teaching bodies, laboratories, libraries, periodicals, sanitary formations, monuments, etc., etc. Most of the articles are illustrated. Among others we find beautiful monuments to Findlay, and to the distinguished urologist Albarran (whose work was done in France), the buildings of the Health Office, the Calixto Garcia Hospital, the Preventorium, the new and beautiful buildings of the San Francesco de Paola Hospital, the Masonic Hospital, the City Hospital, the Academy of Medical and Natural Sciences, the Military Hospital, and several private hospitals such as "La Benefica" and "La Purissima," which treat thousands of patients annually. There are a number of these institutions which appear to take over much of the work of public hospitals in northern cities. The report may not be exhaustive, as we see no mention of the Leper Hospital, the Pasteur Institute, and certain other medical institutions.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 26.
Whole No. 2668.

NEW YORK, DECEMBER 24, 1921.

$5.00 Per Annum.
Single Copies, 25c.

Original Articles.

THE ABDOMINAL SYMPTOMS AND SIGNS OF THORACIC DISEASE.

BY HARLOW BROOKS, M.D.,

NEW YORK.

PROFESSOR OF CLINICAL MEDICINE, UNIVERSITY AND BELLEVUE HOSPITAL COLLEGE OF MEDICINE.

I HAVE selected this title for my paper to-day because the subject is of equal clinical importance for both surgeons and physicians and because that it is only by constantly calling to mind the frequency with which abdominal symptoms arise as a result of thoracic disease that we may avoid serious errors in diagnosis and in treatment.

The magnitude of the subject and the limit of my time prevent an attempt to go very intimately into the subject of differential diagnosis, nor do I believe that this is possible in any general way, for differential diagnosis depends in this problem so much on minute individual points that no general rules may be usually laid down.

Throughout we must always bear in mind that disease does not respect our anatomical classifications and that there are really very few pathologic processes which do not to a greater or lesser degree affect all parts of the body.

I cannot attempt to-day to go deeply into the theories and the physiology of the transference of signs and symptoms, but as a fellow practitioner I shall simply bring to your attention the chief clinical phases of the problem as they confuse and mislead me.

My paper is then virtually but an enumeration of the most frequent forms of thoracic lesions which are commonly confused because of their signs and symptoms with disease of the abdomen.

This complex is perhaps best first illustrated by those very numerous cases in which an acute dilatation of the heart, due to any cause, gives origin to a picture which the layman usually, and the medical man not infrequently, refers to as an "acute indigestion." Years ago, when I was doing a large number of autopsies, many of them being acute emergency cases, I was particularly struck with the frequency with which sudden death from cardiac disease had been diagnosed as "acute indigestion." Among these probably the most frequent lethal lesion was a coronary thrombosis or embolism. Others were acute myocarditis with dilatation, myocardial degeneration, especially from a fatty degeneration or fatty infiltration of the heart, acute syphilitic myocarditis, gumma of the heart wall, pericarditis, acute or chronic and with or without effusion or adhesions, and the like. Nor was the cause of death in these cases diagnosed as acute indigestion limited to heart lesions alone, some of them were found on autopsy to be instances of acute or chronic aortitis, rupture of the aorta, or of aortic aneurism or of acute mediastinitis.

Nor must we assume that a story of acute abdominal pain of sudden onset with prostration, nausea, and vomiting when due to thoracic disease need, therefore, be an indication of the acuteness of the mediastinal or cardiac lesion. In very many instances only the onset of symptoms is acute; the lesions, as in the case of aneurysm, may be chronic or of very long standing. Rather in such cases may we usually say that the termination is the only acute phase of the condition, for close analysis of the history will usually discover abundant premonitory warnings. Very often, however, a cardiac lesion which has been of very long duration, giving perhaps few or no classical indications of thoracic disease, suddenly terminates as from an acute gastric perforation, dilatation or distention, perhaps thus only the symptoms being of acute nature.

It is much more frequent to find that a long-standing history of gastric distress, as from a chronic ulcer, from a hyperacidity, or even from an achylia gastrica, is due in reality to prolonged cardiac or mediastinal disease. This last is particularly likely to be the course in angina pectoris in which, in several instances under my observation, the chief symptoms have been ascribed to gastric, duodenal, gall-bladder or pancreatic disease. I know of no symptom and of rather few signs of these mentioned diseases which may not be very closely simulated by cardiac disease. Even hemorrhage from the stomach may be due to ruptured varices of cardiac origin in the stomach or esophagus.

The pathologist is rather too apt to censure the clinician in diagnostic mistakes of this kind, chiefly because of his unfamiliarity with the very close simulation of symptoms and signs in the two conditions, but I am very certain that I do not need to point out to any experienced practitioner of medicine or surgery that they are differentiated only with the greatest possible difficulty in very many instances. This is particularly true in emergency cases, such as the general practitioner or ambulance surgeon is expected to diagnose and treat, usually with very little, and that frequently misleading, in the way of history.

Differentiation in many chronic cases may be only possible after long and careful study, and

*Read before the Keuka Lake Medical Society, July, 1921.

often only by the assistance of many of the finer methods of diagnosis, of the electrocardiograph, by *x*-ray studies of the mediastinum and its contents, of the upper gastrointestinal tract, and by chemical studies of the functions of the pancreas and of the gall tracts.

In a very considerable number of these cases gastric signs and symptoms are in reality due to actual gastrointestinal lesions, as in the case of varices of the gastric or oesophageal mucosæ due to a long-standing mitral lesion, to a myocarditis, or the like. Gastric distress after eating, gastric hemorrhage, often sufficiently severe to cause collapse, and the signs and symptoms of gastric perforation may then occur as a result of changes in the stomach mucosa primarily due to cardiac disease. In some of these patients the primary cardiac lesions may be so obscure and indefinite as to escape detection, while the secondary lesions, because of their striking character, distract the clinician. Such problems very frequently develop in myocardial degenerations and in instances of angina pectoris.

Another condition of circumstances which may cause the pathologist to quite unjustly censure the clinician in these cases is when cardiac collapse, dilatation or acute rupture is in reality induced by gastric defects. All of us, even in the most apparently robust and sound, realize the frequency with which cardiac distress, even rupture, may occur as a direct secondary result of an over-distention or of dilatation of the stomach. It is a most important thing for the cardiologist to remember that over-distention of the stomach in particular and, to a lesser degree, of any of the other hollow viscera of the abdomen throws a great additional strain on the heart. Those of you in doubt may try running or other vigorous exercise calling for cardiac reserve after a full meal has been taken. Animals know better than to attempt such feats, wise stock men will not permit it in valuable animals, and yet we often permit ourselves and our patients such indiscretions.

I much regret that time does not permit us today to enter into the question of the differential diagnosis in these instances. I think, however, that we are perhaps sufficiently schooled in the matter when we realize the great frequency of the condition, the close similarity of symptoms and signs, and the fact that associated lesions of diagnostic import are often, perhaps usually, present. We all realize that in every case in which time permits a very close and intimate study of both the mediastinal structures and of the upper abdomen must be made before we decide in any given instances that the signs are solely due to cardiac or to upper abdominal lesions.

We must never forget the great frequency and assistance in a diagnostic way of associated lesions, not necessarily directly secondary, as for example, a syphilitic gastritis in association with a syphilitic myocarditis or coronary disease.

Dyspnea is a most important sign or symptom which almost constantly indicates either cardiac and mediastinal disease or inadequacy. I feel that in every case in which it is of a degree out of proportion to the exciting exercise under which it appears it should always be assumed to indicate cardiac disease or inadequacy. There are exceptions to this general statement, but if the sign is held well in mind it will frequently discover cardiac or mediastinal disease in cases in which the preponderance of signs and symptoms indicate abdominal disease. There are very few cases of mediastinal disease giving striking abdominal signs and symptoms which do not show more or less dyspnea, often quite out of proportion to the apparent grade of thoracic symptoms otherwise indicated in the case.

A careful physical examination of the mediastinal space is clearly indicated in every instance of apparently acute inflammatory or hemorrhagic disease of the upper abdomen, and no case of chronic disease of this region should be placed under final treatment before cardiac disease has been fully considered.

Although in part already considered, I believe that it is wise for us to especially consider the frequency with which the symptoms and signs of even an early angina pectoris are occasionally referred almost exclusively to the abdomen. This is particularly true of those patients in whom the anginal paroxysm commonly arises after eating, and in whom hyperacidity, gastric flatulance, and especially the sharp pain located in the epigastrium are the most constant manifestations of the angina. These cases are very frequent, and in a good many instances the detection of the true basis of the complaint is difficult; it often demands a most exhaustive study of both digestive and circulatory systems. As a rule in these cases one will find in some other, perhaps more readily detectable tissue, evidences of arterial disease, such as sclerosed retinal or conjunctival arteries, thickened radials, temporals, or brachials.

In more than few cases of this kind, of course, true gastric disease, particularly in achylia gastrica is associated with the angina, perhaps due to the same basic lesion, as, for example, to a syphilitic or gouty arteritis. In several cases I have found verified at autopsy marked associated disease of the pancreas in which anginal attacks of the pancreas were associated with undoubted vessel spasm of the coronaries. From the pancreatic standpoint this may be clinically verified by the existence of pain, often typically anginal in character, occurring without much modification in the heart rhythm or sound quality and with marked tenderness, usually a zone of head hyperesthesia at that level. Temporary appearance of sugar in the urine is also seen in some of these cases. As I have said, I am convinced that in certain patients whom I have studied both coronary and pancreatic arterial spasm were present, but the error which all of us are likely to make is to neglect the one or the other. The recognition of grave cardiac involvement is usually dependent on a poor heart muscle tone, but arrythmias and marked pulse deficit may be also present.

Pleural disease, and particularly the acute inflammatory lesions of the pleura, cause with great regularity the appearance of abdominal signs and symptoms. This is a fact which has been recognized for a very long time, and yet few, indeed, are the surgeons or internists who have not fre-

quently confused acute pleural disease with serious inflammatory disease of the abdomen, notably with acute gall-bladder inflammations and with appendicitis. Theoretically the differentiation is, or should be, easy, but as a matter of clinical fact it is most difficult and in very many instances quite impossible without calling into the conclusion the very important factor of *time*.

Obviously the confusion is most difficult to eliminate when the pleurisy is of the diaphragmatic membrane. In this location the definite signs of pleurisy may remain in abeyance for some days except for the abdominal manifestations. Temperature may or may not be present in either condition, leucocytosis may alike be present or absent. In either instance the respiratory movements are limited, usually more so on the chiefly affected side, though not at all infrequently one finds that the rigidity and tenderness of the abdomen is of the side opposite to that in which the pleural lesion is located. Of course, in the usual case the rigidity of the abdomen is more marked in the upper quadrants, but I think that all of us have seen instances in which the rigidity is as sharply located at McBurney's point, for example, as ever seen in true acute appendicitis. Not only do we find localized points of rigidity, often with a definite sense of intraabdominal mass, but tenderness may be also present and the sign of peritoneal irritation manifested by a sharp thrust of pain on the quick removal of the palpitating hand.

Abdominal zones of Head hyperesthesia may be present in some of these cases. It is very much easier, as a matter of fact, to detail the points of resemblance which may appear in instances of acute pleurisy with active abdominal disease than to point out points of differentiation. One point which has been of considerable assistance to me, though it, like all others, is often absent, confusing, or even misleading, is the fact that in the pleural lesion respiration is more frequently accelerated than in the true abdominal lesion. This point is best determined when the patient is asleep, though it may be made out sometimes in the waking hours.

Although these abdominal symptoms are much more likely to be seen in acute and in inflammatory lesions of the pleura, they may also appear in the more chronic ones, and I have seen cases operated for chronic appendix or for chronic gall-bladder disease in which the final explanation of the symptoms was found to depend on pleural adhesions, chronic inflammatory processes or even on pleural neoplasm. Symptoms leading to a possible diagnosis of ulcer of the duodenum may be also closely simulated by pleural disease, and in some cases chronic hyperacidity of the stomach has its true explanation in an old pleural lesion.

Of course, the *x*-ray, and particularly the study of the respiratory movements and shadows under the fluoroscope are of tremendous assistance in the differentiation of these cases, so also may the diagnostic tap be in those cases in which effusion is present. Frequently, however, particularly in the early phases of the process, in just the period in which conclusive diagnosis is most desirable from the surgical standpoint, the area of pleural disease may be small, and it may be further located at the very dome of the diaphragm, in which place detection is most difficult even under the best of circumstances.

Another point of importance to recollect is that, while one may be able in certain of these cases to demonstrate old adhesions, effusion, or even definite acute inflammatory lesions of the diaphragmatic pleura, this finding by no means definitely excludes the coexistence of abdominal lesions of perhaps insistent surgical importance. I saw a case this past spring in which the symptoms had been that of an old appendicitis of months' standing, in which apparently an acute exacerbation had occurred. On going over the case preparatory to operation, an area of dullness was demonstrated at the right base, *x*-ray plates showed the presence of supra diaphragmatic effusion and diagnostic tap showed the presence of pus. The patient was operated for an empyema, the diagnosis being confirmed at the operation, but the patient died, and the autopsy showed an old chronic appendicitis which had, as first diagnosed, perforated, causing a retroperitoneal abscess which had aparently secondarily infected the pleura. I am still at a loss to say in what manner we might have more wisely managed this case from the evidence presented; unquestionably the abdominal condition was the important one and that demanding the first and most thorough attention. We must never forget that, though all these various thoracic conditions may cause abdominal signs and symptoms, so also do peritoneal lesions not so very infrequently give rise to apparently more insistent thoracic signs and symptoms.

Not only do lesions of the pleura give abdominal signs and symptoms of very striking and confusing character, but what is even more difficult to explain on a physiological basis is the occurrence at times of striking abdominal signs and symptoms in disease of the lung without any pleural lesions which are detectable on autopsy. Of course, in most cases of pneumonia a pleurisy is also present, and it is very simple to assume, especially where the pneumonia occurs in the bases and then becomes overlaid with a pleurisy, that the symptoms of abdominal location are due to the pleural irritation, but as I have just said, we find cases in which the pneumonic process is located deep in the central portions of the lung and in which no apparent involvement of the pleura is then present.

In instances such as this we find early fleuroscopy or *x*-ray plating of the chest of great assistance, and in several instances in which surgical investigation of the abdomen seemed indicated, the discovery in my service of deep central pneumonic foci has saved us from the serious error of a laparotomy. In yet other instances, however, as every expert radiographer and internist knows, definite signs and symptoms of a pneumonia, perhaps one manifested by abdominal symptoms very largely, may be present and yet the most searching fleuroscopic and *x*-ray examination show nothing. In such a chest I have been able to demonstrate but a few hours thereafter extensive areas of consolidation.

Every experienced clinician realizes the tremendous difficulty with which differential diagnosis is accomplished in instances of this kind—very frequently it is a quite impossible matter, and in such instances the policy of the wise practitioner should be to wait until differentiation is possible. The mortality rate in cases of pneumonia which have had an unnecessary laparotomy imposed upon them is very high. The condition is, of course, not necessarily fatal, but add to the shock of the operation and the irritation of the anesthetic, the toxemia, and serious mechanical lesions of a pneumonia and the chances of recovery are greatly diminished.

What, then, are we to advise in those cases which develop acutely, simulate an acute inflammatory lesion of the abdomen and yet give rise to a persistent suspicion of a developing pneumonia? My experience has led me to feel that the wisest procedure is to wait until differentiation is possible. The icebag may be applied to the abdomen, the patient may be elevated in bed, so tending, the surgeons tell us, to the localization of an abdominal abscess, should it form; localization of the suspected abdominal inflammation may be also favored, after the method of the older clinicians, by the giving of opium. The abdominal inflation and to some extent the pain may be relieved by the giving of high colonic irrigations or by ordinary enemata, but never in these suspected cases should we permit an active cathartic to be used, even though we feel reasonably certain that the real basic condition is a developing pneumonia.

Of course, one is going to lose some cases by following out this cautious method of treatment; in by far the larger number, however, in case of mistake and the surgical neglect of an abdominal disease, subsequent drainage will at least save life, but when the opposite method is followed out the surgeon is quite certain to lose a good many more cases from his overzeal. He may, of course, solace his soul in the diagnosis of a postoperative pneumonia, but he is not going to increase his own self-respect or his reputation with the lay public, all too prone to condemn any operative procedure which is followed by death, quite irrespective of the cause.

My rather extensive autopsy experience in the past has convinced me that very many cases of postoperative pneumonia in abdominal cases were really due to failure of diagnosis of a developing pneumonia, due to the predominance of its abdominal signs and symptoms. In most of these cases a reasonable delay would have given the correct diagnosis. From my own experience I have no just ground to condemn error in this difficult differentiation, but I have had abundant experience to justify me in asking for a reasonable time for observation in all doubtful cases. I have certainly regretted my haste many more times than I have delay in these cases.

Several instances of pulmonary infarction have come to my service with a history of sudden stabbing pain in the right or left upper quadrant of the abdomen. Usually in these cases it is found that there is a definite rigidity, often with an area of tenderness in the abdomen and in the presence of an endocarditis or of a general sepsis I have diagnosticated renal or splenic infarction, when either closer physical examination or subsequent course or autopsy has shown the basic lesion to have been an infarction of the lung, usually of the basal portions. In cases of this type, however, one must exercise much care and close study, because of the frequency of pulmonary infarction, after serious abdominal disease and notably after operations on the appendix, gall ducts, colectomies, and the like. Here, again, the internist is frequently puzzled to decide if he is dealing with a postoperative or anesthetic pneumonia or with a postoperative pulmonary thrombosis.

I wish also to call your attention, basing my remarks on mistakes into which I have been led, to the frequency with which obstructions of the esophagus, malignant or otherwise, are manifested by indications of gastric disease. This particularly refers also to the diagnosis of gastric ulcer or carcinoma, or of reflex vomiting. Early lesions of the esophagus are always very difficult of diagnosis, and in very many cases seemingly conclusive negative *x*-ray findings are very misleading. I have myself found my chief assistance in the exclusion of esophageal lesions as the explanation of possible gastric disease, in watching the act of deglution and, where possible, in the following of the globus of food or drink through the fleuroscope. Very extensive ulcerative lesions of the esophagus, especially of the lower one-third, refer pain nearly to the epigastrium rather than to the point of actual ulceration.

As every practitioner knows, one of the most frequent methods of onset in chronic ulcerative pulmonary tuberculosis is with gastrointestinal signs and symptoms. Of so definite a nature is this syndrome that Osler speaks of it as one of the characteristic clinical pictures of onset in this disease. It has been argued by many that the explanation of these symptoms is because of involvement of the peritoneum by the specific inflammation. Though, of course, this is occasionally found, it is by no means the rule, but rather the exception, at least until late in the infection, when its specific and pulmonary nature have usually become absolutely definite. Neither can we explain the frequency of the method of onset on the basis of a pleural involvement which acts reflexly as in the acute pleurisies. This also, of course, may appear, but it is as a rule not until relatively late in the infection, for pleural invasion is not an early but a late manifestation of this form of tuberculosis.

The importance of recognizing the fact that a complete picture of gastrointestinal symptoms may indicate pulmonary tuberculosis must be constantly borne in mind, for every gastrointestinal clinic is constantly seeing these cases. Many of them enter the hospitals under this diagnosis, and by no means infrequently surgeons see these cases under the tentative diagnosis of a gastric or intestinal carcinoma, chronic duodenal or gastric ulcer, and perhaps the differentiation is only evident on a full physical examination or when the roentgenologist in his examination of the abdomen checks up by a plate of the chest.

In very many of these cases the indications of pulmonary disease are few in number, indeed cough is either absent or infrequent, the asthenia, anemia, loss of strength and weight are accountable on the basis of the supposed gastrointestinal disease, so that correct diagnosis is only likely to be made from a complete physical examination or, in carefully studied cases, from the negative physical findings in the abdomen, which then, of course, leads to a proper examination of the chest. The frequency of this condition emphasizes the importance in abdominal disease of either a complete physical examination in all cases or on the finding of definite and certain physical lesions in the abdominal organs before resorting to operative measures. This is no field for exploratory laparotomy. Consulting internists are not infrequently called in to see cases diagnosed as gastric ulcer with hemorrhage, some time to consider the advisability of operation when complete investigation shows the hemorrhage to have originated from an advanced lung tuberculosis.

Perhaps many of you feel that I have, as it were, but led you into a slough of diagnostic despond, for I fear that I have given you but very little help in the all-important field of differential diagnosis. I frankly acknowledge this to be true, and I pose to-day not as an instructor but as one of your fellows who has found this field a most difficult study, and one to which he wishes to especially attract your attention. My desire briefly restated is to call to your attention the very great frequency with which various thoracic lesions give symptoms and signs indicative of preponderating abdominal disease; to point out the great difficulty of the diagnosis; its paramount importance particularly when acute inflammatory abdominal lesions are simulated, and especially to emphasize the very great necessity of close observation of these cases for a reasonable period of time before the thoracic origin of such a symptom complex becomes so certainly excluded as to determine operative interference. It is often a most difficult matter for the internist or general practitioner to keep his head in such instances. If I have encouraged some of you in your conviction as regards this matter that, when in doubt, hesitate, *don't operate*, I have at least helped you to a conclusion to which my experience has led me.

47 WEST NINTH STREET.

SYPHILIS FROM THE STANDPOINT OF THE CLINICIAN.*

BY SAMUEL FELDMAN, M.D.,

NEW YORK.

INSTRUCTOR IN DERMATOLOGY AND SYPHILIS, FORDHAM UNIVERSITY; ADJUNCT, BRONX HOSPITAL; ATTENDING PHYSICIAN, CORNELL DISPENSARY DEPARTMENT OF DERMATOLOGY AND SYPHILIS; CHIEF OF CLINIC, BRONX AND LEBANON HOSPITAL DISPENSARIES, DEPARTMENT OF DERMATOLOGY AND SYPHILIS.

OF the 375 patients admitted to my divided service at the Cornell Dispensary during the three years ending April, 1921, twenty-two were cases of primary lues, including two reinfections, one patient with four chancres on the penis, one had a chancre on one of his tonsils, and one had a chancre on the upper lip. There were two patients in whom scabies was apparently a predisposing cause. A girl about thirteen years old, afflicted with scabies, developed a chancre on the inner surface of the knee. She was a hat-check girl. Did the handling of possibly infected clothing have anything to do with her infection? The second patient had scabies with numerous lesions on his penis. He exposed himself to infection during that period. After a course of treatment for scabies, all lesions of that disease disappeared, except a small spot on the glans penis. The latter lesion, on the contrary, kept on increasing in size, and changing its appearance until a chancre was suspected. The latter diagnosis was confirmed by finding spirochetes in the lesion.

There is nothing special to note about the 25 patients with secondary lues, except that one of them had chills and fever for two weeks immediately preceding the appearance of the secondary eruption, and, in spite of a definite history of a chancre, the case was diagnosed and treated as malaria. The total number of primary and secondary cases combined was 47, and the approximate proportion of early to late lues was one out of eight.

In the four years preceding 1918, out of 998 cases of syphilis, 249 were primary and secondary cases, the proportion of early to late infections being one out of four. (See Feldman, "Treatment of Syphilis," *American Journal of Syphilis*, May, 1921.)

It has been the general opinion that syphilis is on the increase. The above figures seem to contradict that impression, for the only measure of the prevalence of syphilis that can be at all relied on is the number of fresh infections that continually take place. Syphilis, as well as all other chronic infections, would tend toward elimination, provided no new infections took place. Several factors might have entered in the real or apparent reduction of the number of primary and secondary cases of lues. During the war period many young men of the age when venereal infections are more prevalent were concentrated in camps and then sent across. All through that period any infection that took place among these men was treated by the army medical men, and until the prevalence of early infections in the army can be compared with that in civil life, no proper estimation can be made. It must, however, be remembered that army life may be either more or less rigid than the restrictions placed upon himself by any civilian according to his personal moral code, and the comparison would not be entirely a just one. On the other hand, if the war were the sole factor, with the return of the men from France, of necessity we would have to see early infections on the increase again. In fact, we could expect, for a short time at least, the proportion of infections to become greater than before the war as a sort of reaction against the rigid discipline of army life. As a matter of fact, that is not the case, as is borne out by the author's cases. In 1918, the year of the war,

*From the Department of Dermatology, Cornell Medical College. This article is based on three years' work at the Cornell Medical College Dispensary from April, 1918, to April, 1921. Read at a meeting of the Bronx County Medical Society, November 16, 1921.

we had a total of 12 cases of primary and secondary lues. In 1919, when the war was over and all the men had returned, we had 15 cases, and in 1920 we had 17 cases. As everyone will remember, 1918 was a poor dispensary year on account of the epidemic. The increase of 5 cases in 1920 over the former year is only a relative one, as there were a greater number of cases treated in the latter year than in the former, and the proportion of one out of eight remains the same. With the war factor eliminated, we again must return to the question: What accounts for the diminution in the number of infections that take place at present as compared with the prewar period? The only logical answer that may be given is that the campaign of education against syphilis, waged by the various national and State organizations and civil bodies, is being crowned with success. The diminution of venereal infections can be due to only two causes—namely, a better morality and a better understanding of personal hygiene. It is more likely that the public is learning how to take precaution.

That at present there may be a greater number of syphilitics under treatment than formerly cannot be denied, in spite of the fact that at Cornell it was much smaller. In the four years preceding 1918 there were 998 cases, or an average of 250 cases a year, while in the three years following there were 375 cases, or an average of 125 cases a year. If there is an increase at all, it must be in the number of old cases of lues, which have previously escaped detection and have now been put under treatment, thanks to the better understanding of the nature of the infection, especially in patients who present no superficial evidence of the disease. This will be clearly demonstrated later in the article.

Sixty patients of those admitted during the three-year period were latent. They had no other evidence of the disease except a positive Wassermann test. Thirteen were early cases, their infection dating back from a few months to a year; 25 gave a history of infection dating back more than one year and in many instances as long as 30 years; while 22 cases denied a history of infection. In 13 of the latter the disease was discovered accidentally, a Wassermann test having been made for the purpose of obtaining a food handler's certificate from the Department of Health, and 9 gave a history of a luetic husband, wife, or child, or repeated miscarriages or stillbirths. Of the latter we only had 2 cases, which is an extremely small number, as miscarriage is a very frequent condition in syphilis.

Out of the 118 patients with tertiary lues, 39 had skin gummata in various regions of the body and 19 had papular, serpigenous, and squamous syphiloderms. In one case the lesions were like tuberculosis verrucosa cutis, in another one, with lesions on the nose, the disease so strongly resembled lupus vulgaris that, in spite of a positive Wassermann test, the nature of the disease was not really established until after a number of salvarsan treatments as a therapeutic test. One patient, when first seen, had lesions on the upper lip and about the mouth which resembled lupus erythematosus. The border of the lesion was elevated, the center depressed, the surface shiny and, in places, covered with firmly adherent scales. This patient was treated for six months with radium and another six months with the alpine lamp by men high up in the profession. The writer must confess that he did not altogether doubt the diagnosis, but, as the lesions were not entirely typical, there being too much infiltration for a straight case of lupus erythematosus, a biopsy was made and the pathological findings were those of the latter disease plus a certain amount of round-cell infiltration, the latter containing a fairly large number of plasma cells. The patient was presented at one of the dermatological societies in this city, and the diagnosis was apparently concurred in. However, a Wassermann test was taken and it proved to be four plus, but, in spite of that, we still thought that we were dealing with a case of lupus erythematosus with the addition of a syphilitic infiltration until the lesions cleared up after a few salvarsan injections. One patient had skin lesions not unlike urticaria, but on a copper-colored base. Another one presented lesions on the arms and legs that, at a glance, were indistinguishable from erythema nodosum. On closer inspection, however, there were no signs of acute inflammation, there was no heat, pain, or tenderness, yet we were quite perplexed till the patient came to our aid by giving a history of luetic infection. We had several cases which serve strongly to emphasize the fact that surgical wounds in a syphilitic patient have no tendency to heal. A second-degree burn defied all efforts of the physician. There was not the least tendency to heal after four months of surgical treatment until a Wassermann test proved positive and antisyphilitic treatment was instituted. A bullet wound in a returned soldier showed no sign of healing. There was no history of lues, but a Wassermann test was positive, and the wound healed rapidly with antiluetic treatment. A case of orchitis was diagnosed as tuberculous. An operation was performed in one of the hospitals in this city. The operation wound would not heal. Here, also, a Wassermann test made on the patient's blood was positive and the wound healed rapidly after a short course of antisyphilitic treatment. Was that a case of tuberculous or syphilitic orchitis? A patient was treated for chronic articular rheumatism. He had joint pains and an *x*-ray examination of the patient's mouth revealed a focal infection in the root of one of his molar teeth. The tooth was extracted, but there was no relief of the articular pains and the extraction wound showed no tendency to heal. Here, again, a positive blood test put us on the right track and we were able to watch the rapid disappearance of the joint pains simultaneously with the healing of the wound as the patient received his first few antisyphilitic treatments.

Many of the following patients with tertiary lues did not come for treatment directly to the department of syphilis, but they first came with their complaint to other departments of the dispensary, where their condition had first been diagnosed, and were then transferred to the for-

mer department. The departments of medicine, surgery, eye, ear, etc., have each contributed their share.

Of patients with involvement of the mouth and the upper respiratory passages, three had ulcerations or perforations of the nasal septum, two suffered from leucoplakia, two others from interstitial glossitis, three from ulcerations of the soft palate, and four patients had either pharyngitis or laryngitis.

There were eleven patients with ocular lesions, five of which were cases of interstitial keratitis, four of iritis, and one each of iridocyclitis and choroiditis.

Of the patients with involvement of the genitourinary tract there was one case each of orchitis and erosions of the uterine cervix. One patient with a luetic history of nine years' duration remained practically untreated, until in 1916 he developed symptoms of chronic parenchymatous nephritis. He complained of backaches and his urine boiled almost solid. His Wassermann reaction was four plus. In spite of the fact that the older literature warns against the use of arsenic in nephritis, the patient was given small doses of salvarsan, even mercury injections, cautiously administered. His urinary symptoms cleared up completely after a short period of treatment, under which he remained nearly continuously for three years. His blood became negative and remained so for six months, when he finally disappeared from the clinic. Kolmar, Lucke, and Schamberg have recently demonstrated experimentally on animals (*Archives of Dermatology and Syphilis*, April, 1921), that arsphenamine has a special affinity for the liver, suprarenals, and the blood vessels, while mercury is more poisonous to the kidney and the brain. That does not mean that patients with positive blood reaction and with diseases of the kidney, liver, blood vessels, etc., should not receive antisyphilitic treatment. On the contrary, the symptoms will usually clear up under treatment. With this in mind, we treated all our luetics who had albuminuria, jaundice, or aortitis with salvarsan and we managed to get excellent results. The case is different, however, when a syphilitic patient who has previously no indication of trouble in the abovementioned organs suddenly develops albuminuria or jaundice. In that case the condition may be due to the drug, and treatment must be discontinued. Among the patients with lesions involving the abdominal organs there were two in whom the liver was at fault. One patient was transferred from the general medicine department with a diagnosis of hepatitis. He had a large liver, which extended two inches below the border of the ribs. The left lobe was especially involved. There was marked jaundice. The latter disappeared completely and the liver contracted to nearly its normal size before a four months' course of treatment was completed. The other patient came with a diagnosis of aortitis and hepatitis. His symptoms cleared up gradually, his blood reaction was negative after two courses of treatment and, although it remained so for 2½ years, treatment has not been discontinued. Two patients with skin gummata developed jaundice after a shorter or longer period of antisyphilitic treatment. The latter was discontinued and the patients watched for a while. Both, however, disappeared from further observation and the progress of their condition remains unknown to the writer.

Among the patients with lesions of the gastrointestinal tract, two were transferred to our department with a diagnosis of gastritis, and one complained of constant spitting, a lump in the chest after eating, and a bad taste in the mouth. He denied a history of lues, but had a four plus Wassermann reaction. All three improved rapidly under treatment. In a woman, who complained of indigestion, an *x*-ray plate revealed a circular constriction of the stomach. There was no luetic history and her blood gave a negative reaction, yet her case was suspicious and she was given antisyphilitic treatment as a provocative measure. The Wassermann reaction after the provocative was also negative, but curiously enough her subjective symptoms have improved. Besides the above cases there was one case each of fissure and of fistula in ano.

Of the patients with lesions in the lungs and cardiovascular system, one was referred from the internal medicine department, where he came after repeated pulmonary hemorrhages. He had a positive Wassermann reaction and an *x*-ray of his lungs showed a slight fibrosis. At the present time he has been under treatment for a short period only, yet his hemorrhages have stopped completely and he feels improved in general. Two patients were transferred with a diagnosis of syphilitic infiltration of the lung. The *x*-ray plate in one of them showed a marked infiltration at the hilum. Repeated examinations for tubercle bacilli revealed nothing, but the Wassermann reaction in each case was positive. Their subjective symptoms cleared up completely after a certain amount of antisyphilitic treatment. A second *x*-ray examination has not as yet been made. Besides the above, there also was one case each of arteriosclerosis with hemorrhages in the fundus of the eye, of high blood pressure, and of aortic regurgitation, and two cases of aortitis.

Patients with objective and subjective symptoms referable to the skeletal system: Osteitis, periostitis, and exostosis, two cases; pain in a number of joints, two cases; pain in the knee, in the hip joint, in the feet, in the shoulder, and muscular pains in the arms and shoulders, one case each; pain in the legs, four cases, and cramps in the legs, two cases.

Besides patients with pains in the skeletal system, there were a number who complained of pain referable to various regions of the body and in whom it was the sole symptom, there being no other evidence of lues, outside of a positive Wassermann test. They were as follows: Four patients with general pains, referable to several regions of the body and traveling from region to region; described by the patient as burning pains, two cases; pain in the chest, nine cases; pain and burning sensation in the region of the heart, one case; cephalalgia, nine cases; migrainous headaches, one; pain in the region of the spine with headaches, two; abdominal pains, two,

and gastric pains, one case. These cases, in which pain was the only evidence of disease, have been purposely classified in a group in order to make prominent the fact that probably all these pains represent syphilitic lesions in so early a stage as not to show any objective signs with the methods of diagnosis at present available. For example: The abdominal pains may be the first and the only sign of tabes before the degenerative processes are far enough advanced to show the well-known and distinctive signs of that disease; precordial pain may be due to coronary artery disease in its incipiency or to early tabes; the joint pains to early joint involvement, whereas shooting pains in the legs are characteristic of early tabes. Several of these cases have actually been traced to the central nervous system by positive findings in their spinal fluid and will be discussed later. A number of patients in this group, as well as some previously mentioned, have denied any history of lues in themselves or in their immediate family. Assuming that the statements of the patients have been made in good faith, which we have no reason to doubt, the absence of a luetic history in syphilitic patients may be accounted for in the following manner: There might have been at some remote period an innocent-looking papule or ulcer, which was overlooked by the patient or wrongly diagnosed by the physician and the incident entirely forgotten. Intraurethral chancres, vaginal and cervical lesions and lesions in the mouth and pharynx may have occurred without the subsequent appearance of any secondary eruption, and the condition was therefore overlooked or wrongly diagnosed. Some patients may have had hereditary lues, in whom the symptoms appeared late in life, with a forgotten history and without any stigmata of heredity. Lastly, a number of patients may have had direct infection of the blood stream and with the entire absence of primary or secondary lesions. The diagnosis of syphilis in these cases, as well as in patients whose sole complaint is general weakness, debility, anemia, nervousness or neurasthenia, dizziness or vertigo, of which we had 10 cases also in patients with gastrointestinal, joint, and muscular pains, as well as in patients with symptoms referable to the nervous system (which will be enumerated later), is extremely difficult, especially in the absence of a luetic history. An early diagnosis is but rarely made and the patients are treated for their symptoms or the disease which their symptom complex resembles in some instances for many years until the disease progresses so far that the diagnosis becomes apparent. For example: Two patients with joint pains were treated for a long time for chronic articular rheumatism and the anemic patient was treated with cacodylate of sodium with some degree of success, but without a diagnosis. Further illustrations of the above statement the reader will find in other places in this article. The result of improperly diagnosing these cases ranges anywhere between the tragic and the ridiculous. The welfare of the patient, nay his very life, may depend upon an early diagnosis. How can we arrive at it in syphilitics with these and similar obscure symptoms? When a syphilitic history is obtainable the diagnosis is a comparatively simple matter. A Wassermann test will usually tell the story. Even if the blood test proves negative we can still resort to the therapeutic test, which hardly fails us in clearing up symptoms. How shall we arrive at a diagnosis without the help of a history of lues? In the opinion of the writer, the only means in our possession for overcoming this difficulty is the routine Wassermann test. Every patient, except those whose condition is unquestionably nonluetic, should be subjected to it. As syphilis may simulate almost anything in medicine, with the possible exception of the acute infectious diseases, the number of patients in whom the absence of lues could be taken as a positively established fact would be comparatively small. By a careful examination of the list of cases enumerated in this article the reader can readily see what a variety of conditions are here represented. To illustrate what may be accomplished with a routine Wassermann test I will cite the following: Of late the general medicine department of Cornell is subjecting nearly every new patient to the test and, if the latter is found positive, the patient is at once transferred to the department of syphilis. In the three years upon which this article is based the record files in the latter department, in the writer's divided service alone, show 46 cases with pain as the only symptom of syphilitic infection out of a total of 375 cases of lues, or 12½ per cent., while in the four preceding years, in the same service, there were only 26 cases out of a total of 998 syphilitics, or 2½ per cent. The same increased proportion prevails in the entire group of cases that are apt to seek relief for their trouble of the internist rather than of the syphilologist. It is true that with the routine Wassermann test we cannot hope to detect all cases of syphilis, even if the latter be applied to every living human, for a number of patients with tertiary lues and more with syphilis of the central nervous system repeatedly give a negative Wassermann reaction, especially if untreated, and therefore a number of cases are bound to remain unrecognized.

This brings us to the question of the reliability of the Wassermann test as a test for syphilis. The cases in which the latter apparently or really fails us, can be divided into two groups: First, the cases in which the failure is only apparent, the results depending upon the skill of the serologist, the technique, and the antigen used. The probability is that this difficulty will soon be eliminated with the establishment of a proper standard for the test. There is, however, a group of cases, which are clinically unquestionably syphilitic, yet their blood is continuously negative. Neurosyphilis and, to a lesser extent, old tertiaries make up the bulk of this group. For example: out of 38 tabetics, 7 had negative blood reactions when we first saw them, or about 19 per cent. Four of them, however, became positive after one or more courses of treatment. Out of 118 cases of tertiary lues with gummata in the skin and various organs, two were negative on admission or about 1½ per cent., while out of 17 cases of hereditary lues, one started his dispen-

sary career with a negative Wassermann reaction. Cannot this phenomenon in syphilis be compared with the similar one in all other infections, when either the invading organism is too virulent for the host or the latter too weak to be able to set up a reaction against the former? What else is the Wassermann test based upon, outside of the reaction of the tissues of the host against the invading microorganisms? The fact that many of these patients give a positive reaction after a certain period of antisyphilitic treatment, bears out this contention.

It would be unscientific for any physician to discard the Wassermann test as worthless, because it is, in certain instances, inconclusive. It would be criminal for any writer to attempt to discredit it, because of its shortcomings. The harm done by discarding it or even by relaxing its rigid application would be incalculable. If a negative reaction is not an absolute proof of the absence of syphilis, a positive one is quite conclusive, especially in the presence of even the least suspicion of luetic infection. Fortunately, the great majority of syphilitics with negative reactions are those in whom the clinical evidences of the disease are well defined and the aid of the blood test is of secondary importance. Who would, at this late day, regard a clinical diagnosis of tabes as insufficient evidence of syphilis? The only time the test really fails us is when the symptoms are vague and indefinite and the reaction is negative at the same time. Judging by the percentage of well defined tertiaries with negative reactions, the number of patients with ill defined lesions and negative reactions must be comparatively small. Even in these cases, the task of arriving at a definite conclusion is not entirely hopeless, for we may still resort to the therapeutic test. That medicine has not yet arrived at the stage when every case can be correctly diagnosed, with the possible exception of the autopsy table, no one will deny. Why, then, should we expect more when we are dealing with syphilis than with any other disease? Why feel disappointed?

A small group of tertiaries were those with involvement of the nerves, both cranial and spinal. Of these we had two cases of peripheral neuritis; two of third nerve paralysis, one of seventh nerve paralysis, five cases of optic nerve atrophy, and two of auditory deafness. In passing, it is worth while to note that, while the clinical results from antisyphilitic treatment were very good in all but the last two conditions named, the latter showed not the least sign of improvement.

Of the forty-five patients with involvement of the central nervous system the predominating type was tabes, eighteen early cases and nineteen late ones with the following variations: Two patients were suffering from incontinence of urine, one from bladder irritability, and one from attacks of gastric crisis without any other tabetic symptoms. Further there was one case each of early tabes with colic and headaches, of early tabes with optic atrophy, of early tabes with cardiac hypertrophy and aortitis, and of early tabes with pain in the stomach. One patient had a pain and burning sensation about the heart and in spite of a definite syphilitic history, his blood Wassermann test was negative. His trouble, however, was traced to syphilis of the central nervous system by positive findings in the spinal fluid. A male patient, about 30 years old, suffered from loss of sex power. The writer must confess that he is not sufficiently posted on the subject of endocrinolog to question the wisdom and purpose of the surgeon who grafted horse testicle into the subcutaneous tissues of the patient's abdomen. What he could not accomplish with three successive operations, was done with a very short course of mercury and salvarsan.

Two cases of advanced tabes are remarkable examples of how often these cases are wrongly diagnosed and treated. One, a very old tabetic with paraplegia, was treated for chronic articular rheumatism for five years before his case was properly diagnosed. The other one had severe attacks of vomiting, which were not influenced by any medical treatment. A gastroenterostomy was performed for the relief of the vomiting, but without success. As might be expected, a Wassermann test of the patient's blood was made before the operation and it was negative. When the patient came to the clinic, he had all signs of advanced tabes, so that a spinal puncture was deemed unnecessary. It is needless to say that the vomiting stopped shortly after treatment was instituted, although his ataxia and the other tabetic symptoms were only slightly influenced by the treatment.

Among the other patients with central nervous system involvement were two cases of paraplegia, one of cerebral hemorrhage, one of luetic meningitis with paraplegia, two taboparetics, and three patients with cerebral lues, one of whom had attacks of unconsciousness and two had epileptiform attacks. A patient was admitted to the maternity ward of the Bronx Hospital. She was 17 years old and delivered herself of a syphilitic child. She denied any history of a primary lesion, but a fading roseola was still visible. On the fourth day of the puerperium, the patient was found under her bed. On being questioned, she remembered nothing of what had happened. The same day she had three convulsions, the first one lasting about two minutes, the second, five minutes, and the last one about thirteen minutes. The convulsions were epileptiform in nature, except that at times, instead of the hands being contracted into a fist, there was flexion at the wrist and extension of the rest of the joints of the hand. There were the unconsciousness, the biting of the tongue, the deep coma following the attack, and absolute lack of knowledge of what had happened. Between the attacks the patient's mind was more or less clouded. On the following day the patient had two attacks, each lasting about fifteen minutes. Salvarsan was administered during the interval between the two attacks and the patient slept quietly during the entire night. There was only a slight spasm on the next day. It lasted only a few seconds and was the last one of the convulsive seizures. The patient's mind cleared up gradually and five days after the last attack, she described what she thought she remembered about the attacks, namely, that she was in the act of flying and was kept back by a crowd of people

(the nurses who held her down). The nurses reported that they found her in the act of masturbation four times during her ten-day stay in the hospital. Her temperature and pulse were normal and her blood pressure was 110 systolic and 60 diastolic. Her blood Wassermann was four plus and her cerebrospinal fluid was negative to the Wassermann test and to all other pathological findings. It is clear that we were not dealing with an eclampsia or a cerebrospinal lues, but with a severe spirochetal toxemia.

An interesting family group of five members came under my care in the Lebanon Dispensary. The father had taboparesis with paraplegia, the mother and the oldest boy had tabes, and the younger boy cerebrospinal syphilis with paraplegia. An interesting observation on these cases was made by Dr. J. H. Leiner who kindly referred them to me from the neurological clinic, namely—that the first clinical symptom in each case was nystagmus. Another boy in the same family died in the City Hospital from cerebral lues. The Wassermann test was positive in all, except the fifth member of the family, a girl of thirteen, in whom it was negative, both clinically and serologically, on admission. After watching the child for about a year it was observed that her pupils had become somewhat uneven, that they were slightly fixed, and that nystagmus was present in her case as well as in the other members of the family. She was immediately placed under treatment. This was the largest number of patients with cerebrospinal syphilis in one family, observed by me during many years of dispensary work. I can recall only one other syphilitic family of five, but not a single member of that family had any central nervous system involvement. Two children of that family suffered from interstitial keratitis and one from exostosis of the clavicle. The parents were both latent syphilitics, each with a positive Wassermann reaction. What explanation can be given to the occurrence of neurosyphilis in all members of one family and in none of the other? It is evident that there must be some difference in the mechanism of infection. Either there is a lack of resistance on the part of the nervous system of the host, which may be hereditary and transmitted to the offspring, or there may be a special affinity of the invading germ for the cells of the nervous system of the host. The former cannot logically be considered the causative factor, in view of the fact that hereditary traits are not transmitted from husband to wife. The only logical conclusion one must arrive at is that there is a special strain of spirochetes with a special power to attack the cerebrospinal system. The fact that a large number of patients with neurosyphilis, unlike those with syphilis of other organs, give a negative Wassermann reaction, makes one think that that particular strain of spirochetes which is capable of producing neurosyphilis bears the same relation to the ordinary strain of spirochetes that the paratyphoid bacillus bears to the typhoid bacillus. The name parasyphilis, sometimes applied to neurosyphilis, seems justifiable.

While on the subject of tabes, it would be interesting to note at what period after the initial lesion the symptoms of that disease appear. In a selected group of cases, in which the history of the initial infection was stated definitely, the writer finds that out of 33 tabetics, three developed that disease before the fifth year, after the initial lesion; nine, between the fifth and the tenth; six, between the tenth and the fifteenth; seven, between fifteen and twenty; four between twenty and twenty-five, and four after that period, the average being thirteen years. Similarly a group of 49 selected cases of tertiary lues gave an average of 9½ years from the initial lesion to the appearance of the tertiaries, the earliest being one year and the latest thirty.

The most frequent tertiary lesions found on patients with hereditary lues were those involving the ocular structures, namely: three cases of keratitis, two of iritis and one case of optic atrophy, the total being six out of nineteen, or 31.6 per cent. One patient in the above group was of particular interest and deserves a fuller description, namely, a young man 24 years old, who, by appearance, would not be taken for more than about fifteen or sixteen years. He was short in stature and weighed about 85 pounds. He had a very large gumma in the supraorbital region, the right sternoclavicular joint was enlarged to about four times its normal dimensions, the liver reached below the level of the umbilicus, and the spleen was enormously enlarged. His mentality was that of a child. It was impossible to impress upon him the seriousness of his condition and the necessity of antisyphilitic treatment. He only appeared for treatment at intervals and within a period of three months he had only three salvarsan and eight mercury injections, yet it was almost miraculous to note the virtual melting away of the lesions after that small amount of treatment. The supraorbital gumma entirely disappeared, the liver and spleen greatly diminished in size, and only the clavicular exostosis was influenced rather slowly by the treatment. He gained in weight and instead of a small emaciated boy with a wizened face and a large tumor over the left eye, and a large protruding abdomen, he now looks like a well nourished, comparatively normal youth.

Until early in 1918, the dose of salvarsan given to all patients at Cornell, was never larger than 0.2 gm. Later it has been changed so that every patient, except children and adults who, for some reason or other, are unable to tolerate large doses of arsenic, receives a full dose of 0.6 gm. of salvarsan. In a previous article by myself it was demonstrated that, even with the small doses, the results of treatment were quite encouraging. It would be of value to draw a comparison of the results obtained from treatment with the larger and the smaller dose. There were not enough patients with primary lues, treated long enough, to be of value in such comparison. The result of treating secondary lues with the larger dose, however, was decidedly better. The same is true of latent lues. The poorest result, with respect of obtaining a negative Wassermann reaction, was obtained in tertiary lues. Yet, the results were better with the larger dose (see table). Some of the patients with tertiary lues were treated for many years and no negative reaction was obtained. The inability to

TABLE I

Showing the results of treatment of the various stages of syphilis.

Course of treatment		1	2	3	4	5	6	7	8	9	10	11	12
Primary	pos.	2	1	1	.....	...	...	...	...	...	...	...	...
	neg.	2	1	1	.....	...	...	...	...	...	...	...	...
	total	4	2	2	.....	...	...	...	...	...	...	...	...
perc. neg.		50	50	50	.....	...	...	...	...	...	...	...	...
Secondary	pos.	6	2	.....	.....	...	...	...	...	...	...	...	...
	neg.	5	7	6	3	...	...	...	...	...	...	...	...
	total	11	9	6	3	...	...	...	...	...	...	...	...
perc. neg. with 0.6		45.4	77.7	100	100	...	...	...	...	...	...	...	...
perc. neg. with 0.2		44.6	18	40	60	...	...	...	...	...	...	...	...
Tertiary	pos.	26	16	9	8	5	2	4	4	3	2	...	...
	neg.	3	5	6	4	4	7	4	2	2	3	2	1
	total	29	21	15	12	9	9	8	6	5	5	2	1
perc. neg. with 0.6		10.3	23.8	40	33.3	44.4	77	50	33.3	40	60	100	100
perc. neg. with 0.2		34	19	30	36	.....	...	...	...	...	...	...	...
Tertiaries without objective symptoms	pos.	12	3	2	.....	...	...	...	...	...	...	...	...
	neg.	2	5	3	1	...	...	...	...	...	...	...	...
	total	14	8	5	1	...	...	...	...	...	...	...	...
perc. neg.		14.3	35.5	60	100	...	...	...	...	...	...	...	...
Latent	pos.	15	7	3	1	1	1	...	...	...	...	...	...
	neg.	4	9	6	1	...	...	...	...	...	...	...	...
	total	19	16	9	2	1	1	...	...	...	...	...	...
perc. neg. with 0.6		21	56	66.6	50	0	0	...	...	...	...	...	...
perc. neg. with 0.2		41	40	54	27	...	...	...	...	...	...	...	...
Nervous involv.	pos.	3	2	1	1	...	...	...	...	...	...	...	...
	neg.	1	1	1	1	1	...	...	...	...	...	...	...
	total	4	3	2	2	1	...	...	...	...	...	...	...
perc. neg.		25	33.3	50	50	100	...	...	...	...	...	...	...
Cerebrospinal	pos.	10	7	5	1	1	...	...	...	...	...	...	...
	neg.	5	3	2	3	2	3	...	...	...	...	...	...
	total	15	10	7	4	3	...	...	...	...	...	...	...
perc. neg.		33.3	30	28.5	75	66.6	100	...	...	...	...	...	...
Hereditary	pos.	7	3	2	.....	...	...	...	...	...	...	...	...
	neg.	1	1	.....	...	...	...	...	...	...	...	...	...
	total	8	4	2	...	...	...	...	...	...	...	...	...
perc. neg.		12.5	25	0	...	...	...	...	...	...	...	...	...

TABLE II.

Showing the result of treating all cases combined, also a comparison of the results obtained from the larger with that of the smaller dose of salvarsan.

Courses of treatment		1	2	3	4	5	6	7	8	9	10	11	12
	pos.	81	41	28	11	7	3	4	1	3	2	...	...
	neg.	23	32	25	13	7	10	4	2	2	3	2	1
	total	104	73	53	24	14	13	8	6	5	5	2	1
perc. neg. with 0.6		22.5	44	52	54	50	77	50	33.3	40	60	100	100
perc. neg. with 0.2		10	31.5	33	41	38	43	...	...	...	...	...	...

obtain results within a reasonable period of time taxes the patience of both the physician and the patient and the latter drops out in disgust. He may discontinue treatment for a long time, until something happens that frightens him back to it. The physician, not being able to follow many tertiary patients to a successful result, has developed the idea of the Wassermann-fast patient. Glancing over our records, I find, however, that a number of patients with tertiary lues, whose blood remained positive for years, in spite of the fact that they were uninterruptedly under treatment, became negative after ten or more courses or a period of approximately five years of treatment. It is gratifying to note that, once a negative reaction is obtained in these cases, it usually remains so, provided treatment is kept up. The explanation offered for the so-called Wassermann-fast patient is that he is really cured, but his tissues are so altered that lipoids are formed within the cell which give a positive reaction. The same idea is advanced by those who believe that patients with latent syphilis who give a positive reaction should not be treated. In the absence of positive proof to the contrary, the writer must accept the possibility of a cured patient, who is Wassermann-fast. However, this can not explain why a patient, whose disease has been latent for as long a period as thirty years, suddenly develops tertiary lesions. Repeated miscarriages in a patient who is entirely negative to physical signs is a direct proof that even the patient with apparently latent symptoms may be actively syphilitic. The impression gained from treating syphilitics is that there always is a possibility of curing the patient and that treatment should be continued until results are obtained. That brings us to the question, what constitutes a cure? The writer has on several occasions been challenged by sceptics to show one patient who has become negative after treatment and remained so for at least five years. The writer does not know why that figure should be the one to be taken as a criterion, at the same time he is happy to report that we have on record several such patients. Recent experimental work, done by von Wassermann (abstracted in the *Archives of Dermatology and Syphilis*, May, 1921), has made him come to the conclusion that the Wassermann reaction is not due to the presence of the spirochetes in the tissues, but to the presence of lipoids in the tissue cells, which in turn are produced by the presence of the spirochetes. Also that arsenic is purely spirochetidal, and mercury alone exerts its influence on the cells, which have been changed by the disease and on the inversion of the lipoid metabolism. It would be interesting to know whether this inverted lipoid metabolism can exist after the spirochetes have been destroyed by arsenic. In that case, Wassermann-fast cases are possible; also, in treating syphilis, one would be justified in choosing arsenic as the proper treatment for early cases of lues, whereas the combined method should be the one of choice in old cases.

We had very few reactions in the last three years, during which time we gave about 1,700 salvarsan and about 5,200 mercury injections. There were only two patients, who had more or less of a severe reaction of the so-called nitroid type, with congestion of the face, dyspnea, and low blood pressure. The color in one of the cases was of a peculiar brick color, rather than livid. Further reaction in both patients has been obviated by administering adrenalin before each salvarsan injection. Out of a total of 3,500 salvarsans, administered during the past seven years, two patients developed jaundice during the treatment. Two other patients were so susceptible to mercury, that after almost every injection of the latter drug they developed chills, high fever, and bloody diarrhea. Treatment of these patients with mercury has become impossible.

909 KELLY STREET.

HOW TO DETERMINE THE SEVERITY OF A CASE OF MORPHINISM.

BY C. B. PEARSON, M.D.,

CATONSVILLE, MD.

I USE the word morphinism because it is the most common form of opiumism. So far as my experience goes, the addictions to the various forms or derivatives of opium are essentially the same, whether used by mouth, needle, or opium pipe. The essential thing is the amount taken into the system and the duration of the addiction. To get an equal toxic effect, of course, there is a variation in

the gross amount of the various forms of the drug. But if the toxic effects are equal, it matters not what form of the drug is used.

One must be able to judge correctly the severity of a case of morphinism in order to treat it rationally. First, we should study the physical condition; second, the mental state of the patient; third, the history of the case. We should include in the history the family history, the preaddiction history, and the history of the case after the formation of the addiction. All this is very much like what we wish to know about any case of chronic illness. For instance, in tuberculosis the history is important on account of its bearing upon the present physical condition and because it gives us some data for estimating the probable vital powers of resistance. In morphinism the history is chiefly important because of the hints it gives us about the addict's mental and moral integrity. I am not so particular about the addict's physical condition providing it is good enough to enable me to withdraw the drug safely. The fact that the addict has one or more concurrent diseases, is a weighty reason for the withdrawal of the drug, providing it can be done without danger. If one has tuberculosis he is in a bad way. If he has tuberculosis and morphinism he is in a bad way indeed. The addict has practically no chance of recovery from tuberculosis unless first cured of his morphinism. The idea that morphine prolongs life when the addict has one or more concurrent diseases is absolutely false. The reverse is true. We can confidently look for a fatal termination of the case much sooner than if the patient were free from morphinism.

Although not germane to my subject, a word of explanation is needed at this point or some addict may be sent to his grave many years too soon. Any system of "quick treatment" administered to a tuberculous addict might prove fatal. Even a gradual reduction administered by one lacking the needed technical knowledge might well be dangerous. Technical knowledge and experience are needed in order to be successful in the treatment of morphinism. One should know the addict and his ways and even how he thinks. All this is just as necessary as it is for the surgeon to know anatomy, regional anatomy, surgical cleanliness, and all the ins and outs of surgical technic.

I have seen cases of morphinism complicated by tuberculosis gain from week to week during the reduction of the drug. Some of them after getting free from the drug recovered from the tuberculosis, at least they arrived at a point where all signs of the disease became negative. Others I have every reason to believe lived longer than would otherwise have been the case. And certainly the latter part of their life was made much happier. I remember well a patient whom I treated many years ago. She was a farmer's wife 45 years of age. She had used the drug twenty-five years. She ceased to menstruate at the third year of her addiction. There was a total cessation of the ovarian functions for twenty-two years. How can those who maintain that morphinism is not a disease account for such a long suppression of the menses? She was a woman of ordinary physique when she began the use of the drug. The ovarian functions are very important to a woman from the age of twenty to forty-five. The corresponding male organs are affected in the same way by morphine. Those best qualified by study and experience to give an opinion say that these organs have very important functions connected with the well being of the body outside of their use in the perpetuation of the race. The reckless manner in which ovaries were removed for several years not so long ago furnishes us with abundant material for study. Physicians who have given close study to this matter say that many changes take place in the body and mind of these women. They further say that these changes are not for the better. Those who have studied the eunuchs of the Far East have the same thing to say, i.e., that they are below normal mentally and physically. The practical cessation of these functions during morphine addiction must have something to do with producing some of the symptoms that we see in this disease.

It is more than likely that other glands of the body are affected adversely by the continued abuse of morphine. In reading about the results of hypothyroidism, I have seen the statement that there is an increase of adipose in conjunction with an increase of connective tissue. In the majority of cases the addict loses weight. There are a few cases where there is an increase of adipose tissue. I have palpated this tissue many times. The sensation is not what one gets from the palpation of normal adipose. Unless normal adipose tissue is excessive, one can see the outlines of the larger muscles. But in the addict where there is an increase of adipose these lines are obliterated. The arm has the appearance of a large sausage. I do not know that the abuse of morphine affects the thyroid gland and thus produces this peculiar adipose tissue. However, such a thing might well be probable. Further, microscopic examination of this tissue might reveal abnormality of structure. If so it would do away with the contention that the abuse of morphine produces no change of anatomical structure. There is no question about the abuse of morphine interfering with many of the functions of the body. To my mind gross interference with function means disease fully as much as change of tissue. Many think that the abuse of morphine interferes with the function of several of the endocrine glands. If so some of the mental and moral as well as physical changes could be explained in part in this way.

One of the pronounced physical changes seen in morphinism is malnutrition. This is just as evident in those who take on weight as in the majority of cases where there is a loss of weight. The appetite of the addict is abnormal. In most cases of chronic invalidism the appetite is poor as regards the quantity of food taken. With the morphine addict the appetite is abnormal in many different ways. It is poor as regards quantity. It is abnormal as regards the kind of food desired. The addict likes confections and other foods containing a good deal of sugar. The appetite is utterly erratic as regards time. The ordinary invalid usually eats three poor meals per day. The addict may eat almost nothing for three or four meals and then gorge himself at one meal. As a rule his breakfast is his poorest meal. Many of them eat more at a midnight lunch than they do during the balance

of the twenty-four hours. The more abnormal the appetite, other things being equal, the more severe the case.

Another important function is that of sleep. If there is anything that the public thinks that an opium addict can do to perfection it is to sleep. Like many other popular ideas this one is false. And there is nothing that irritates the average individual more than continuous loss of sleep. The addict differs from the normal person as regards loss of sleep in this respect, i.e., as long as he has morphine enough he is indifferent. It does not trouble him to lie awake at night. However his indifference does not protect him from the consequences of loss of sleep. I have watched many addicts while asleep. In some cases the respirations are very shallow; so shallow, indeed, that it would not take any great stretch of the imagination to suppose that the addict was dead instead of asleep. The addict is apt to be pale at any time. During sleep the pallor is so intense that it may best be described as the pallor of death. Some addicts sleep the normal number of hours. This does not at all mean that they sleep well. Their sleep has so little real rest in it that it is hardly equal to the abridged sleep of the nonaddict. In the majority of cases sleep is abridged in quantity as well as being poor in quality. Where the addiction has lasted many years, this has a profound meaning. I think that it accounts in no small measure for the fact that it is many months before the convalescent addict can endure a hard day's work with as little fatigue as the normal person of the same age.

In nearly all cases of morphinism we have continuous obstinate constipation. This means that we have a toxemia of equal duration with the addiction. Some writers maintain that one or more of the endocrine glands are injured permanently by toxemia occurring in such diseases as typhoid fever, pneumonia, etc. I do not know enough about these matters to say whether this is true or not. But if true it would be reasonable to suppose that the prolonged toxemia of morphinism would have an even more injurious effect upon these glands. But whether or not the toxemia of morphinism injures the endocrine glands, there can be no question as to its pernicious effects upon the body as a whole. Though we may not know the precise *modus operandi*, none of us who have had the care of these people for many years doubts for one moment that the continued toxemia is one of the main causes of the constant downward trend of morphinism. The greater the malnutrition, the loss of wholesome sleep, and the toxemia, other things being equal, the more severe the case. These three depressing factors are of the greatest importance. And how any physician who has a due appreciation of them can regard the addict as being other than an invalid, I do not understand. *Malnutrition, loss of restful sleep*, and constant toxemia, can have nothing less than a most profound effect for ill upon the human economy. Everyone knows that they do have in other cases, why not in morphinism? The contracted pupil, the lessened peristalsis of the intestines, and subesthesia point to the fact that morphinism is accompanied by tangible effects upon the nervous system. The first two might be supposed to be due to lessened motor impulses. However, I believe that the opposite is true. Morphine has such a paralyzing influence upon unstripped muscle that stronger motor impulses are needed to secure action at all.

We come now to a study of the mental symptoms of morphinism. In my belief the mental symptoms can all be accounted for by the physical condition of the patient. In spite of this, I regard the mental symptoms as being of greater importance as a means of determining the severity of the case than the apparent physical condition. Malnutrition, loss of sleep, and toxemia while manifestly present cannot well be measured. The mental symptoms as revealed from day to day by the addict's speech, manners, and actions can be pretty accurately measured. This being the case, we have in these symptoms our most available means of determining the severity of the case. Further, as the treatment of morphinism is as much a matter of psychiatry as it is a matter of physical therapeutics, we have in these symptoms our best guide for the treatment of the case.

We can see how the physical state of the patient causes more or less perversion of mind. The brain is the most important organ of the body. Proper nutrition of this organ is absolutely essential to the correct performance of its functions. Addicts are naturally sensitive along this line. I have often asked them this question, "How much of your waking time is given to morphine?" They generally answer, "About nine-tenths." Then I ask, "Do you not think that you would be more efficient if you were free to turn all your thoughts in some useful direction?" In malnutrition of the brain more or less perversion of function is the most reasonable thing to expect. Loss of restful sleep lasting for many years can have nothing but a harmful effect upon the brain. In toxemia we should remember that the blood current carries the noxious material to every cell in the body, brain cells included. What then can we expect of a brain when every cell in it is more or less poisoned? When we take into account the fact that during every hour of the addict's existence malnutrition, loss of refreshing sleep, and toxemia are constantly present we would not be very much surprised if the addict became very shortly a dement. Nevertheless, he rarely becomes a dement, or even insane, for that matter. For working purposes we say a person is insane when he is so far abnormal mentally that he cannot conform to the conventions of society. Ordinarily the addict does not become so far abnormal mentally as this. The only reason why he does not is that these bodies of ours are purposely built to withstand an enormous amount of abuse. The straight morphine addict is usually well enough able to care for himself to escape notice. He may easily lose this ability if he combines with morphine cocaine or whiskey. The same thing is true of veronal, hyoscine, paraldehyde, etc., combined with morphine. But however well the addict may be able to escape notice, I have yet to see one who on close observation over several days did not show both mental and physical deterioration, some to a very slight degree, others to a much greater degree. No one addict manifests all the symptoms that we see in morphinism. This as the reader well knows is true of typhoid fever and most other diseased conditions. How-

ever, when we take these cases in groups of twenty we see about all the symptoms that are ever observed.

The most important mental symptom directly due to morphine is self-depreciation. This accounts for the secretiveness so common in this class of individuals. The addict will always tell you that he is secretive because of the uncharitable attitude of the public toward the drug habitué. Such an attitude does exist to a greater or less extent. However it is not what others think that makes the addict secretive but what he thinks about himself. It is most likely also the direct effect of the drug upon the brain, since it is well known that slyness and secretiveness accompany many abnormal mental states. Another direct action of the drug is shown in the addict's tendency to seclusion. Secretiveness partly accounts for this. I believe, however, that there is more to the addict's seclusion than this. He likes to indulge in day dreaming. The chatter of his friends interferes with this and therefore irritates him.

Nearly every addict is more or less of a coward, some of them being extremely cowardly. The effect of the drug upon the sexual organs may account for this, since virility and courage have been associated together for centuries. This notion may be a popular mistake. I hardly think it is. I have never known of a sexual pervert among morphine addicts. But the fact that the drug does undoubtedly have a pernicious effect upon the sexual organs leads me to believe that they do have perverted sexual thoughts, at least some of them. I have heard them tell many absurd stories about this or that prominent person being a sexual pervert. A patient presenting these symptoms is a difficult case to treat so far as my experience goes. I believe this to be the case because perverted sexual thoughts may be taken as an index of advanced type of the disease.

We often see a pronounced tendency to prevarication among the victims of morphine addiction. Knowing their self-depreciation and secretiveness we should expect this to be the case with them. Many point to this fact to prove that the addict is utterly immoral. This view, however, is absolutely absurd. To me it is nothing more than a symptom of a pathological condition. The lies of addicts run true to form, as much so as the symptoms of measles. When they do not I conclude that the addict was a liar in his preaddiction days. Those who were not liars in their preaddiction days do not as a rule lie to hurt anyone. Self-depreciation accounts for some of their prevarication; secretiveness for nearly all the rest. They will try to conceal their addiction. This leads to a great variety of stories. Their self-depreciation is so great that they often speak of this or that prominent person being an addict. This is only a subconscious means of saving their face. They try to deceive themselves as to the harm the drug is doing them and usually succeed. Their lies along this line are told to brace up their courage, like the whistling of the superstitious person while passing through a graveyard. Though these lies like any other set of pathological symptoms run true to form, it takes close observation over a long period of time to appreciate this fact. Let alone, the addict rarely becomes a criminal. Well meant efforts to make the drug difficult and expensive to procure have most certainly driven many of the poorer addicts into petty criminality. The victim of a drug habit is so horribly afraid of being separated from full control over his drug supply that he is more circumspect than the nonaddict about doing anything that will land him in jail.

We see a lessened ambition among these people. This is not surprising when we recall the malnutrition, loss of restful sleep, and toxemia. I wish to emphasize that this lack of ambition applies equally to all sorts of activities. It affects the burglar and all other varieties of crooks as well as clergymen, lawyers, and physicians. I remember well a man who came to me for treatment several years ago. He had been using 60 grains of morphine per day. His associates were those of the underworld. Upon arrival he was almost a gentleman. As soon as he was cured all his original meanness reappeared. Any addict who was formerly interested in what was best in life becomes indifferent to these things, but as soon as he is cured he again renews his interest in them. This should be remembered, for many physicians and the public in general have erratic ideas along these lines. The point to be remembered is that all sorts of activities are diminished in morphinism. The burglar cannot carry on his business for very many years if he continually takes morphine to excess. Sooner or later he will be down and out. The above symptoms I believe are due directly to the daily use of the drug.

Many but not all addicts in time come to have obsessions. These I do not look upon as the direct effect of the drug, but as being due to the gradual growth of wrong ideas. Finally, instead of the addict holding these ideas he himself is held by them. The more pronounced the self-depreciation, secretiveness, the tendency to seclusion, and to prevarication, the more severe the case. The possession of well established obsessions means that the case is one of still greater severity. Many have the curious obsession that morphine prevents infections and infectious diseases. This idea holds the addict so firmly that plain evidence that the contrary is true has no weight with him. In not a few instances I have had an addict in the house who was suffering from an infectious disease and at the same time another with the obsession that morphine protects from such infection. The visible evidence that the obsession was false does not free the addict from his obsession. Morphine lowers the vital powers of resistance and thus makes the addict more liable to infections and at the same time makes him less able to endure an infectious disease.

Another common obsession among addicts is that the disease for which morphine was prescribed in the beginning still exists but is held in abeyance by the drug. And they further persist in thinking that as soon as the morphine is withdrawn this disease will come to life with all its misery and discomfort. There is no way of overcoming this obsession except to get the patient off the drug. Then he discovers much to his surprise that he is not suffering and in due process of time he comes to the rational conclusion that the disease no longer exists. The reader well knows that morphine loses its anodyne power in the case of the addict. The addict should

know this himself, but many times does not. Morphinism cannot hold any disease in abeyance. It can and does aggravate any concurrent disease.

Among my medical patients I have often met the obsession that morphine prevents waste; that it really preserves the body cells. And further that when the addict is cured his body is really no older than it was when the addiction was first formed. The truth is that morphine rapidly brings about a condition of presenility. I have frequently had patients in the house fifteen years younger than I. Everyone in the house would say that they looked older except the party in question—and I look my years all right. I think that most obsessions arise in the first place as a subconscious excuse for the continued use of the drug. In time these false ideas become an integral part of the addict's mentality.

There are a number of other obsessions besides the ones just described, but it is not necessary to burden the reader with a description of them. Many addicts whose addiction has lasted for many years do not have them. Their presence means, other things being equal, that the disease is severe and will require careful management.

The symptoms of general mental impairment which I will describe now indicate a still further severity of the disease. I look upon these symptoms as indicating the end products of morphinism and not like self-depreciation, secretiveness, etc., which indicate the peculiar direct effect of the drug upon the brain or as being like the obsessions which indicate the gradual growth of wrong ideas. The malnutrition, loss of sleep, and toxemia at last affect the brain as a whole. However it is rare that we see all these symptoms in cases of straight morphinism. In addition to the deteriorating influences just named we may get the ill effects of syphilis of the nervous system, or chronic alcoholism, the abuse of cocaine, or of the various hypnotics. In these cases there is a slowing down of the mental processes which in time prevents the addict from following any gainful occupation. These patients are apt to become indecent in speech and actions. Instead of having gratitude for services rendered, they are apt to show a hatred for those who try to serve them. They become morbidly suspicious. This in some cases degenerates into mild delusions of persecution. I have seen delusions of both sight and hearing among them.

In managing these cases I depend very largely for my success upon my ability to secure the voluntary cooperation of the patient. One can readily see how difficult it would be to secure the voluntary cooperation of this class of individuals, who, as a result of general mental impairment develop weird ideas about being able to get something on the physician or his assistants. They seem to think that if they do, they will be able to board in the sanitarium for the balance of their life; also that they can demand unlimited amounts of morphine if they can only get something on the doctor. I know that none of them ever succeeded in doing anything of the sort in my sanatorium. I have every reason to believe that no addict ever did so in any other sanitarium. Addicts of this type are almost always multiple drug and alcohol users and not a few of them are syphilitic.

The astounding thing is that some addicts do use all sorts of drugs and alcohol and still show but little mental impairment. It is among this last type of multiple drug users that I get my cures. I dislike to treat a case that shows extreme mental impairment as badly as the surgeon dislikes to operate on a hopeless case. It is among these who show great mental impairment that one finds the delusion that they can successfully blackmail those who try to cure them. The better class of morphine addicts suffer on account of this degenerate type. The more degenerate the addict the more he is in evidence. The better type of addict does not intrude himself upon people's notice.

About the only cases of straight morphinism coming under my observation who showed signs of extreme mental deterioration were those who in their preaddiction days were great users of alcohol; that is cases of morphinism where the brain had already been damaged by the abuse of alcohol. I know of no reason why the addict who never used anything but some form of opiate should not show signs of extreme mental impairment. But they are not so badly off in this respect as one would suppose.

The history in morphinism is important chiefly because of its bearing upon the moral and mental integrity of the patient. It is not often possible to get a correct history of the case at once. The addict's habitual secretiveness prevents him from giving a straight history of the case, even where he wishes to do so. I get the history little by little as time goes on. In the family history it is important to learn if there has been insanity, epilepsy, hysteria, or criminality. So far as my patients go the family history nearly always is of the very best.

Addicts always deteriorate to a greater or less degree. However, if their history shows that they at one time showed great persistency by their actual accomplishments, we may be sure that no matter how much they have deteriorated it is likely that they still retain a portion at least of their former capacity for persistence. Those who accomplished little or nothing in their preaddiction days are not likely to make good patients. Nature makes the cure in all cases. Nevertheless there are things that the patient needs to do for a long time in order that nature may have a fair chance. The doctor can assist nature in many ways. He can give the addict correct counsel; but if the addict is so irresponsible that he cannot follow correct counsel or willfully refuses to do so no good results can be expected. Our best guide as to what an addict will or can do is what he has done. Hence the preaddiction history is important.

An addict who appears to be very rugged often fails to make good, while one who seems to have one foot in the grave makes a fine cure. Those addicts who are in good physical condition get but little sympathy if they fail. To one who is able to appraise the case, there may appear to be more actual reasons for failure than in many a case that presents a most wretched physical appearance. The addict in apparent good physical condition may require more careful management in order to secure success than many that appear to be all in. Some of them are almost hopeless. This is because of mental and moral deterioration. Yet in these discouraging cases if the right line of treatment can

be carried out, we may get complete success. So we can see how important it is to be able to determine the severity of a case of morphinism. To do this one should be able to appraise the relative importance of each factor.

OCCIPITOPOSTERIOR PRESENTATIONS.*

By H. D. FAIR, M.D.,

MUNCIE, IND.

I BELIEVE a lecturer or essayist has as much right to take a text for his discourse as has a minister of the gospel, therefore I assert my conviction by quoting a verse from the American Text Book of Obstetrics, page 576, in which Barton Cook Hirst is quoted as follows: "If I were asked what one obstetric difficulty had caused most maternal and fetal deaths; what one had caused most maternal and fetal accidents not necessarily fatal—accidents, however, often making the rest of life worthless, or still worse than worthless, a tragedy—I think I would say, 'Occipitoposterior presentations where the occiput had rotated to the hollow of the sacrum, and which had been *improperly treated*.'"

I call your attention especially to the last phrase, "improperly treated." The very fact that Dr. Hirst uses this phrase implies that there is a proper way to treat these cases; but he goes further and puts the words in italics, making it doubly emphatic; therefore the purpose of this paper is to encourage us to analyze our methods of action and obstetric technique so as to determine, if possible, whether we are doing the best for the patient who puts her health, happiness, yea, her very life, for a time into our keeping.

Fortunately not more than 26 per cent. of all deliveries are occipitoposetrior presentations, and less than 4 per cent. of these fail to eventually rotate to the pubes; but this 4 per cent., undesirable as they are even in the most favorable cases, if left to themselves may not be so disastrous in their effects as are the cases that are bungled before nature has had a chance to perform final rotation; for an attempt to drag a head thus engaged down through the pelvis, either conforming to or ignoring internal rotation, may loosen the soft parts from their pelvic attachments and do irreparable damage to the urethra, bladder, or rectum. The fetus runs a grave risk; traumatism, prolonged strain on the heart, cerebral compression, and paralysis being some of the usual sequelæ.

If conditions are such that external examination reveals all that is necessary for us to know regarding presentation, well and good; but many times this is not sufficient. I am not at all in harmony with those who aver they never make a vaginal examination. I am perfectly willing to go on record as saying that any practitioner who is as competent to do obstetrics as he has opportunity of being, may safely make a vaginal examination at any stage of labor; and if the obstetrician is not doing the best work of which he is capable he has no business to pretend to care for parturient women.

I would not have it understood that a vaginal examination made at any stage of labor by even a safe and competent operator immediately removes all doubt as to the cause of dystocia. An occipitoposterior presentation is not always easy to diagnose with the tips of the fingers, particularly when our patient has a thick cushion of fat on her abdomen, and only a smooth area of scalp is palpable at the os. Whenever we are not certain as to the relation of the passenger to the passageway we have no right to attempt instrumentation or accouchement forcé. In this instance it is better practice to do nothing than to do the wrong thing.

Obstetric surgery has this peculiarity; its operations are carried on in the dark, our only guide being the information conveyed by the sense of touch. The mind's eye travels to the finger tips; the hand thus possesses an inestimable superiority over all other instruments. Its every movement is regulated by consciousness.

We might now inquire, what conditions may lead us to suspect an occipitoposterior presentation? I do not propose to offer insult to your intelligence and knowledge by quoting text-book findings, but will call your attention to one fact only. We know that in a normal presentation it is rare for more than two hours to elapse between the time of the completion of the first stage and the expulsion of the fetus; so on an occasion where the head is in the cavity of a normal pelvis, pains good, dilatation complete, with time rapidly progressing with little or no advancement, we may safely conclude that we have an occipitoposterior presentation with which to deal.

I wish to repeat an axiom that has appeared in every paper I have written on operative obstetrics during the past twelve years. It is this: *Every move in complicated labor should be an elective procedure and not an action of last resort.* After we are convinced that nature is unequal to the task —that something must be done in the way of assistance, the first step toward the desired end is to determine the actual situation and conditions. If the ordinary vaginal examination has failed to give the evidence needed, all instruments and appliances necessary for the requirements of a probable emergency should be prepared and within reach, then, *at the opportune time,* the patient should be anesthetized, if necessary, and the whole hand introduced into the vagina until an ear or some other landmark can be found, even though the quest be continued till the occiput rests in the palm of the examining hand. In most of these posterior presentations the occiput is to the right, therefore the left hand should be used in making the examination, as will be explained later. Now presuming that we have identified our occipitoposterior presentation, how should we handle it? If we are fortunate enough to see the patient before engagement occurs there is a simple way of converting posteriors into anteriors which is easy to perform when once understood. This maneuver is a modification of that recommended by Wm. D. Potter of Cincinnati. As already advised, the left hand is in the vagina; without withdrawing it the hand is inverted and passed to the left side of the pelvis (thumb toward the right), and the head is firmly grasped and pushed up till free. As the occiput rotates toward

*Read before the Muncie (Ind.) Academy of Medicine, 1921.

the pubes the hand rights itself, gaining strength as progress is made. The other hand or those of an assistant may be used externally to promote bodily rotation. I have used this method many times with excellent results. If a large part of the amniotic fluid is still in the uterus, rotation can be continued past the center and we will have the position most favorable of all, the L.O.A. We now withdraw the anesthesia and hold our position till one or more pains have forced the vertex into the cavity of the sacrum; then our principal difficulty has been overcome. If for any reason prompt delivery is indicated we can apply forceps and deliver.

I believe it to be a serious mistake to apply forceps to a large head when the occiput has rotated or shows a tendency to rotate to the hollow of the sacrum, and to attempt by main strength to pull the head through the perineum. When I arrive late on the scene and find the head so engaged that it cannot be pushed up out of the pelvis, and the patient and fetus appear to be in good condition, I am inclined to wait a few minutes till the vertex gets closer to the perineum before I attempt any aid, which would be to rotate with short forceps having a slight pelvic curve; *but* if the woman shows signs of exhaustion, fetal heart sounds convey a warning, or at any time pains or progress ceases, I apply forceps and bring the head down till one pole thereof is below the spine of the ischium; then I rotate till I have a R.O.A. I consider this much easier and safer than to attempt to rotate the head while midway between the superior and inferior straits.

The safest guidance is to be found in a careful study of the mechanism by which nature effects the rotation. If we do so it becomes apparent that it is only by imitating or assisting nature that we can hope for success. Rotation must be managed so that it is combined with a descent of the occiput and a corresponding retreat of the forehead.

You have undoubtedly observed that this paper thus far presumes that in each and every case rotation has taken place either early or late in labor. If, unfortunately, for any reason this has not been accomplished, and delivery must be completed with the occiput posterior, instruments for perineal repair should be in readiness, and a deep episiotomy done.

For the past fifteen years I have been earnestly endeavoring to improve the quality of my obstetric service, and my experience, meager though it be, warrants me in expressing these admonitions. I do not wish these axioms to sound more harsh to you than they do to me, for I am equally guilty, and when I refer to a group by the use of the pronoun "you," I include myself in that group.

1. No primipara with a full sized fetus can expel the head with the occiput posterior without sustaining serious damage to the vaginal and perineal structures.

2. It is bad practice to allow a patient to suffer hours or days, as sometimes happens, when a simple twist of the wrist may end her labor in a few minutes.

3. Never leave a puerperal woman till you have done all you can to place her as nearly in the antepartum condition as possible. Nearly every day we examine some woman with a gaping vulva who tells us that her obstetrician assured her that she was "not torn a bit."

4. Never begin any deliberate obstetric operation until you have all the instruments and equipment you are likely to need, within easy reach.

5. Never start any obstetric operation until you know what ought to be done and have formulated a plan as to how you are going to do it.

6. Never start anything you cannot finish. Be certain of your limitations.

7. If you are not certain that your act will result in success, be sure it will do no harm.

8. If you intend to send for a consultant, be fair with him and do not increase the complications before he arrives. Do not ask him to assume responsibility for a blunder that you have made.

9. On the other hand, when complications do arise the wise obstetrician will seek the assistance of a friend who will share both the burden and the risk.

10. If your time is worth anything get after your occipitoposterior cases early in the game, and let it be known that your prompt action is worth while.

The solution of this problem, as well as many others in obstetrics, is prophylaxis. Nearly every faulty presentation can be easily corrected if recognized early. We should keep our gravid women under our care during the latter months of pregnancy. We should advise them to notify us so soon as pains begin, or more important still, in premature rupture of the membranes, which is so frequently an accompaniment of malpresentations, as soon as the "water breaks." Then if on examination we find the presentation normal, we can go about some other business for a time and allow our patient to work out her own first stage, feeling confident in our prognosis. I believe most women will get along as well or better during a protracted first stage if the accoucheur is not within reach. I never could find any good reason why he should hang around a parturient for hours before he can be of any use.

For months I have been declining all obstetric calls coming from a patient who has not been under the care of some physician. I have a few pertinent questions I ask every stranger; if he does not answer them to my satisfaction I refuse to respond to his call. If he (the husband or whoever may call for him, as such a fellow often depends on the neighbors to get a doctor for him) admits his shiftlessness I simply inform him that I do not care for the patronage of any man who is so irresponsible as to allow his wife to approach the hour of confinement without engaging a physician. I am trying to do my part in educating the laity that childbirth is an important function; that good obstetrics is essential to the health and happiness of womankind, and that good obstetrics must include both antepartum and postpartum care; better care than she has been getting in the past.

I am fully aware that skillful antepartum service is often unrecognized and remains unappreciated by the average laymen, male and female. An obstetrician who is on the alert and by little or much dexterity can change a dystocia into a eutocia will get much less credit or praise than one who spends

twenty or thirty hours on the job, wearying the neighbors and fatiguing himself with misdirected effort, finally leaving his patient hovering between life and death, who, if she recovers, will be damaged for life—a monument to Dr. Blank's wonderful days work.

Good obstetrics requires skill, and should command a compensatory remuneration.

NOTE ON THE INJURIES TO THE SEMILUNAR CARTILAGE OF THE KNEE,

WITH SPECIAL REFERENCE TO INDUSTRIAL ACCIDENTS.

By JAMES EAVES, M.D.,

AND

PAUL CAMPICHE, M.D.,

SAN FRANCISCO, CAL.

SINCE Bruns in 1892 called attention to the injury of the semilunar cartilage of the knee joint, many excellent papers have appeared on this subject, most of them from the pen of British surgeons, who have had the greatest experience with this condition, owing to its frequent occurrence among sportsmen and coal miners. There is nothing to add to the papers of R. Jones, A. Martin, W. A. Lane, R. Morison, etc.

The mechanism, the pathological anatomy, the cause, treatment, and outcome of these injuries are well known, and there is little divergence of opinion among surgeons on the main issues of the problem.

In order to avoid repetition of what has been said by others we will confine ourselves to points of special interest. The questions foremost in our minds are: (1) When should we operate? (2) What character of operative procedure should be followed?

While the trend of opinion seems to be more and more in favor of surgery, we should not forget that there are many patients who get fairly well without operation. In the condition described by the French as a "pincement de menisque" (pinching of the meniscus) there is no rupture of the cartilage and no displacement of fragments, but simply a contusion with subsequent swelling of the semilunar. Such cases often get well after a few weeks' rest, and although they often have repeated attacks of "locking" these are so far apart that the patients do not desire an operation. There is no permanent exudation here and hardly any pain between the different attacks; so they are naturally willing to wait. This is the reason why all authorities advise against any intervention after a first locking, because in case of mild meniscitis, there is always a probability that the condition will improve by conservative measures and that the patient may be free from accidents for a considerable time. A delay of a few weeks is good in all cases in order to make a differential diagnosis and exclude all other knee conditions. The simplicity and safety of surgical interventions are, as a rule, proportionate to the timeliness in diagnosis.

However, in the majority of patients the injury has a more serious aspect, the patient is unable to fully extend the knee, and we speak here of a dislocation or a fracture of the semilunar cartilage. The proper treatment of the condition is *reduction* followed by immobilization in full extension for several weeks. This succeeds very often if done immediately, and many men treated in this way have gone back to most strenuous pursuits and have been free from recurrences.

It is an axiom of all authorities that no case should be operated after a first locking, and we certainly would like to remain orthodox in this matter. But everything depends on *when* and *how* the reduction has been done. Here is where we find ourselves in a peculiar position with our industrial accidents. We seldom see the men immediately after the injury, but often only weeks and months after the alleged "reduction"; even after a prolonged rest there is much pain and a stubborn effusion in the knee joint; the patient, feeling that the joint does not move smoothly, knows there is something wrong with his knee. It is evident that the reduction has been only apparent, that the meniscus has remained torn and dislocated, and that it is now too late to attempt a new reduction. It is a common occurrence to see patients treated six or eight months or more without the slightest improvement. And the question arises: Why should they remain incapacitated so long when they could be cured quickly by a simple intervention? If after six weeks' rest a man has still a swollen and painful knee, and if we have excluded other conditions, such as loose bodies, rupture of the crucial ligaments, incipient tuberculosis and the like, we know that the semilunar was not simply bruised but is most probably torn or ruptured, with its fragments hanging in the joint, and that nothing can be gained by waiting. Therefore, we insist that such interminable periods of disability as we now see should not be countenanced any more by the surgeons in charge of such cases. And if we bear in mind the frequency of this injury among the so-called industrial accident cases we can readily see what saving in weeks and months of disability could be effected by an early intervention. While we accept the dictum of the authorities that no patient should be operated after a first locking, with the reservation that the reduction has really been successful, we have been impressed frequently with the fact that no reduction has been attempted but simply a cast applied and no attention paid to atrophy of the quadriceps. This atrophy will add greatly to the disability. If the reduction has failed and the patient presents himself so late that reduction is no more possible, we think it is best to operate even if there has been only one locking. Just before finishing this paper we have read the last article of M. S. Henderson (Mayo Clinic) in the *Annals of Surgery*, 1920, and we are glad to see that he has come to the same conclusion.

Many cases of injured semilunars have no definite clinical symptoms, and the pathology is only recognized after exploration. Sometimes incisions over the internal reveal absence of pathology, but by opening the other side definite pathology is found.

Differential Diagnosis.—This subject is so important that we would like to recall briefly the points which R. Jones has so clearly outlined in his admirable paper on the subject: The locking due to a loose body is more transitory and as a rule the loose body can mostly be felt. Exostosis can be palpated and demonstrated by the *x*-rays. If synovial fringes are bruised the pain is more in front and the symptoms are less acute. In the rupture of the

crucial ligaments we have a gliding tibia which can be moved to and fro, and there are also lateral movements. Small bony separations of the tubercle of the tibia, the spine of the tibia, etc., can be seen with the *x*-ray. In a sprain the pain will be right on the internal (or external) ligament, etc.

The symptoms of displacement of the internal semilunar cartilage usually recognized as being characteristic are acute pain with or without the sensation of something having slipped or given way in the joint locking and loss of power to completely extend the leg, and effusion. Speaking generally, rotation of the leg outward upon the thigh with the knee flexed, followed by sudden extension, is the movement most likely to cause this condition.

Reduction.—No reduction is complete unless full extension of the leg can be maintained. To reduce such cases the knee must be put in acute flexion, with rotation inwards and full extension. The patient frequently will inform you whether the manipulation has been successful.

Operation.—We follow the technique of Robert Jones. The foot-end of the operating table being lowered, the patient has the bad knee flexed at a right angle, the thigh lying on the table and the lower leg hanging freely, so that the articular surfaces of the femur and tibia are well separated.

Incision.—Some European surgeons still use a longitudinal incision; this does not afford a sufficient exposure. We prefer the transverse incision of R. Jones, beginning at the inner border of the patella and extending about one and a half inches backwards, if possible, above or below the imaginary articular line of the knee. The meniscus is seized with a small hook and pulled; its anterior end is freed first, then the middle part and posterior end, and it is incised with a thin tenotomy knife and pulled out. This method seems adequate and respects the internal ligament (Lig. Collaterale Tibiale) of the knee.

However, in injuries to the posterior part of the meniscus when it is essential that this part should be completely excised, the incision of Herz may be found valuable; this is an incision of 6-8 cm. long, but interrupted in the middle so as to leave intact the internal ligament. (Lig. Collaterale Tibiale). It is made up of two incisions, the anterior part of the cartilage is first dissected and freed through the anterior incision, then the whole meniscus is pulled through the posterior incision which also allows the total removal of the posterior end of the cartilage. The capsule is then sutured with fine catgut.

Suture Versus Incision of the Meniscus.—Acting on the general principle that surgery should repair what is reparable and sacrifice only what is beyond repair, some surgeons (Katzenstein) have contended that the meniscus should, as far as possible, be sutured in its place when it is found that it has been torn off. We have witnessed such operations in former years. When the tear was not too long and was situated in the fibrous part of the meniscus, *i.e.* near the capsule, the suture was made with fine silk and the articular capsule closed also with silk. But as in the vast majority of cases the free (cartilaginous) border of the meniscus is the one to suffer it is clear that a suture will not succeed here.

Our conclusion is that in well-defined cases of rupture and dislocation of the semilunar cartilage, coming under our care several weeks after the original injury and where no reduction has been made or where it has obviously failed (as shown by the persistence of the symptoms of pain and effusion in spite of prolonged rest) the best plan will be (especially in industrial accidents) to perform the excision of the meniscus without further delay. This excision should always be as complete as possible.

BIBLIOGRAPHY.

Corner, E. M.: Surgery of the Knee-Joint, *Jour. A. M. A.*, 1914, lxiii, 1069-1075.

Henderson, M. S.: Injuries of the Semi-Lunar Cartilages of the Knee-Joint, *Annals of Surg.*, 1920, lxxi, 658-662.

Henderson, M. S.: Mechanical Derangement of Knee-Joint, *Journal-Lancet*, 1918, xxxviii, 523.

Henderson, M. S.: Mechanical Derangements of the Knee-Joint, Derangements due to the Semi-Lunar Cartilages, Collected Papers of the Mayo Clinic, 1916, viii, 855-858.

Herz, M.: Technik der Exstirpation von Kniegelenksmenisken, *Zentralbl. f. Chir.*, 1908, xxxv, No. 2, 37-39.

Jones, R.: Derangements of the Knee, *Annals of Surg.*, 1909, l, 969-1001.

Jones, R.: Internal Derangements of the Knee, London *Lancet*, 1914, ii, 297-300.

Katzenstein, A.: Ueber Gelenkeinklemmungen und ihre Behandlung mit besonderer Berucksichtigung des verletzten Meniskus, *Archiv. für Klin. Chir.*, vol. 98, p. 843.

Klapp, R.: Die Operationen an der unteren Extremität. In Bier, A. K. G., Braun, H., Kummell, H. *Chirurgische Operationslehre*, Leipzig, 1913, iii, 692-966.

Krois, F.: Die Verletzungen der Kniegelenkszwischenknorpel und ihrer Verbindungen, *Beitr. z. klin. Chir.*, 1910, lxvi, 598-801.

Lane, W. A.: Injuries to the Knee Joint, *Brit Med. Jour.*, 1911, ii, 537.

Martin, A. M.: Discussion on the Diagnosis and Treatment of Injuries of the Knee Joint other than Fractures and Dislocations, *Brit. Med. Jour.*, 1913, ii, 1076-1079.

Morison, R.: Injury to the Semi-Lunar Cartilages of the Knee, London *Lancet*, 1909, i, 604-607.

Reichel, P.: Handbuch der praktischen Chirurgie, 1914, vol. v, p. 760.

Walton, A. J.: Injuries of the Knee-Joint, *Brit Med. Jour.*, 1913, ii, 1076.

The Senile Brain.—According to Marie, in the course of a clinical lecture on nervous affections, one should never confound old age, a physiological process, with senility, which is pathological. A senile brain, therefore, is a diseased brain (*Le Progrès Médical*, January 8, 1921, xlix, 2). The alterations are either parenchymatous or vascular. The former affect chiefly the cortical cells, the latter the central ganglia. Clinically there are three groups or stages—pseudobulbar, lacunar, and demential. In pseudobulbar paralysis so called there is no paralysis in the strict sense of the word, but an absence of function which amounts to the same thing. The lacunar state was described by Marie twenty years ago. Its symptomatology is characteristic—exaggeration of the reflexes in a subject over fifty years of age should suggest the possibility of the cerebral arteriosclerosis which is responsible for this condition. The subject walks with short steps and a tendency to retropulsion. If asked a question he is apt to show palilalia, repeating his answer several times. This phenomenon is usually erroneously termed echolalia in the United States, but in true echolalia the subject echoes the saying of his interrogator and not his own. There is often a history of so called "petty strokes," often attributed to "congestion," but there is no congestion present. The lacunæ of softening, as already implied, are usually seated in the central ganglia. The lecturer then considered briefly the parenchymatous alterations of the cortex which are signalized by intellectual disorders—dementia.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, December 24, 1921.

POST-BELLUM ACTIVITIES OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY.

How much of the post-bellum decrease in the size of the Annual Report of the Surgeon General of the United States Army for the fiscal year ending June 30, 1921, just issued, is due to peace-time relative inactivity on the part of the Medical Department, and how much may be attributed to the Harding-economy-Dawes-budget combination is not for the uninitiated to presume to know. That something has happened to reduce the size of the report is apparent when one glances back through the war period, for the report for 1921 is smaller than that for 1916.

As expressed in the number of pages, the activities of the Medical Department during the period of mobilization, active participation in the war, and demobilization, is interesting. In 1916 the story was told in 357 pages, including the index; in 1917, in 474 pages; in 1918, in 735 pages; in 1919, in two volumes totalling more than 2,000 pages; and now, in this report which covers actual peacetime activities, the story is told in 329 pages. It is none the less interesting, however, and, as one reads, appears not to connote any undue inactivity on the part of the department personnel. For in his letter of transmission the Surgeon General calls attention to the manifold duties which the situation for the year placed upon the regular medical service and the reserves who had remained on active duty. In addition to the large amount of work entailed by the rapid demobilization of the members of the medical profession who had accepted temporary commissions for service with the war Army, and to the routine work of the department, with the care of the sick of the Regular Army, professional care and treatment had to be provided for the sick and wounded of the war Army who were remaining in hospital at the beginning of the period covered by this report. The recruiting for the Army during 1920, with the expansion which followed the act of June 4, 1920, threw a further additional burden upon the department, not only in the way of making the necessary physical examinations, but in the care of an increased amount of sickness attributable to the enlistment of a considerable number of recruits of immature age and others with physical defects. The remaining personnel of the department was further taxed by the work connected with the distribution of the Army in this country and abroad, with the several changes made necessary by congressional acts, with training, and with the care of the beneficiaries of the Veterans' Bureau.

To the person in civil life, one of the most interesting items mentioned in this enumeration by the Surgeon General is headed "Unsatisfactory character of recruits." According to reports from corps area and department surgeons, the character of recruits enlisted during the year was very unsatisfactory. "Never in the history of the Army has its ranks been filled with such poor physical specimens and such young lads so susceptible to disease," reported one. "The heavy rate of discharge on certificate of disability, for disability existing prior to enlistment, suggests a reconsideration of the policy regarding the strict appliance of adherence to published and official standards," is another comment quoted. "Many of the enlisted personnel of this command," comes the report from another quarter, "should never have been enlisted, as they are poorly developed physically, mentally, and morally, which increases the difficulties encountered in controlling venereal disease."

To Medical Reserve men who never saw actual service, particularly, and to many other members of the medical profession of the country generally, who were none the less keenly interested because not on "active duty," all of whom are more or less familiar with war time physical examining boards, psychological tests, psychiatric examinations, development battalions, and other phases of the effort on the part of the Medical Department to have an army "fit to fight," the 1920 recruiting system, as portrayed in the quoted reports from men qualified to judge, must possess a decided element of shock. Whatever the "line" may have thought of much of the "tomfoolery" of the Medical Department efforts in these directions, the natural conclusion would be that out of these activities, plus actual war experiences, would have come a more up-to-the-minute system for increasing the standing army. It would seem that war experiences no less than labor pains and seasickness are soon forgotten.

LEUCOTHERAPY WITH CELLULOTOXIC SERA.

SINCE Metchnikoff's discovery of the part played by the leucocytes in organic defense many researches have been undertaken on anticellular serum with the result that at present alongside of antibacterial and antitoxic sera, an entire series of sera have been prepared which have a specific action on the cells of the body. Thus, we have the hemotoxic serum of Bordet, the spermotoxic of Landsteiner and Metchnikoff, the trichotoxic of Dungern,

nephrotoxic, leucotoxic, antipancreatic of Surmont, hepatotoxic, neurotoxic, and lastly suprarenotoxic. All these sera are obtained by similar procedures. The injection into the subcutaneous tissue of living cells from a given organ at various times imparts to the serum of the animal injected the specific property of destroying cells of the same kind as those injected, but only in the same animal species as that furnishing the substance injected. These sera, which produce necrosis and elimination of certain cells have, in common with certain drugs, the paradoxical property of acting differently according to the dose employed. Thus, if the normal dose—which must be determined for each animal and each organ—has a destructive action, much smaller doses will on the contrary exercise a stimulating action on the resistance and activity of the cells. A large dose of leucotoxic serum will destroy leucocytes, a small dose will produce a rather abundant and persistent leucocytosis. Now, to act on acute microbic infections the number of microphags and polynuclears must be increased, therefore a leucotoxic serum having a specific action on polynuclears is necessary.

But the practical difficulties of obtaining such a serum applicable to the treatment of disease in man has been the reason for rejecting this method. In fact, in order to obtain such a serum, it is impossible to inject polynuclears in a pure state so that tissues containing them in large number have been used and for this reason bone marrow has been most generally injected. But although it is easy to procure living bone marrow from animals, that of man is of course unobtainable. Consequently other methods have been resorted to with the result that cellulotoxic sera have been prepared. As far back as 1891, Lemière, in his work on aseptic suppuration, came to the conclusion that pyrogenous chemical substances were, in general, microbicidal and cellulotoxic as well. Suppuration occurred when the substance injected did not have sufficient power to cause extensive cell necrosis, but nevertheless it was essential that it should be capable of changing the cell vitality or even cause necrosis and destruction of some cells. In the state of science at this epoch, Lemière thought that this cell destruction was capable of setting free some new products to which he gave the name of defensive proteins. Under the influence of the toxic agent, these proteins set at liberty provoked a hyperleucocytosis, followed by diapedesis at the points menaced, all this being followed by phagocytosis.

Not long after this, Fochier, of Lyons, employed subcutaneous injections of aseptic pyogenic substances (turpentine), as a means of treatment, which soon took the name of fixation abscess, and this method was largely and successfully employed by Revilliod and the Geneva school. But it was shown that the procedure did not attract the pathogenic bacteria to the focus of suppuration and therefore they were not destroyed by phagocytosis. Why then was this method successful? It created locally a focus of cell destruction with the setting free of what Lemière called a protein, and as a result it gave rise to hyperleucocytosis, this being followed by diapedesis and phagocytosis. But the leucocytes are not content to exercise their defensive action only in the focus created by the injection. Quite to the contrary, they leave the vessels *en masse* everywhere in the organism, their united action being solicited by a focus containing substances endowed with chemotactic properties. Turpentine therefore provokes a hyperleucocytosis and while it is followed by diapedesis in the focus of the injection it is also certain that diapedesis and consequently phagocytosis will occur with renewed energy in the foci of infection in other parts of the body. This is the reason why loci of pneumonia disappear as well as the more diffuse lesions of general septicemia, especially the puerperal variety. The great objection to this unquestionably effective method is the pain caused and the creation of suppuration, although aseptic, which may assume considerable proportions in an already weakened organism.

Recently the properties of nucleinic acid have been studied and it is believed that the suppurative processes produced by the action of aseptic pyogenic substances must be related to the presence of this acid or at least the nuclein set free. All living cells contain a large amount of nuclein and the destruction of cells in the organism under the influence of certain conditions that are not clear, should result in setting free a certain quantity of nuclein. The method consisting of injecting nucleinic compounds to reinforce the organic resistance is simply a variation and progress in the method of fixation abscess and aseptic suppurations.

THE PROGNOSIS OF INJURIES DUE TO IMPALEMENT.

TAKING the various cases of injury resulting from impalement, they differ, from the viewpoint of violence of the traumatism, from a slight penetrating wound of the perineum, or erosion of the vagina to perforation of the abdomen or penetration of the thorax. Out of a total of 139 cases collected by Ponthieu there were 47 deaths, 82 recoveries, and in 10 the results were unknown. The 129 cases were: Impalement per rectum, 59 cases, with 24 deaths, 31 recoveries, and 4 doubtful; impalement per perineum, 49 cases, 18 deaths, 31 recoveries; impalement per vaginam, 15 cases, 3 deaths, 9 recoveries, and 3 doubtful; impalement per scrotum, 16 cases, 2 deaths, 11 recoveries, and 3 doubtful. Potel based his statistics on 108 cases and found a mortality of about 40 per cent, while Ponthieu found a total mortality of 36 per cent. These figures have only a relative value, because many of the case histories are not given, either because the resulting lesions were trifling, or because the results were disastrous, death having taken place before the arrival of the physician. Some deaths resulted simply from the extent of the lesion and are thus easily explained

Thus, in a case recorded by Villard, death resulted from penetration of an iron rod up to the pancreas, causing three perforations in the intestine, and at the time the patient was admitted to the hospital he offered all the symptoms of gangrenous peritonitis. In a case reported by Dubar, the shock produced by a fall from the fourth story of a building, besides the lesions produced by impalement, was enough to explain the rapidly fatal issue. Méhier reports a case of death in eighteen hours of a man who fell from the height of sixteen feet onto the handle of a pitchfork which penetrated about two feet, which was more than enough to produce serious irreparable lesions.

The great factor of gravity of these lesions is the tearing and infection of the peritoneum with peritonitis as the inevitable result. However, occasionally very serious damage may be recovered from, as in a patient of Aubert's in whom a fragment entered four inches into the rectum, but after development of very distinct peritoneal phenomena the man recovered and returned to work at the end of a fortnight. Recovery also took place in a patient of Woodbury's whose body was completely traversed by a stake which entered the anus and came out in the left side of the thorax, fracturing the ribs, while in a case of Abbe's the liver, diaphragm, and pleura were pierced, yet the patient got well. But these are most exceptional cases and need not be taken into consideration when making a prognosis.

Ponthieu studied the frequency of penetration of the peritoneum in cases of impalement and found that out of a total of 139 cases there was peritoneal penetration in 37 per cent.; of these the mortality was 87 per cent., and deducting the recoveries resulting from an immediate laparotomy he found the mortality to be 94 per cent. It should be recalled that peritoneal septicemia appears very rapidly in these cases and is quickly fatal, so that surgical interference should be resorted to at once when only a suspicion of peritoneal penetration exists in the mind of the surgeon. A useless surgical act is better than abstention which may end in the most serious consequences.

The immediate danger having been overcome, the patient is still exposed to certain complications, sequelæ of the traumatism. Vesicorectal fistulæ may develop, requiring operation later on, but these fistulæ have also been known to close of themselves in from twenty to thirty days following the accident. Rectovaginal fistulæ may have serious consequences; for example, in a case reported by Desmons a fistula of this type resulting from an impalement was the cause of puerperal septicemia nine years after the accident. The immediate symptoms following impalement are not always proportional to the gravity of the injury.

Does Mumps Ever Cause Male Sterility?

The laity sometimes manifest a fear that the "descent" of mumps to the testicle may entail a loss of manhood. The observation of physicians fails to show definitely that mumps orchitis leads to any interference with potency. The usual explanation is that this complication occurs chiefly in adolescent and adult years, and perhaps it is inferred that incidence in the earlier periods of childhood would be more dangerous by preventing the full development of the gonads. In rare cases where impotence, sterility, or loss of male secondary sexual characters has followed mumps or mumps orchitis it may have been a simple coincidence, for in any such event it would of course be necessary to exclude other causes of these conditions, to trace a proper relationship between the orchitis and atrophy or azoospermia, etc. During the late war regimental physicians had an excellent chance to investigate this subject, although naturally only in the case of adults. Bénard (*La Presse Médicale*, October 15, 1921, xxix, 83) states that during the past twenty-one years over 200,000 cases of mumps have been recorded in the French troops. The percentage of orchitis was 17, and the cases of double orchitis amounted to only 0.6 per cent. About one-half the orchitides were followed by atrophy which was usually incomplete, and not necessarily permanent. The author can find a record of but five proven cases of impotence, with five more of doubtful character, and but two in which there was loss of male secondary sexual characters. There is no recorded case of azoospermia. At the outside then the chance of any mischief developing after mumps orchitis in adults is extremely slight, and the patient with forebodings may therefore be confidently reassured.

Carbon Tetrachloride as a Possible Remedy for Intestinal Parasites.

It is a well known fact that many advances in medicine have been made possible by discoveries in the allied sciences. The results of a recent investigation conducted by the Bureau of Animal Industry of the United States Department of Agriculture may prove to be one of these in that it may open the way to a more effective treatment of hookworm disease. Experiments carried out by this Bureau show that carbon tetrachloride, once used in medicine as an anesthetic, and now used variously as a fire extinguisher, cloth cleaner, insecticide, and solvent for fats and gums, is very effective as a destroyer and expeller of intestinal worms. The effectiveness of this chemical agent against certain round worms has been announced by the Department, but what may be the most beneficial use has just been brought out by tests on animals infested with hookworms. In the case of sheep the minimum curative dose has not yet been determined, but all the doses used, from 12 cubic centimeters to 48, in each case given in 2 ounces of castor oil, removed all stomach worms and all hookworms. It has been equally efficacious for hookworm in dogs and foxes, and has been used with success against some of the various kinds of worms that infest the digestive tract of pigs. The Bureau of Animal Industry therefore considers that this drug will prove of special value in the removal of the various kinds of blood-sucking worms in domestic animals. Carbon tetrachloride is now being tried out in several places by medical men as a possible remedy for ancylostomiasis in man, and is said to give promise of success.

News of the Week.

Doctors Oppose Politics in Medical Appointments.—At its annual meeting on December 7 the Albany County Medical Society adopted a resolution requesting that politics be disregarded in the selection of medical officers for the city and county. Copies of the resolution will be sent to Mayor-elect Hackett.

Medical Examiner Requests Report Where Death Follows Doubtful Treatment.—Following closely upon the case of David Lebish, who died in St. Mark's Hospital, New York, recently as the result of a ruptured appendix following treatment by a chiropractor, comes the report of the death from bloodpoisoning of a man who had come under the observation of several chiropractors who had failed to recognize the nature of his malady. In inquiring into the cause of death, the Chief Medical Examiner states that one of the men subpoenaed, who were alleged to have given him treatment, refused to answer questions and the other said he did not attempt to diagnose cases or to take temperature; he was concerned only with any possible interference with the nerve supply that made its exit from the spinal cord. The postmortem examination showed that the man had died of blood poisoning. In view of these and similar cases that have come to the attention of Dr. Norris he has issued the following statement to physicians: "In all cases resulting in death where it appears in the history of the case that, shortly before admission to the hospital and while the patient was suffering from the disease causing death, such patient had been under treatment by an unlicensed practitioner and there is reasonable ground to believe that such treatment contributed to the condition causing death, you will forthwith notify the Medical Examiner of the city, in order that prompt and proper investigation of the case may be made."

Higher Requirements Advocated for Dental Schools.—In a report submitted to the Harvard Board of Overseers by Dr. William S. Thayer of Baltimore an increase in the requirements for entrance to dental schools is advocated. The report says: "The dentist and physician do not meet on the same common ground. This is unfortunate for physician, dentist, and patient. The circumstance that the requirements for admission to dental schools have been lower and the circumstance that the amount of general and medical education demanded of dentists has been less than that demanded of the physician and surgeon have worked to place the dentist at a disadvantage in the community. This has not only been of very real disadvantage to the dentist; it has been a very real disadvantage to the medical profession." New requirements for entrance to the Harvard Dental School and to some other dental schools now demand one year of college work in addition to a high school training.

Scarlet Fever in Flushing Schools.—More than fifty cases of scarlet fever have been reported to the New York Board of Health from the public and parochial schools of Flushing, in the Borough of Queens. The question as to the advisability of closing the schools came up before the Health Department authorities and it was decided that as there was not really an epidemic it was better for the children to attend school so that they could have the benefit of daily examinations by doctors and nurses of the Department, than to close the schools and have the children mingle in the streets without regular inspection.

New Hospital Plans Nursemaids' School.—A school for nursemaids, where they may learn to care intelligently for babies, will be a feature of the new Fifth Avenue Hospital when it is completed. The course will be of one year's duration. A diploma will be granted, and an employment bureau, to obtain positions for graduates, maintained in connection with the school. St. Christopher's Babies' Hospital, in Brooklyn, has a course of two years during which young women pupils are instructed in how to care for sick babies. They, however, graduate as baby-nurses.

New York City Has Nurse Militia.—Following the announcement by Dr. John Dill Robertson, Health Commissioner of Chicago, that he had developed at a small cost a force of home nurses available for use in epidemics and his recommendation that the plan be more generally adopted, the New York County Chapter of the American Red Cross has issued a statement describing its work in training emergency nurses that has been conducted for the last three years. During this time, 7,312 women in New York have received Red Cross home nursing certificates. At the present time 1235 women are under instruction. The names and addresses of all these women are on file in the office of the Red Cross Teaching center, at 24 Fifth Avenue, and are available for use in case of an epidemic such as the two epidemics of influenza in 1918 and 1919. The training of these women has cost the city nothing. At present a number of them are serving as nurses' aids in the municipal hospitals where the regular complement of nurses is not complete, some being volunteers giving full time.

The New York Association of Cardiac Clinics held a meeting at the New York Academy of Medicine on December 13, at which Dr. William Sidney Thayer of Baltimore delivered an address on "The Minimum Symptoms and Signs Necessary to Make a Diagnosis of Organic Heart Disease."

Violations of the Food and Drugs Law.—The United States Department of Agriculture has issued a report showing that violations of the Federal Food and Drugs law are not so frequent nor so flagrant as formerly. Only a small portion of the food and drugs in interstate or foreign commerce is either adulterated or misbranded. In the enforcement of the Food and Drugs Act during the last year, the Bureau of Chemistry recommended the seizure of 1,677 shipments and criminal prosecutions in 608 cases. The seizures and prosecutions recommended were based most frequently upon shipments of patent medicines including stock remedies, stock feeds, beverages, eggs, food colors, fish and shellfish, salad oils, vinegars, artificial sweeteners and tomato products, but included a considerable number of other foodstuffs. The activities of the year on patent medicines included 866 actions directed mainly toward the elimination of false and fraudulent claims on the labels regarding curative powers for a great variety of diseases. So-called lithia waters

containing only the merest traces of lithium, but alleged to be of the greatest therapeutic value because of their lithium content, have been virtually eliminated from the market. Interstate commerce in mineral waters and other drugs alleged to contain radium which were put on the market following the announcement that radium effected wonderful cures, threatened to develop to large proportions, but was stopped before it attained much momentum. Effective campaigns have been carried on to eliminate from interstate commerce shipments of milk and cream highly contaminated with bacteria. Some contaminated mineral springs have been closed, while in others the manner of handling the product and of purifying it have been revolutionized. Methods have been devised for the detection, by means of the microscope, of decomposed fruits and vegetables in prepared food products. Investigations have been made to establish as fully as possible the character of the practices necessary to protect consumers from food poisoning, and the information has been disseminated widely.

Positions for Surgeons' Assistants, Bacteriologists, and Roentgenologists.—The United States Civil Service Commission announces an open competitive examination for surgeon's assistant. Vacancies in the Public Health Service throughout the United States, at the compensation fixed by that service of $80 a month, without quarters, subsistence, or laundry will be filled from this examination. Applicants must have completed at least the sixth grade of common school. In addition, they must have had at least one year's private training in a physician's or dental office or one year's experience as a graduate or practical nurse. Open competitive examinations are also announced for the position of roentgenologist at $3,000 to $4,000 a year; vacancies in the Public Health Service in the position of roentgenologist at $200 to $250 a month, associate roentgenologist at $130 to $180 a month, assistant roentgenologist at $90 to $130 a month, junior roentgenologist at $70 to $90 a month; and vacancies in positions requiring similar qualifications. In addition there will be open competitive examinations for the position of bacteriologist at $130 to $180 a month, associate bacteriologist at $90 to $130 a month, assistant bacteriologist at $70 to $90 a month, and junior bacteriologist at $70 a month, and vacancies in positions requiring similar qualifications. To all salaries there is added the increase of $20 a month granted by Congress. Applicants should apply for Form 1213, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of civil service examiners at the post office or custom house in any city.

Hospital Notes.—The Bronx Hospital, New York, has purchased a plot adjoining its present building as a site for a ten-story addition. The present hospital has only 110 beds and additional capacity is therefore urgent.

St. Elizabeth's Hospital, at Van Ness Avenue and Filbert Street, San Francisco, Cal., was formally opened on Nov. 19.

The contract for a county tuberculosis sanatorium at Fort Smith, Ark., has been let. The new building and equipment will cost $20,500.

The drive to raise $75,000 for a new nurses' home in connection with the Norwegian Hospital, Brooklyn, N. Y., has closed with a total of $57,421.46 contributed.

The Federated Women's clubs of Sterling, Colo., has just presented that city with an $85,000 hospital. When the hospital was opened early in December it was free from debt.

Dr. Thomas Gruber, formerly of Rochester, N. Y., has been appointed superintendent, and Dr. Donald Morrill of Ann Arbor, assistant superintendent, of the City Receiving Hospital of Detroit, Mich.

Dr. J. L. Freeland and Dr. R. V. Converse have been appointed special medical investigators of the Indianapolis Board of Health.

Dr. Henry Page has been appointed director of the medical staff of the Cincinnati General Hospital.

Dr. Harry S. Sweiwelt of Kankakee, Ill., has been appointed assistant superintendent of the Eastern State Hospital of Kentucky.

Dr. C. Floyd Haviland of Albany, N. Y., has been appointed State Hospital Commissioner by Governor Miller, to fill the vacancy caused by the resignation of Dr. Charles W. Pilgrim.

Gifts and Bequests.—The Presbyterian Hospital, Philadelphia, is the beneficiary to the extent of $50,000 to be used as a memorial to Joseph A. and Anna M. Tomlinson, by the will of the former, recently admitted to probate.

The will of Mary A. Burkhart makes a bequest of $250 to the Bancroft-Taylor Rest Home of Philadelphia.

The Journal of Orthopedic Surgery, published in Boston, Mass., announces that in January it will become a quarterly publication under the name of *The Journal of Bone and Joint Surgery.*

The New York Hospital announces that the Department of Urology, established with a bequest from James Buchanan Brady, will operate a clinic for women. The clinic will be open from 2 to 3 o'clock in the afternoon.

Physiotherapy Clinics for Physicians.—The American Electrotherapeutic Association and the New York Electrotherapeutic Society are arranging a joint midwinter clinical session to be held on Dec. 29 and 30, at the U. S. Public Health Service Hospital No. 61, at Fox Hills, Staten Island, N. Y. There will be explanation and demonstration of all physical modalities, and of the results obtained. A two days' demonstration of physical therapeutics, open to physicians generally, will be held during this meeting under the auspices of the U. S. Public Health Service. The opening meeting, with papers on "Physiotherapy in General," by Chris M. Sampson of Staten Island, and Frank B. Granger of Boston, will be held at the New York Academy of Medicine on Wednesday evening, Dec. 28, 8:30 P.M. All medical men are invited to attend, and programs and admission cards may be obtained from Dr. Richard Kovacs, 223 East 68th Street, New York City.

American-Jewish Physicians' Committee Incorporated.—This committee has been granted the privilege of incorporating as a membership corporation by the Supreme Court. The organization aims to collect and to expend and disburse for, or to pay over moneys to the trustees of the governing body of the Hebrew University in Palestine "for

the establishment, inauguration, maintenance and upkeep of a medical unit of the Hebrew University in Palestine."

Physicians Needed in Foreign Missions.—The Rev. Dr. R. F. Campbell, in a recent address before the foreign missionary board of the Southern Presbyterian Church, set forth detailed information as to the startling lack of doctors in African, Korean and Chinese missions. He pointed out that the band of missionary physicians was slowly dwindling, and that in the whole of the African Presbyterian mission there was but one doctor. Physicians willing to enlist in this service are asked to notify Dr. S. H. Chester, Foreign Secretary, 156 Fifth Avenue, North, Nashville, Tenn.

Medical Society Elections. — THE CALHOUN COUNTY (ALA.) MEDICAL SOCIETY, at its annual meeting held in Anniston, Dec. 7, 1921, elected the following officers for the ensuing year: *President*, Dr. J. F. Posey, Anniston; *Vice-President*, Dr. T. J. Patton, Oxford; *Censor*, Dr. W. H. Kinnebrew. The Secrtary and Treasurer are filling unexpired terms.

Obituary Notes. — Dr. THOMAS CANBY CRAIG, U. S. N., retired, died from heart disease at his home in Brooklyn, N. Y., on Dec. 13, at the age of sixty-eight years. He was graduated from the University of Pennsylvania School of Medicine in 1880. He served for eighteen years in the United States Navy, and after his retirement as medical inspector and diagnostician with the Brooklyn Board of Health. He was a Fellow of the American Medical Association and a member of the Medical Society of the State of New York.

Dr. EDWARD TORREY of Olean, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1869, died following an operation for cancer at a local hospital on Dec. 8, at the age of seventy-four years.

Dr. ROBERT MORRIS of Rome, N. Y., a graduate of Bowdoin Medical College, died following an operation for appendicitis on Dec. 4, at the age of fifty-three years.

Dr. EUGENE WOODBURY HILL of Sorrento, Idaho, died suddenly in Tacoma, Wash., on Dec. 13, at the age of fifty-six years. He was graduated from the University of Maryland School of Medicine, Baltimore, in 1886.

Dr. EUGENE T. HANCOCK of Philadelphia died on Dec. 5, at the age of fifty-two years. He was graduated from Jefferson Medical College in 1891, and was a veteran of the Spanish-American War.

Dr. GREENLY V. WOOLLEN, a graduate of Bellevue Hospital Medical College in 1865, died at his home in Indianapolis, on Nov. 30, at the age of eighty-one years. He was one of the founders and was the first Secretary of the Indiana State Medical Society.

Dr. J. MORTON BOICE, a graduate of the Medico-Chirurgical College, Philadelphia, died at his home in Philadelphia on Dec. 2, at the age of forty-five years. He was a member of St. Joseph's Hospital staff and formerly secretary of the Philadelphia Medical County Society.

Dr. TRUMAN H. COX of Lee Center, N. Y., a graduate of the Cincinnati College of Medicine and Surgery in the class of 1875, died on Dec. 2, at the age of sixty-eight years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 1, 1921.

Report on the Financial Position of the Voluntary Hospitals of England and Wales.—Sir Napier Burnett, K.B.G., M.D., Director of Hospital Services of the British Red Cross, has issued recently a report on the financial position of the voluntary hospitals in England and Wales, those in London being excluded. This report is prefaced by an introductory note by the Hon. Sir Arthur Stanley, chairman of the Joint Council of the Order of St. John and British Red Cross Society. In the course of this note Sir Arthur Stanley makes the following pertinent remarks: "One important fact emerges from the report. It had always been known by those who made a special study of the matter that hospitals with which medical schools were associated were necessarily involved in greater expenditure than those hospitals to which no medical schools were attached. It will, however, come as a surprise to many that the thirteen training hospitals mentioned in the report are responsible for no less than 50 per cent. of the total deficit of £448,061 incurred by the 107 large hospitals. This seems to point to the possibility of obtaining financial assistance from the Government, not for the hospitals themselves, but in respect of the training work that is done in them. Without the hospitals it would be impossible to train the large army of doctors and nurses necessary for the public health service. If the voluntary hospitals did not exist and could not be used for this purpose the State itself would have to create hospitals and maintain them at a large expense. Moreover, the research work done in the training schools is of great value to the State and is an important factor in the health of the nation. For this work it seems clear that the hospitals have a claim upon the State which need in no way interfere with their voluntary nature nor with the fulfillment of their primary object, the provision of medical aid and nursing for the sick and suffering who are too poor themselves to pay for such treatment."

Sir Napier Burnett says in an introduction to his report that the present financial survey, for the year 1920, of the voluntary hospitals of England and Wales, is based upon data received, (a) from the secretary of the individual hospital, or (b) during personal visit to the hospital, or (c) from the figures published in the hospital annual report. The hospitals in the London area being under the supervision of King Edward's Hospital Fund, are not included in this report. The survey on this occasion not only deals with the figures for the year 1920, but also sets out, for the purpose of comparison, the financial data for the year 1919. In 1919, there were 600 hospitals surveyed out of a possible 668, which included a few convalescent hospitals, whereas on this occasion the figures of 572 hospitals are dealt with out of a possible 647. The following figures give some idea of the volume of work done by the hospitals during the year:

NUMBER OF IN-PATIENTS AND OUT-PATIENTS TREATED DURING 1920

	No. of Hospitals Giving Details	Available Beds	No. of In-Patients	No. of Out-Patients
Hospitals with				
100 or more beds	106	20,056	248,426	1,191,016
30 to 99 beds	160	8,202	97,619	388,707
Under 30 beds	289	4,122	50,363	130,851
Totals	555 = 97 per cent. of hospitals reviewed.	82,380 = 95 per cent. of beds in hospitals reviewed.	396,408	1,710,574

The total number of patients treated by 555 hospitals was 2,106,982. Included in these figures are those of the thirteen hospitals associated with medical schools, namely:

Number of Hospitals	Number of Available Beds	Number of In-Patients	Number of Out-Patients
13	4,388	68,966	457,635

In other words, these thirteen medical school hospitals with 13.5 per cent. of the available beds, treated altogether 526,601 patients, or 25 per cent. of the total. These hospitals treated 17.39 per cent. of the total in-patients and 26.75 per cent. of the total out-patients. The financial situation dealt with in the report indicates that considerable progress has been made by the hospitals in their efforts to adjust their finances to the post-war conditions. The author goes on to say that there is every indication that the high-water mark of hospital expenditure was reached in 1920, and that the present year will show considerable reduction in the cost of many hospital commodities; so that if the hospitals can maintain their present progress on the income side there is every prospect that the forecast outlined in the Cave report, that two years would be necessary for readjustment, will be realized. Valuable results are anticipated from the County Voluntary Hospital Committees now being established by the Voluntary Hospitals Commission.

The important work to be undertaken by these committees includes the gathering together of the voluntary hospitals in a county into a federated group, with the object of finding some uniform scheme for financing the hospitals within the area, and of establishing some system of coordination for the treatment of patients and of finding some common ground for the reduction of expenditure along the lines of cooperative buying, especially of non-perishable commodities, and of the standardization of many articles used in hospitals. Another reform urgently awaited, and which is likely to result in considerable benefit to the hospitals themselves, is the adoption of a simplified system of hospital accounts that will be uniformly adopted throughout the country.

The hospitals are graded into three groups according to the number of available beds, viz., (1) The large hospitals of over 100 beds. (2) The intermediate hospitals of from 30 to 99 beds. (3) The small hospitals of less than 30 beds. The figures show plainly that speaking generally, the pressure of the "waiting list" is most severely felt by the large hospitals, and further, the figures for the cottage hospital group bear out the statement emphasized previously: that these hospitals are not always fully occupied, and therefore there is urgent need for some system of coordination to be established by the new hospital committees, whereby these smaller hospitals with their empty beds may be linked up with the larger hospitals in order to relieve the pressure for beds at the latter.

Report on the London Hospitals.—The King Edward's Hospital Fund have reported recently to the Hospitals Commission in regard to the situation of the London hospitals. It is estimated that the aggregate deficit on the maintenance account for the year ending December 31, 1921, will amount to at least £360,000. Although this figure is less than that for 1920, the discouraging feature is that all the general hospitals, including all the medical schools will show heavy deficits. In addition, a considerable number of hospitals which have now exhausted their realizable assets will be compelled to close their beds. It is a condition of the Government grant of £500,000, which is not only for London, but for the whole of Great Britain, that a corresponding amount must be raised by the hospitals themselves. The total deficits for the year as estimated by Viscount Cave's committee is £1,000,000. The Hospitals Commission have provisionally appropriated £180,000 for London, which is half the total deficits for the year, so that to earn this grant the London hospitals must themselves raise a similar amount. Sir Robert Horne, the Chancellor of the Exchequer, made a statement the other day that the grant of £500,000 made by the Government to the voluntary hospitals was made only on the condition that a similar amount be raised by the hospitals themselves. The Chancellor also stated that having regard to the present financial position, he wished to make it clear beyond the possibility of a doubt that the £500,000 grant was the limit of Government assistance to the voluntary hospitals.

The "Lancet" and Wakley.—The account of the founding of the *Lancet* and the interesting sketch of its founder, Thomas Wakley, contributed to the MEDICAL RECORD October 9, by Dr. John Ruhräh, made very good reading. Incidentally, it may be mentioned that a full "Life of Wakley" was written by the present editor of the *Lancet*, Sir Squire Sprigge, for whom, by the way, Messrs. Hodder and Stoughton, have published recently a book entitled "Physic and Fiction." This book deals with various subjects of medical concern regarded from the sociological, scientific, and literary standpoints. Among the matters discussed are medicine in fiction, the medicine of Dickens, public developments of medicine, medicine in art, and poisoning. The chapter on poisoning is especially interesting and shows that "scientific development, where criminal poisoning is concerned, makes for security, for the law keeps ahead of the law-breaker." However, the book abounds in good things and is written in such a way that it provides amusement, interest, and sound information at one and the same time. The literary style is easy and distinguished, tinged with humor, and permeated with philosophy.

Post-Graduate Training in London.—A draft copy of the syllabus of the intensive post-graduate medical course in London and which will begin on January 9, has just been issued. The syllabus has been arranged to extend to six weeks, terminating on February 18. The hours of work are from ten to four on each day, with a short in-

terval between. As stated in a notice published in a previous letter, the subjects of the course will be "Diseases of the Chest, Pathology, Fevers, Diseases of the Heart, Gynecology, Infant Welfare, Lunacy, Cancer, Diseases of the Eye, Diseases of the Skin, of the Rectum, and of Children. The fee for the entire course has been fixed at £15.15. A notable feature of the new scheme is that it stabilizes a course of instruction which for six weeks will be in operation. As is pointed out in the Bulletin of the Fellowship of Medicine and Post-Graduate Medical Association of November 26, the advantage of this course is obvious. Instead of a post-graduate being required to draw up a program of work for himself, he is now provided with one, regularly arranged, and from the variety of the subjects included, so adapted to meet all ordinary requirements. A course in general surgery will commence on February 20 next and cover a period of six weeks to April 1. It will comprise all the various branches of surgical work, and as in the case of the medical course, the fee will be an inclusive one of £15.15 and the number attending it will be limited to twenty.

LETTER FROM SWITZERLAND.

(From Our Own Correspondent.)

GENEVA, November 10, 1921.

Seventh Centenary of the University of Montpellier.—The celebration of the seven hundredth anniversary of the Faculty of Medicine of Montpellier was perfect in every detail, the presence of the President of the French Republic and beautiful weather contributing not a little to the success. All the city was tastefully decorated with flowers and in the evening brilliantly illuminated. The proverbial hospitality of Montpellier was charming upon this occasion, the delegates from the French and foreign universities being lodged in the houses of the notables of the city.

The celebration took place on Nov. 5, in the courtyard of the anatomical theater of the Faculty. It was a spectacle never to be forgotten, unfolding itself as it did at the foot of the cathedral and the walls of the ancient college of St. Benoit, at present occupied by the Faculty of Medicine. On the right, on the roof of the cloister of the cathedral, were the students, several hundred in number. Opposite was the theatrum anatomicum, on the roof of which the flags of all the nations represented were floating.

On the stadium built up against the anatomical theater were seated Mr. Millerand, the rector of the university; the dean of the Faculty, the civil, military and ecclesiastical authorities and among the latter we noted the presence of the venerable cardinal-archbishop, Monseigneur de Cabrières, ninety-two years of age. The courtyard was filled by the delegations from the French and foreign universities, as well as the professors of the University of Montpellier, wearing their traditional gowns and caps.

The séance was given up to the glorification of the School of Montpellier, the oldest in the world after that of Salerno. Prof. Viret reviewed its history, referring to the vitalistic doctrine personified in the person of the celebrated Barthez who, in the XVIII. Century freed medicine from the grasp of the physiochemical sciences.

Prof. Forgues next delivered a discourse on the history of surgery at Montpellier, and vividly described the great XIV. Century surgeon, Guy de Chaubiac, and Lapeyroine (of Montpellier), surgeon to the King (XVIII. Century) and founder of the amphitheatre of St. Cosmos.

Prof. Widal, of Paris, spoke in the name of the universities of France, praising the rejuvenated vitalism taught by the late Prof. Grasset, its last representative at Montpellier, and confirmed by his (Widal's) researches, as well as by those of his collaborators.

Next came the turn of Prof. Bordet, of Brussels, to speak in the name of the foreign delegations. He paid a high tribute to French science and the high moral standard of its savants.

It is interesting to note that the great Swiss botanist, Pyramus de Candolle, was appointed professor and at the same time made doctor of medicine, by the Faculty of Montpellier, in 1808. The success of his lectures, which were attended by 400 to 500 students, was immense. De Candolle was at the same time appointed director of the Botanical Gardens, the oldest in the world, founded by Henry IV., and made famous before de Candolle by de Jussieu and Tournefort. The memory of de Candolle has been perpetuated at Montpellier by his bust in the Gardens and a path which bears his name, as well as fine portrait in the Chamber of Acts of the Faculty, painted while he was rector of the University in 1815.

Lastly, a few words about the beautiful ceremony which took place on Nov. 6, under the noble trees of the Botanical Gardens. I refer to the inauguration of Rabelais' statue, the work of the noted sculptor, Villeneuve. Around the pedestal stood students with their flags and banners while grouped in a semi-circle behind the monument was the chorus of the Normal School accompanied by that of St. Cecilia, who sang the National Hymn and the *Cantate au Drapeau*.

After a speech by the president of the students' societies, the Minister of Public Instruction delivered a wonderful word picture of François Rabelais and saluted the memory of the illustrious medical student of the school of Montpellier. Although Rabelais was in reality only a short time at Montpellier—about two and a half years all told, comprised in two separate visits—he played an important part by his teachings in the restoration of Hippocratic medicine.

"THE TREATMENT OF ORDINARY DISEASE."

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Having read Dr. Beverley Robinson's book, "The Treatment of Ordinary Disease," I cannot refrain from expressing my sincere admiration on the masterly presentation of his views regarding the treatment of disease, especially in surgical interference in gall bladder and appendicular involvement. Dr. Robinson is in accord with the views which I have expressed on many occasions.

I fully agree with Dr. Robinson that too much meddlesome surgery, with too great a destruction of organs is the rule and not the exception, and much may still be accomplished through medical means and leave the patient with his anatomy intact and in good working condition.

Dr. George L. Servoss, editor of the *Western Medical Times*, in a personal letter received some time ago, says: "To my mind there is too much slaughter of various organs, and the removal of this, that, or the other thing does not always bring about the results desired, and I sometimes think that something vital to the economy has been taken away."

Dr. Robinson's book gives the internist a proper place, for it is my belief that sooner or later the internist will come more nearly into his own. I am not saying that surgery is not warranted in many instances, but I do believe were proper diagnosis made and treatment instituted, there would be less lives jeopardized.

SAMUEL WEISS, M.D.
616 MADISON AVENUE,
NEW YORK

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 8, 1921, clxxxv.

1. Osteitis Fibrosa. Charles F. Painter.
2. Hip Fractures, with Report of Forty-two Cases of the Flexed Spica. G. A. Moore.
3. Lateral Sinus Infection: Diagnosis, Treatment and Complications. G. L. Tobey, Jr.
4. The Hospitalization of the Syphilitic Patient. Herman Goodman.
5. Forsyth Day.

1. Osteitis Fibrosa.—Charles F. Painter reports the case of a boy, eighteen years of age, who was admitted to the Carney Hospital in September, 1907, with the history that when about six years of age he had fractured the right thigh. The leg felt uncomfortable from that time until three years later, when he again fractured the thigh. Recovery seemed to be perfect and he had no further trouble until the latter part of July, 1907, when he commenced to have pain below the trochanter. When admitted to the hospital there was a hard firm tumor below the right great trochanter; it was apparently a part of the bone, irregular in outline and simulating a calculus. On account of the possibility of there being a neoplasm and because the *x*-ray showed an appearance not inconsistent with such a view, it was decided to explore the femur. The medullary cavity was found to be occupied by a dense, yellowish, homogeneous tissue, which was not at all vascular and could be readily peeled off, leaving hard, smooth, normal appearing bone beneath. This tissue seemed to be arranged in four cavities, each about 4 x 2.5 cm. These were thoroughly curetted to the cortical bone. There was no suggestion of a lining to the cavities. The patient made a good recovery and had no further trouble until the winter of 1912, when he commenced to have pain in the right lower leg at about the upper and middle thirds of the right tibia. At operation a condition similar to that found in the femur five years before was discovered. The case is unique in that the two foci developed in the same individual, separated by a long interval of time and without any determinable etiological factor. It would seem that some infective agency was operative in this case. If this is so why it should show a predilection for the medullary bone and produce changes which were so different from those commonly associated with bacillary processes does not appear. The history of some thirty cases of osteitis fibrosa is culled from the literature, a review of which brings out two theories worthy of consideration because of their agreement with fundamental pathological processes. The first is the theory of a low grade inflammation and the second of endogenous metaplasia. It does not seem to the writer that trauma can be considered as playing a rôle which is causative, and as for syphilis, osteomyelitis, osteogenesis imperfecta, tuberculosis, Paget's disease, osteomalacia, giant celled sarcoma or any other of the diseases cited as having close relationship to the lesions of osteitis fibrosa, it does not appear that there is any convincing evidence. Simple, free exposure of the lesion and curettage to solid bone offers a satisfactory solution of the problem of treatment.

3. Lateral Sinus Infection: Diagnosis, Treatment, and Complications.—G. L. Tobey, Jr., observes that in this condition the temperature cannot be considered a definite diagnostic symptom. Its presence indicates infection, but its absence or its atypical characteristics do not preclude an infection of the sinus. The temperature chart, however, must be taken into consideration in forming the conclusions as to diagnosis. Great stress has been laid on the presence of chills; chills occur in less than 50 per cent. of the cases. Occasional periods of perspiration (hot flashes) are often overlooked, but are most suggestive of infection. Subjective head symptoms are usually present. The leucocytosis is of value only when taken into consideration with other symptoms. Too much emphasis has been placed on the value of the blood culture as a diagnostic sign of the presence or absence of sinus infection. Edema or infiltration, with tenderness on deep pressure over the area drained by the mastoid emissary vein, was the most constant objective symptom which was found present in a large series of cases, and was present in practically every case of mural or complete thrombosis of the sigmoid sinus. Sufficient emphasis has not been placed on this symptom in the past. Enlargement of the external jugular on the same side is not infrequently observed. Tenderness over the jugular vein is a sign of no practical value. Since a large extradural or perisinus abscess will, in a certain number of cases, simulate symptomatically a lateral sinus infection, the mastoid operation should be performed, and in every case the sinus should be exposed before ligating the jugular. When a positive diagnosis of involvement of the sinus is present, direct communication of the sinus with the general blood stream should be cut off. Statistics show that simple ligation is the logical operation, bearing in mind that in a small percentage of cases it is necessary to proceed with complete excision of the vein. In favor of simple ligation are the very few cases requiring resection, the very short time required for the operation, with the consequent small amount of shock to the patient, nonexposure of the tissues of the neck to infection, and the very insignificant scar. The essayist takes exception to the statement that in simple ligation without removal of the jugular bulb and vein one is leaving a large sac of pus which does not have free drainage, the reason being that pus does not drain up hill. Those making this statement have neglected to consider the fact that their patients are in the recumbent position, and that the upper portion of the jugular bulb is the most dependent part. Among the complications likely to be met after operation in sinus infection are secondary metastases, localized central pneumonia, erysipelas, and occasional iodoform poisoning from the use of iodoform dressings. A very unusual and rare complication is the occurrence of a septic sinus thrombosis on the other side.

New York Medical Journal.

December 7, 1921, cxiv, 11.

1. A Difficult Case of Bronchoscopic Foreign Body Extraction Complicated by Pyopneumothorax. Henry Lowndes Lynah.
2. Mucocele of the Nasal Accessory Sinuses; Two Cases of Pansinus Involvement with Recovery after Interval Operations. Virginius Dabney.
3. Treatment of Recurrent Pleurisy by the Injection of Oxygen. Andrew MacFarlane.
4. The Rôle Played by Physical Exercise in Respiratory Gymnastics. P. Kouindjy.
5. Aspergillosis and Pulmonary Pseudotuberculosis. Vincent Anthony Lapenta.
6. Practical Points in the Treatment of Pulmonary Hemorrhage. H. Schwatt.
7. The Significance of Tracheobronchial Node Tuberculosis and Its Diagnosis. Louis Frischman.
8. Laryngeal Tuberculosis. Samuel Cohen.
9. Tonsil Enucleation and the Tonsil Enucleator. C. B. Meding.
10. Peritonsillar Abscess and Its Radical Treatment. Isaac M. Heller.
11. Tonsillar and Adenoid Tissue Under *x*-Ray Treatment. William G. Herrman.
12. Tonsil Thyroid Syndrome in the Female. Joseph H. Barach.
13. The Diseased Tonsil. M. S. Ittelson.
14. Influenza as a Primary Edema of the Respiratory Mucous Membrane and Adnexa. I. M. Brenner.
15. Symptomatology of Influenza. Joseph C. Regan.

2. Mucocele of the Nasal Accessory Sinuses; Two Cases of Pansinus Involvement with Recovery After

Interval Operations.—Virginius Dabney. (See MEDICAL RECORD, c, 17, p. 744.)

3. Treatment of Recurrent Pleurisy by the Injection of Oxygen.—Andrew MacFarlane reports this case, which occurred in a man sixty-seven years of age. The pleural cavity was aspirated four times; the amount of fluid remived varied from eight ounces at the first aspiration to two quarts at the fourth. After the withdrawal of this fluid at the fourth aspiration the rubber tubing from an oxygen tank was fitted over the aspirating needle and the oxygen was allowed slowly and carefully to enter the left pleural cavity, passing through the usual water bottle. From this time the patient gradually gained in strength and was practically well at the end of two weeks. Numerous examinations for the tubercle bacillus were negative, as were guinea-pig inoculations. In a second case of chronic pulmonary tuberculosis and tuberculous pleuritis the results were not so fortunate. The writer states that this method of oxygen injection is easily carried out and is without danger, especially if a manometer is used. It might be tried in cases of pneumococcus empyema where aspiration alone has at times been able to effect recovery. The fact that almost all cases of pleurisy with effusion are tuberculous would suggest that even temporary immobility of the lung which follows this procedure might be of some value in the pulmonary condition.

5. Aspergillosis and Pulmonary Pseudotuberculosis.—Vincent Anthony Lapenta asserts that diseases caused by parasitic and pathogenic phytomycetes have seldom received the attention they really deserve. The symptomatology caused by aspergillosis varies from an acute mucoid bronchopneumonia to that of chronic tuberculosis. In this chronic type the symptoms are a close parallel to tuberculosis. The necessity of early diagnosis of pulmonary aspergillosis is evident from the fact that, in the absence of complications from concomitant tuberculosis, the disease can be rapidly cured by appropriate treatment. In the routine examination for the tubercle bacillus the presence of the *Aspergillus fumigatus* will often escape detection. A separate examination should be made for it. In the presence of negative findings cultural examinations are advised, as sometimes the sputum will contain only the spores. Iodine seems to be specifically destructive to the life of the aspergillosis. The writer has employed it in the form of the iodides of potassium and sodium by mouth and by intravenous injection. For the intravenous injection he recommends one or two grams in 25 c.c. of saline solution. Under this treatment several cases have cleared up in the course of four or five weeks. In one patient who did not respond readily to the iodine therapy, a saline extract of aspergillosis culture was employed. With the use of this agent in addition to the iodides, the patient improved very rapidly.

12. Tonsil Thyroid Syndrome in the Female.—Joseph H. Barach bases this discussion upon two premises, the first being that in the present state of our knowledge we are not at all sure to what extent the constitutional or metabolic disturbance producing the clinical picture known as hypothyroidism is due to hyposecretion of the thyroid gland, and how much of it is brought about by disturbed function of the adrenals, pituitary body, and gonadal system. The second premises is that chronic tonsillar infection or chronic infection of their contiguous structures, as it existed in the cases studied, is disease producing, because of the local disturbance and the constitutional effects resulting therefrom. The chief symptoms presented by these cases in their order of frequency are: Chronic tonsillitis, hypertrophic; tonsillar node; thyroid gland enlarged; complexion pasty and sallow; skin and hair dry; breasts excessively developed; menstrual function disturbed; subcutaneous tissues thickened; obesity; tendency to sterility; ate no breakfast; hands, moist, cold, cyanotic; body hypersensitive to cold; blood pressure low; pulse rate slow; tongue thickened and tooth-marked; speech thick and voice coarse; early fatigue; dyspnea on exertion; alopecia; nails brittle; neuralgias. If the latest theory concerning the cause of colloid goiter is correct, namely, that colloid goiter is produced by a lack of iodine, it is quite possible that in the chronic tonsillar infection the system becomes impoverished in iodine and colloid goiter with hypothyroidism is the result.

14. Influenza as a Primary Edema of the Respiratory Mucous Membranes and Adnexa.—I. M. Brenner states that as a result of careful observation he has found that whenever the infecting organism of influenza implants itself upon the respiratory tract there will be a definite objective edema, such as is always evident on the uvula and fauces at the initial onset of the disease. Pathologically, it has been demonstrated that large amounts of fluid are present in the lungs and that they present an entirely different picture from that of bronchopneumonia. There is a congealed area of protoplasmic distended endothelial cells which the author calls congelatinous pneumonia. He goes on to show that osmosis is a definite accepted phenomenon and the response of the organism to changes in the osmotic pressure has been clinically demonstrated. Bleeding, the administration of immune or non-specific serum, glucose injections, colonic irrigations, diaphoresis, menstruation, all serve to remove fluids, that is, are agents of dehydration, thereby increasing intraarterial osmotic tension. Therefore, any treatment which brings about dehydration and causes blood concentration will, by osmosis, remove the fluid from the edematous protoplasmic cells of the lung tissue, brain, or gastrointestinal tract. Therapy directed to this end has and will prove a positive, if not almost a specific, means of treating this type of infection.

Journal of the American Medical Association.

December 10, 1921, lxxvii, 24.

1. The Treatment of Brain Tumors. Walter E. Dandy.
2. A Method for the Administration of Sodium Chloride for Headaches. Walter Hughson.
3. Some Principles of Arthroplastic Operations. Walter I. Baldwin.
4. The Serotherapy of Bacillary Dysentery in Children. Hugh W. Josephs and Wilburt C. Davison.
5. Clinical Studies of Drugs of the "Digitalis Series." III. Apocynum and Convallaria. H. M. Marvin and Paul D. White.
6. Value of Bone Pin Arthrodesis in the Treatment of Flat Foot. Robert E. Soule.
7. Spirochetal Pulmonary Gangrene. B. S. Kline, New York.
8. Follicular or Dentigerous Cyst. Raymond J. Wenker.
9. Mandibular Tumors. Joseph A. Pettit.
10. Etiology, Pathology and Treatment of Cysts of the Jaws. George M. Dorrance.
11. Report of a Case of Cephalic Chancroid and a Case of Encephalitis Following Extraction of a Tooth That Had Infection at Apex. Herbert A. Potts.

1. The Treatment of Brain Tumors.—Walter E. Dandy endeavors in this paper to present a more hopeful outlook in the treatment of brain tumors, which he summarizes as follows: Brain tumors are among the most frequent neoplastic lesions; their growth is always progressive and almost always leads to a train of terrible sequellæ and eventually to death. There is only one form of treatment for tumors of the brain—operative removal, and this must be complete. To obtain the best operative results, brain tumors must be diagnosed and localized in the earliest stages. It is now possible to do this. When all other signs and symptoms fail in the localization, cerebral pneumography will make the diagnosis and localization with precision and without equivocation. And when a tumor is not present, it can be excluded by the same method. After correct localization all brain tumors should be disclosed at operation. Every effort should be made to cure the patient by complete extirpation of the growth. There is less mortality from carefully performed tumor extirpations than from unsuccessful explorations for tumors. When, for any reason, it is impossible or unjustifiable to remove the tumor, the maximum palliative relief should be given at the same operation. Decompressions, routinely performed, are among the most harmful and indefensible operations in surgery. They should never be performed for unlocalizable tumors. They are the exact equivalent of giving morphine for abdominal pain; the symptoms are masked until it is too late. Decompression should be performed only as a last resort—when the tumor cannot be removed; and then only after the localization of the tumor is known, for in half the cases of brain tumor, no good can possibly be derived from a decompression. Exploratory craniotomies are now scarcely ever indicated. The tumor should be precisely located before any operative procedure is attempted. Early and accurate localization and thorough operative treatment will eliminate all unnecessary and harmful operations. The treatment

of brain tumors can only be a direct eradication of the cause.

2. **A Method for the Administration of Sodium Chloride for Headaches.**—Walter Hughson calls attention to the fact that intracranial pressure is a well recognized cause of headache. As demonstrated by Weed and McKibben, the pressure of the cerebrospinal fluid can be markedly reduced by intravenous injections of common sodium salts, and, further, as shown by Cushing and Foley, similar reductions of the fluid pressure can be accomplished by the simple alimentary ingestion of strongly hypertonic solutions. The difficulty in applying this information practically was that persons suffering from severe headaches were found to have considerable trouble in retaining the salt for a length of time sufficient for it to pass into the intestine, where its absorption into the blood stream could take place. This difficulty has now been obviated by the preparation of compressed tablets salol-coated, each containing 1 gm. (15½ grains) of sodium chloride. Such tablets pass unchanged through the stomach, yet liberate their salt when the alkaline secretions of the small intestine are reached. The clinical use of these tablets has been somewhat limited thus far, but at the same time sufficient observations have been made to show that they have a beneficial effect in practically all of the milder forms of headache. The treatment of headaches with these tablets possesses advantages over the employment of the various coal tar products.

4. **The Serotherapy of Bacillary Dysentery in Children.**—Hugh W. Josephs and Wilburt C. Davison find in a limited series of cases of proved bacillary dysentery in children in whom subcutaneous and intramuscular injections of from 20 to 50 c.c. of antidysenteric serum were used, serotherapy did not influence the mortality or the course of the disease. In the very ill, especially in young infants, the pain at the site of the injection is a contraindication to the use of intramuscular injections.

5. **Clinical Studies of Drugs of the "Digitalis Series." III. Apocynum and Convallaria.**—H. M. Marvin and Paul D. White have studied the action of the fluidextract of apocynum in twelve cases of heart disease complicated by auricular fibrillation and the action of convallaria in twelve similar cases, from which they conclude as follows: (1) The results of clinical studies on the fluidextract of apocynum cannadinum indicate that the drug has, in some degree, a digitalis-like action in cases of heart disease with auricular fibrillation. Its possible usefulness in the treatment of heart failure, however, is markedly limited by the discomfort, nausea, and vomiting which invariably follow its administration in doses sufficiently large to affect the heart. (2) In one case of auricular flutter, the administration of apocynum was followed within several hours by a change to auricular fibrillation. The drug was withdrawn, and normal rhythm was resumed two days later. So far as we are aware, this is the first case reported illustrating the action of apocynum in auricular flutter. (3) Similar clinical studies on the fluidextract of *Convallaria majalis* indicate that only in occasional cases does it have any favorable action on the heart in auricular fibrillation; even in these occasional cases its action does not resemble that of digitalis in all details. (4) It would seem from these results that neither apocynum nor convallaria can be used as substitutes for digitalis. Digitalis has been characterized by quicker action, more pronounced effects, less discomfort, and more prolonged improvement, than are seen following either of the other drugs. We are convinced that both of these members of the digitalis series have no place in the rational treatment of heart failure.

7. **Spirochetal Pulmonary Gangrene.**—B. S. Kline reports three cases of pulmonary gangrene observed in the course of 130 autopsies at the Montefiore Home, New York in which the presence in large numbers of fusiform bacilli and spirochetes in early gangrenous ulceration of the lung suggest their etiological relationship thereto. These spirochetes morphologically resemble *Spirochaeta* (or *Treponema*) *buccalis, vincenti, microdentium, mucosum,* and *macrodentium.* In all three cases marked dental caries and pyorrhea alveolaris were present. Smears from these lesions showed organisms morphologically indistinguishable from those mentioned above. These organisms, which are poorly colored by the usual laboratory stains, are readily demonstrated by the Fontana method in smears and by the Levaditi method in tissues. From a study of the pulmonary lesions in these three cases the impression is gained that they are extensive pneumonias, caused by organisms from the unclean mouth, in which gangrenous ulceration occurs because of activity of the aspirated fusiform bacilli and spirochetes. If this explanation is correct this type of spirochetal pulmonary gangrene may be prevented by proper oral hygiene.

The Lancet.

November 19, 1921. pp. 5125.

1. A Discourse on Permeability in Physiology and Pathology. H. J. Hamburger.
2. Craniotabes in the Fetus and Infant. Edmund Hughes.
3. Antimony and Emetine in Bilharzia Disease. F. G. Cawston.
4. An Outbreak of Bacillary Dysentery in a Boys' School. W. E. Fitz-Gerald.
5. A Case of Moral Imbecility. W. Norwood East.
6. A Case of Melanoma of the Choroid. A. E. Keown.
7. Notification of Tuberculosis, Compared with the Reported Deaths from This Disease. G. Lissant Cox.
8. The Significance of Sexual Instinct for Anthropology and Psychopathy. Ian D. Suttie.

1. **Permeability in Physiology and Pathology.**—H. J. Hamburger, in this discourse, reviews his investigations on the permeability of red corpuscles to electrolytes, permeability to non-electrolytes (organic substances), and the permeability of cells other than red blood corpuscles. He recalls that twenty years ago he pointed out that the permeability of one and the same kind of cell had no constant value, but was dependent upon the physiological condition of these cells. His experiments on permeability of the glomular membrane to glucose demonstrated the variable permeability to organic substances. Recently experiments have been performed in his laboratory with organic substances, especially with glucose and its isomers and stereoisomers. Experiments were made with the perfused kidney of frogs, using Ringer's solution, in which the sugar is exclusively free and not in the form of a colloid compound. These experiments show that the glomular membrane is normally impermeable to glucose. It is further shown that minute changes in the liquid flowing through the glomerular epithelium make a profound change in the permeability. While glucose is retained crystalline bodies like sodium chloride, sulphates, and phosphates pass through. It was thought that if the molecule of the monosaccharide glucose was so large that its passage through the glomular membrane was hindered, that disaccharides, like sucrose, maltose, and lactose, which have a still larger molecule, would certainly be retained as well. Experiments have shown that the glomerular membrane is highly permeable to these three disaccharides. It is even perfectly permeable to raffinose, which has a still larger molecule. Thus the size of the molecule is not the determining factor. For this reason sugars isomeric or stereo-isomeric with glucose were experimented with. It was found that fructose and mannose passed through completely. Glucose, therefore, occupies a peculiar place amongst the isomeric monosaccharides with regard to the glomular membrane in virtue of some peculiarity of configuration of its molecule. The mechanism of permeability is discussed and the reasons why one obtains different states of permeability on the addition of sodium or calcium, and attention is called to the fact that there is impermeability in the presence of a definite amount of Ca-ions which is replaced by permeability again when there is a superabundance of calcium in the liquid. In the therapeutic application of lime salts one may also notice opposite effects according to the amount used.

2. **Craniotabes of the Fetus and Infant.**—Edmund Hughes, in a previous paper, reached the position that the recognized craniotabes arising during the first month of infancy was in many, and probably in most, cases only a fresh manifestation of a state of craniatrophy already existing in later fetal life. This craniatrophy having no physical differences from the latter form, and occurring predominantly in the same individuals, was held, therefore, to deserve the same title. He now goes over his previous findings and incorporates new material, the total number of cases

studied being 134. The result of these observations makes it clear that the condition he calls craniotabes and the condition of the parietal due to immaturity are entirely distinct. In the first there is a discontinuity of the bone forming spicules—a true atrophy in some part of their course—together, sometimes, with attempts at repair; in the second, merely an evenly progressive ossifying process in an incomplete stage. It is shown that mistakes can rarely arise in palpating these bones. The normal parietal at the period in question is rigid, and the only spot where localized yielding due to immaturity is liable to occur is a small symmetrical area about the parietal foramina. Except for this, which is easily excluded, the parietal at about term presents no features due to absolute immaturity which could simulate craniotabes. The evidence obtained affords sufficient proof of the identity of the fetal and infantile forms of craniotabes. In craniotabes atrophy occurs as depressions found on the inner aspect of the bone. The atrophic areas show both lacunar and diffuse formations, both being frequently present in the same bone. While palpation is sufficient to settle the fact of atrophy and to determine the main features, in detail it is inaccurate and recourse should be had to the *x*-ray in order to fill in the detail. The difference in macroscopic detail is that in parietals at birth, showing normal ossification, the vascularity of the bone may appear uniformly distributed, or show a degree of irregularity in this respect, while in those showing craniotabes there is sometimes, not always, definite hyperemia, with an irregular distribution. The hyperemia is seen to be more pronounced in a broad zone around the atrophic parts. The writer has only found craniotabes in births by the vertex. Its occurrence in other than head presentations would indicate that the fetus had recently changed its position. It would seem probable that the organic causes of decalcification present in the fetal state are carried on into infancy. In 109 cases of infantile craniotabes intensively studied the occipital was rarely affected as compared with the parietal and, when affected, was a secondary involvement. The relation of syphilis to this condition is beyond doubt, but there are very good mechanical reasons quite apart from the activity of an accompanying syphilis. It is probable that the relation of syphilis to craniotabes is similar to its relation to rickets, the action in both conditions being to promote resorption of bone. In craniotabes there seems to be a seasonal curve; 51 per cent. of the fetal series, and 60 per cent. of the infantile, were born in the last four months of the year. The condition would seem to be dependent upon pressure on the cranium by its position in the lower uterine segment and possibly upon an ill-balanced maternal diet. The latter point needs further study.

British Medical Journal.

November 19, 1921, No. 3177

1 An Address on the Drug Habit. W. E. Dixon.
2 Pyrogenic Therapy ("Protein Shock"). A. G. Auld.
3. Ilio-Tibial Band Grafts for the Radical Cure of Large Inguinal Hernise. D. W. Hume.
4 Ionic Medication in the Treatment of Neuritis and Rheumatic Pains. W. F. Somerville.
5. A Case of Cholecystgastrostomy.
6. The Diagnosis and Treatment of Borderland Cases. George M. Robertson.
7. The Blood and the Nervous Diathesis. Harry Campbell.
8. Some Points in the Management and Treatment of Paraplegia. George Riddoch.
9. The Physiology of Symptom Production in Disease and Injury of the Nervous System. F. M. R. Walshe.
10. Epilepsy from the Psychological Standpoint. Alfred Carver.
11. The Early Diagnosis and Treatment of Disseminated Sclerosis. Douglas K. Adams.

2. Pyrogenic Therapy ("Protein Shock").—A. G. Auld recalls that in a paper published in the *British Medical Journal*, Vol. I, 1919, p. 195, he described a severe febrile reaction which he obtained in 1916-17 with certain colloidal metals used intravenously, a reaction identical with that produced by the intravenous use of suspensions of killed typhoid and coli bacilli vaccines and termed "protein shock." He found, however, that the full reactions following these particular metallic colloids could be produced by the protein used as the protective or coating to the metallic particles, and in the same dosage. He thinks the term "protein shock" is rather an unfortunate expression and suggests instead the term "pyrogenic therapy," chiefly in view of the fact that the reaction is produced by substances called pyrogens by Burden-Sanderson. Moreover, the fever which occurs is essential and no benefit accrues without it. The cases in which the reactions were produced by the protein-coated metals were chiefly those of delayed resolution in pneumonias and pleurisies, with rises of temperature of from 100° to 101° for some considerable time. Recovery seemed complete at the end of the reaction. More recently cases of arthritis of various kinds have mainly been treated, with on the whole very favorable results; also in skin affections and many infective disorders the response had been rapid and relief complete. This treatment is not to be lightly undertaken. Careful consideration must be given beforehand to the condition of the patient, the pyrogen to be used and the dosage. In suitable cases the full pyrogenic reaction may be necessary for a successful result, namely, a good rigor, high pyrexia, body pains, profuse sweating, and usually sickness and diarrhea. Some cases considered unfit to stand the maximal reaction may derive great benefit from submaximal doses more frequently repeated. As regards the pyrogen to be used that depends largely on the experience of the operator, but for those not especially acquainted with the various substances, typhoid vaccine or caseose (2 c.c. and upward of a 2 per cent. solution) may be employed. The writer has the caseose prepared by gentle hydrolysis. The particular pyrogen used is immaterial so far as the characteristic effects are concerned, and in the case of infections there is no added advantage in using the particular organism, since the reaction is entirely non-specific. The physiological and vital changes which occur following the use of pyrogens are very similar to those described as due to artificial heat. As a matter of fact, the conditions amenable to pyrogenic therapy are chiefly those which are benefited by thermal baths (water or air), such as arthritis (various), neuritis, or neuralgia, certain skin affections, and subacute or chronic inflammatory exudations; and, further, the results are so far comparable in view of the more intense and prolonged pyrexia produced by the pyrogen and the collateral effects of its autogeneration.

7. The Blood and the Nervous Diathesis.—Harry Campbell insists upon the important part played by the blood in the genesis of the neuro-psychoses. He discusses the influence of the plasmic enviroment upon the evolution of the neuron and shows that abnormal development of the nervous system induced through the plasma may be due to inborn or acquired defects of the plasma and that thus it influences both sensations and emotions. A person's temperament may be defined as the sum total of his emotional dispositions. What may be termed the habitual constitution of the blood is peculiar for each individual, and is largely responsible for the feeling note of each. There is little doubt that the difference of the feeling note of different persons is due to differences in blood constitution. On the same lines racial temperaments may be explained. The writer says he does not contend that psychic factors, factors making a direct appeal, take no part in their causation, nor that psychic means are wholly unavailing in their treatment, but he does contend that psychic treatment is important to alter the emotional state which is the essential etiological factor in the more malignant forms of these disorders—those that break out in a favorable environment, for no mental treatment is capable of rectifying the peculiar condition of the blood which is responsible for it. This can only be done by material means.

11. The Early Diagnosis and Treatment of Disseminated Sclerosis.—Douglas K. Adams, in conjunction with E. M. Dunlop and J. W. S. Blacklock, has attempted an investigation of disseminated sclerosis along clinical, serological, and experimental lines. It is imperative from the point of view of successful treatment that the disease be recognized in its earliest stages. On interrogating advanced cases in which the clinical diagnosis is beyond doubt, one almost invariably elicits a fairly definite symptomatology referable to the earliest stages of the patient's illness. There is derangement of bladder function, as evidenced by urinary frequency, precipitancy, slight retention, or in-

continence, in the male at this period frequent nocturnal seminal emissions, and usually a past history of temporary derangement of vision and diplopia. The colloidal gold reaction appears to be almost constantly positive in this disease. In a series of twenty cases of functional nervous diseases which the writer investigated the cerebrospinal fluid was negative to Lange's reaction, and should these facts be substantiated in a larger series of cases some help in the early diagnosis might be hoped for from the use of this method of examination. The test appears not to be specific in the sense in which the Wassermann reaction is specific, but it would seem to be of undoubted value to the clinician as indicating the first definite sign of involvement of the central nervous system in organic disease. The writer's experience supports the view that in the large proportion of cases presenting symptoms as described above the condition is not of syphilitic origin, and further, that they have their basis in infection by some other agent which is probably specific in character. From the experiments carried out it would appear that a disease showing nervous symptoms can be produced in rabbits inoculated with blood or spinal fluid from cases of disseminated sclerosis. This disease can be transferred to other rabbits by an injection of an emulsion of brain and cord of inoculated rabbits showing nervous symptoms before death. This would make it seem that in this disease we are dealing with an infective agent. In the treatment of disseminated sclerosis the best results have been obtained by intensive mercurization with the Aachen formula, combined with repeated intravenous injections of small amounts of novarsenobillon, extending up to twenty or more doses, intramuscular injections on intramine and oral administration of potassium iodide.

Western Medical Times.

October, 1921, xli, 4.

1. The Physiological Treatment of Cancer. Albert C. Geyser.
3. Prophylaxis in Cardiovascular Diseases. Thomas E. Satterthwaite.
4. Relation of Gastric Secretion to the Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. H. Foreman.
5. Creole Medical Traditions. George B. Tichenor, Jr.
6. Specialism Gone to Seed. Howard Crutcher.
7. Examination of the Anus and Rectum, Together with an Interpretation of the Findings. Charles J. Drueck.

1. The Physiological Treatment of Cancer.—Albert C. Geyser argues that it is not the histological or anatomical formation of cancer which ultimately causes the death of the patient but the perverted physiology that is inimical to life. A number of investigators have shown that nearly all tumor growth is arrested by heat of a certain degree, yet sound tissue is in no way affected. It is also a well known fact that dry or moist heat applied to the living body can only penetrate three to five millimeters. All of the good effects observed from the application of moist or dry heat is due to the gradual heating of the blood volume and to the reflex effects of local heating. In the diathermic phase of a high frequency current we have an agent that heats the tissues through and through without practically exerting any influence on the outside. A malignant growth being firmer, of harder consistency, and with a lessened circulation than normal tissue, is especially adapted to the storing and retaining of heat, when this is artificially supplied. In fact, the malignant mass is always of a higher temperature after applying diathermy. Under these circumstances it is easy to maintain a tissue or an organ in a state of elevated temperature for hours. Practical experience has shown that when the entire malignant growth is subjected to an increase of three degrees of temperature for sixty minutes daily its physiology is markedly interfered with. Cachexia is prevented or removed; the tumor mass undergies a retrograde metamorphosis, individual nodules soften, become smaller, and finally disappear; pain ceases entirely, and discharges lessen and lose their offensive odor. The claim is not made that diathermy will necessarily remove the growth, but after diathermy has been used for a sufficient length of time and constitutional changes have been brought about, there is no reason why the growth should not be removed surgically, because practically all chances of recurrence have been removed. The treatments should be given daily or at least on alternate days for at least two months, then once a week for an indefinite time, from forty to sixty minutes being consumed with each treatment, with the current turned on to the point of tolerance.

Long Island Medical Journal.

September, 1921, xv, 9.

1. Pylorospasm: A Case Report with Comments. Robert F. Ives.
2. The Mentally Deficient Child, Its Care, Education and Future. Sylvester R. Leahy.
3. Gonorrhea in Men: Further Observations on the Use of Acriflavine. Gray Philips.
4. Splenic, or Pseudoleucemia, or What? E. H. Bartley.
5. Gas Gangrene, a Case of. John H. Long.
6. Osteomyelitis, Some Common Errors in the Management of. P. A. Reynaud.
7. Pedunculated Fibroma of the Uterus, Complicating Pregnancy at Term; Twisted Pedicle, Post-Peritonitis, Death. Report of a Case. Joseph A. Driscoll.
8. Gastro-Jejunal-Colonic Fistula. Report of a Case of. Meyer Groliman.

3. Gonorrhea in Men: Further Observations in the Use of Acriflavine.—Gray Philips states that in a former communication he recommended normal salt solution with the dye, 1:4000 being used for irrigation and 1:1000 for injections. It has since been shown that solutions made of distilled water are equally efficacious and that for injections a strength greater than 1:4000 is not necessary. Men with a free discharge, whose first and second urines are clouded, are irrigated once daily, are instructed to use injections twice daily, are given bicarbonate of sodium, and in addition are given 1 c.c. of stock vaccines. Sitz baths at four hour intervals are ideal, but are not usually practicable more than twice daily. Progress in these cases is eminently satisfactory, especially when there is a strong local reaction at the site of the vaccination. When frequency, deep urethral pain, and nocturia indicate the presence of deep involvement of the urethra the irrigations are not used but the injections are continued. Observations on such patients show that this in no way interferes with resolution of the deeper structures, and men so treated recover more quickly than others treated expectantly. In patients seen early in the course of their disease when it is limited to the anterior urethra a cure may be brought about in six weeks. Acriflavine is more efficacious than the proteid silver compounds. It has, however, special indications and definite limitations. When brought *into contact* with gonococci its germicidal effect is absolute. It is manifestly no aid in epididymitis. Except that massage may be instituted earlier when the bladder is filled with the dye, it has no direct effect on prostato-vesiculitis.

Finska Läkaresallskäpets Handlingar.

September-October, 1921, lxiii, 9-10.

Hydrocele Renis.—Krogius under this name reports a case of pararenal cyst in a woman of 67. The tumor of the right side was found on operation to be a hydronephrosis in association with a cystic formation, the wall of which was formed by the renal capsule. There was a large quantity of clear, brownish fluid in this cyst which contained albumin but only traces of urea. The kidney projected into the cyst exactly like a testicle into the sac of a hydrocele—hence the name given by the author. The kidney was the seat of a disseminated interstitial nephritis and the urine contained traces of albumin and was slightly turbid from blood cells and cocci. The hydronephrosis was due to pressure on the lower part of the ureter by a carcinoma. The renal lesion had been six months in growing. Nephrectomy cured the patient, nothing being said of the uterine cancer. A similar case was treated by Runeberg in a man of 55. In this, as in the above, a growth the size of a man's fist was present at the time of consultation. The cyst had formed beneath the capsule of the kidney and the latter projected into the cyst cavity. The contents of the cyst were clear and yellow. The kidney was extirpated. The urine was of the same type as in the first case. Other cases are in literature, reported by Malherbe, Minkowski, Kirmisson, Albarran, and others. Some authors might prefer the name perinephritis serosa.

Book Reviews.

SELF DEVELOPMENT. By A. ADDINGTON BRUCE. Author of "The Riddle of Personality," "Nerve Control and How to Gain It," etc. Price $1.50. New York and London: Funk & Wagnalls Company, 1921.

WRITING in his characteristic conversational style, the author develops his theory that all men of normal psychic constitution contain within themselves success-winning powers, utilized by the majority to nothing like their maximum possibilities. His endeavor is to show how to draw upon these powers and at the same time how to direct them to ends compatible with a wholesome philosophy of life. He aims to assist his readers not only to gain prosperity in a material sense, but also to gain the high prosperity which too many people today are taking into too little account. Titles of some of the chapters are: "Organize Your Life," "Making Oneself Interested," "Aids to Real Thinking," "To Develop Will-Power," "The Art of Forgetting," "Defense Reactions," "Moods and Their Control," "Face the Unpleasant," "Hints of Self-Study," etc. While there is nothing strikingly new in the book the advice proffered is of the kind that bears frequent repetition. Individuals who need "rebuilding" or at least refurbishing and mental readjustment may find in this book just the incentive and inspiration they need in order to gain a new and sane outlook on life.

THE EVOLUTION OF DISEASE with a Discussion of the Immune Reactions Occurring in Infectious and Non-Infectious Diseases. A Theory of Immunity, of Anaphylaxis and of Antianaphylaxis. By Prof. J. DANYSZ, Chef de Service, Institut Pasteur, Paris. Translated by FRANCIS M. RACKEMANN, M.D., Assistant in Medicine in the Harvard Medical School and in the Massachusetts General Hospital, Boston, Mass. Price $2.50. Philadelphia and New York: Lea & Febiger, 1921.

DR. RACKEMANN has given us an excellent and sympathetic translation of Danysz' interesting work. And the work is interesting even though it is difficult to accept many of the authors statements. At the outset he says that all antigens are colloids and then goes on to the statement that a number of synthetic colloids also may act as antigens. Among these colloids he mentions the substances of the arsenobenzene series. That arsphenamine may cause unfavorable symptoms is known but the present tendency is to ascribe these to hypersensitiveness rather than to anaphylaxis. These two types of reaction have been shown to be quite different in nature. His explanation of the progress of certain infectious diseases is that during the stage of incubation the body is developing immune substances to the infecting agent and that with the onset of the disease proper the body cells have been surcharged with specific antibodies. The symptoms of the disease then become merely an expression of an anaphylactic reaction. There are many good arguments that may be advanced against such an assumption. In order to produce anaphylaxis in animals it is necessary that the antigen be injected at rather long intervals while in disease in man we must assume that the antigen reaches the circulation practically continuously. We feel that his theory cannot find acceptance until he brings forward much more and better evidence than is presented in this book. The author states that an antigen will produce disease only when its reaction with its antibody results in an insoluble product (except in the purely toxic forms of disease as for example in diphtheria). In the later portion of the book he gives a number of case reports showing instances in which skin lesions, asthma, etc., have been cured by the administration of preparations of intestinal bacteria. But he admits that the action is not specific and one suspects that these are merely instances of the non-specific action of foreign proteins. As a whole the book makes interesting reading and will probably bring to the readers mind many arguments which tend to contradict the author's theories. It is therefore stimulating. But we feel that it will hardly furnish help to the average practitioner in the understanding of the nature of the infectious diseases unless he has been well trained in the literature and practice of immunology. A curious error is found on page 26 where ricin is derived from rice instead of from the castor oil bean.

LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN. Für Studierende und Ärzte. Von Dr. ADOLF STRÜMPELL, o.ö. Professor und Direktor der Medizinischen Klinik a. d. Universität Leipzig. Zweiundzanzigste vollständig neu bearbeitete Auflage unter Mitwirkung von Dr. Med. et Phil. CARLY SEYFARTH, Privatdozent und erster Anat. Assistent am Pathologischen Institut d. Universität Leipzig. Zwei Bände. Price 125 marks. Leipzig: F. C. W. Vogel, 1920.

THIS work has been a standard of excellence ever since its first appearance thirty-eight years ago. During that time it has grown enormously in size and service to the profession and this, its latest edition, will be welcomed as furnishing a means whereby the younger members of the profession may become familiar with the book. Each volume contains well over eight hundred pages so that it is impossible to review it in detail. It should be sufficient to say that the original plan of the author has remained unchanged and in this edition he has added much that is new and has revised much of the former text in order to bring it into line with our present information. The work has grown so large that it has been necessary for him to procure as assistant for this edition. The work can be recommended without reserve.

LES NOUVELLES MÉTHODES D'EXAMEN DU CŒUR EN CLINIQUE. PAR R. LUTEMBACHER 136 Pages with 138 Original Illustrations. Price 20 francs. Paris: Masson et Cie., 1921.

THE modern graphic methods, together with radioscopy, have become an indispensable complement to the clinical examination in the study of diseases of the heart. The first part of the book contains a large number of graphic tracings showing every type of cardiac arrhythmia which the author carefully deciphers and explains. The second part is devoted to the radioscopy of the heart and to the interpretation of the fluoroscopic picture. Of the latter 24 are given in schematic outline, and facing each one is a photograph of the corresponding post-mortem specimen. This is a capital way of teaching one to visualize the actual condition indicated by the radioscopic outline. The pictures in the book are unusually good and illustrate all the principal cardiac lesions as expressed radioscopically and in graphic tracings.

THE HEART. Old and New Views. By H. L. FLINT, M.D., Late Captain R.A.M.C., Cardiological Center for the Northern Command; Physician to the Mansfield Hospital. 177 Pages, with Illustrations. Price $4. New York: Paul B. Hoeber, 1921.

THIS is really a history of medicine in relation to the heart, and a very interesting history it is and a very instructive one. The author begins with the earliest period of which we have any records, namely the early Sumerian, noting what references there are in the literature to the heart from those times down through the Indian, Egyptian, and Greek eras. The earliest notes were religious in character, the heart being referred to as the seat of the soul, the first medical reference being in the Ebers papyrus, about 1550 B.C. The real beginnings of cardiology as of all other branches of medicine are found in the teachings of Hippocrates. Then we come down through the Galenical period to the middle ages and to the latter half of the nineteenth century to the invention of modern instruments of precision which have made possible a scientific study of the venous and arterial pulses, blood pressure, and the mechanism of the cardiac rhythm in health and disease. By far the greater part of the book is concerned with the later instrumental period, for it is only in this period that our knowledge of the heart and its action has reached a utilizable stage where it can be applied practically to the recognition, prevention, and treatment of functional and organic disease. This is a capital little book and it is a pity that it was found necessary to list it at so high a price for this will keep it out of the hands of many who would profit by its contents.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 1, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

As this meeting was held under the auspices of the Public Health Committee of the New York Academy of Medicine, Dr. Stewart asked Dr. Charles L. Dana, chairman of that committee, to take the chair during the scientific session.

Dr. DANA stated that the survey of the hospital situation and problems in this city to be reported on this evening had been made possible by a grant of $25,000 from the commonwealth fund to the Public Health Committee of the Academy. This money was used in making a survey of the hospitals of the greater city. Their executive secretary, Dr. E. H. Lewinski-Corwin, had organized the staff, which was composed of four physicians, five or six nurses, one or two statisticians and social workers, and a hospital superintendent. This staff had accumulated information with reference to 180 hospitals. They had succeeded in assembling an immense amount of material which would be of interest to those concerned with hospital construction, to physicians and to the nursing sorority. In order to avoid the tediousness of statistics much of the data would be presented on charts. There had never been any investigation of hospital conditions, at least in this country, conducted as carefully and thoroughly as this one, only a part of which could be presented in the time allowed for the meeting. It was hoped that as a result of this work a permanent organization would be established to carry out the purposes and ideals which had been reached in the course of this study.

A Summary of the Findings of the Hospital Study of the Public Health Committee of the New York Academy of Medicine.—Dr. E. H. LEWINSKI-CORWIN made this sentation, which was illustrated by lantern slides. He stated that the study of the hospitals of this city was made possible by a grant from the Commonwealth Fund; the study covered a period of almost a year. The survey was both extensive and intensive. Some of the important facts brought out in the preliminary report were: (1) That 32,000 hospital beds in this city were sufficient to meet the present demands of the community because one hospital bed was available for every 200 of the population, and on the basis of the approximate number of sick one bed was available for every fourth sick person. The average utilization of available bed capacity did not exceed 70 per cent. There was a need to create a central hospital bureau through which the utilization of the beds in many hospitals could be increased. The study showed that in the general hospitals 8 per cent. of the cases were private patients and 9 per cent. semi-private, and this was for all the hospitals, including the municipal hospitals. He thought the private pavilion should not be looked upon as a milch cow to sustain the wards. The present need seemed to be for more of the inexpensive private and semi-private beds for the people of moderate means. The private pavilion of the hospital should, however, not be expected to earn money for the hospital beyond the cost of maintenance. (2) There was a distinct need for the expansion of facilities for the care of convalescent and chronic disease cases. (3) The immediate needs of the hospitals were ampler funds for maintenance purposes and for the employment of larger nursing and other professional staffs; also for the extension of laboratory and *x*-ray facilities. In most of the hospitals the provision for nursing care was utterly inadequate, and particularly so in the municipal hospitals. There was need of reorganization of the training schools to attract a larger number of pupils. At the present time only 57 per cent. of our nursing done in hospitals with training schools was done by pupil nurses. The need of the extension of the training of nurse attendants was likewise very great. In some of the hospitals, however, the percentage ran above 80 per cent. (4) Hospitals should be utilized to a greater extent for medical research and teaching than was being done at the present time. The scientific work of hospitals was hampered by the hostile attitude of the public toward post-mortem examinations. In the Kings County Hospital autopsy was performed in only one-half of 1 per cent. of deaths; in Bellevue in 15 per cent. Hospitals in which autopsy was done in 25 per cent. or more of deaths were the New York, St. Luke's, Greenpoint, and Beth Israel. At the Peter Bent Brigham Hospital post mortem examinations were made in 65 per cent. of deaths. (5) A change in policy was indicated which would admit larger numbers of physicians to the opportunities of hospital practice. At present only a little over 40 per cent. of the physicians in this city were associated with hospitals. (6) There was a distinct need for a more uniform method of statistical and financial accounting in hospitals. Likewise for more cooperative business arrangements on the part of hospitals to ensure greater savings in buying. The hospitals in this city expended annually for maintenance $35,000,000. Sixty-eight per cent. of the cost of maintenance came from pay patients and 19 per cent. from endowments. There was $78,000,000 invested in hospitals. Of this amount approximately 43 per cent. was invested in private hospitals, 33 in city hospitals, and 25 per cent. in private special hospitals. In 37 per cent. of the hospitals the land value was considerably in excess of the value of the buildings. In order that the manifold problems of the hospital should be kept continuously before the public, a Central Hospital Bureau should be established, which would act as an exchange of experience and a storehouse of information. Among the various ways in which such a bureau would be valuable were the following: It would contribute toward a better distribution of the patients among the hospitals; it would bring about the unification of hospital reporting; it would be a repository for information on morbidity; it would be an aid to the public in forming an opinion as to the needs of the institutions; it would supply information to benefactors, trustees, and architects, and it would stimulate efficiency of hospital work and organization.

Dr. GEORGE B. WALLACE said that in this extensive study of the New York hospitals, made by Dr. Corwin and his associates, one of the features looked into was the data concerning the immediate care of the individual patient. Inquiry was directed to the recorded facts brought out in establishing the diagnosis—that was, the history and the physical and laboratory examinations, the course of the disease or injury, the treatment, and the condition of the patient at the time of discharge from the hospital. It was assumed that such an inquiry would not give an absolute but still a fairly definite idea of the character of the medical work done in the hospital. Indeed, with those making the study personally acquainted with a very small percentage of hospital physicians, the patient's record was practically the only definite criterion of the medical work done in any particular instance. As might be expected, the inquiry showed the most marked variation in the matter of patients' records. At the one extreme the record consisted of a filling out of the printed headings on the record sheet and practically nothing else but the nurse's notes. At the other extreme, where certain types of cases were being intensively studied, the records contained the minute and detailed data that one associated with the accurate recording of facts in experimental research. The conclusion was properly drawn, Dr. Wallace thought, that the records of the first type were almost useless except for the purpose of compiling the annual hospital reports, and that those of the second type, admirable as they were, represented an amount of work not practical in the ordinary hospital with its limited staff. Obviously some mean between these two extremes should be selected as a working basis. In considering what was the general purpose in keeping an individual record, and what might be the value of such a record, two points especially presented themselves. The first had to do with the immediate welfare of the patient. Certain procedures, such as the obtaining of a proper history, a thorough physical examination, certain laboratory examinations were necessary for a diagnosis, using this term in the broadest sense. Subsequent examinations were equally necessary for a knowledge of the course of the disease. Yet in some hospitals such facts as were necessary for

an understanding of the case either were not recorded or were recorded only in part. For example, one record gave the diagnosis "typhoid fever," with no statement of the presence or absence of an enlarged spleen, or rose spots, no mention of a Widal test or of a blood or other culture. Another containing the diagnosis "chronic nephritis" had no urinary examination recorded. These omissions did not necessarily prove that the necessary examinations had not been made, but it was manifestly impossible for any one to carry accurately in his memory the history and the findings in each patient in a ward. Again, without a record, the following of the course of the disease and the recognition of complications became more difficult. Further, in many hospitals there were sudden shifts in the staffs, and the newcomers, with inadequate past records to guide them, were often quite at sea regarding any particular case. In order to avoid mistakes, therefore, and to be able quickly to refresh the memory on any question arising, a written record was indispensable. The acceptance of a hospital appointment carried with it the obligation on the part of the physician to do all he could for the welfare of the patients under his charge. Since the keeping of a proper record had a great deal to do with the patient's welfare, it became a duty to see that the proper record was kept. Failure to perform this duty rendered the hospital open to criticism that the medical work was not well done, and since so many hospitals were dependent upon private contributions for their maintenance it might well follow that discriminating donors would hesitate to make contributions to such a hospital. A second point brought out was the educational value of the record. There was no doubt that an accurate recording of clinical facts instilled a spirit of carefulness and thoroughness on the part of the recorder. Such a spirit was of great value in self-education. Another aspect was that the advance of clinical knowledge was not dependent solely on laboratory research work, as some seemed to think. Our knowledge of disease was based largely on the careful observation of patients. It was an obligation of hospitals, with their wealth of clinical material, to add to this knowledge. One way of doing this might be to render the ward more accessible to those who wished to study certain diseases. Certainly one way was to keep case records which were sufficiently comprehensive to have the desired facts clearly set forth. When it was considered to what use records of the large number of patients passing through the average hospital in the course of a year might be put in furthering medical knowledge, the failure to supply these records seemed inexcusable. In considering what constituted a proper record, Dr. Wallace said it was obvious that there could be no standard record for all hospitals and all patients. Generally speaking, there was this minimum requirement. First, every record should contain all the facts necessary for a diagnosis; this included a complete history and physical examination, the latter showing not only what was abnormal but what was normal, together with certain routine laboratory examinations, such as the urine and blood; second, besides notes describing the progress of the case, a full account of any complications or unusual features arising; third, an adequate statement of any therapeutic measures employed; fourth, the nurses' notes on pulse, temperature, etc., and finally, a statement of the patient's condition on discharge, based either on recorded facts or a final general examination. With this minimum established there was no limit to the additions which might be made in cases which were being especially studied. In concluding Dr. Wallace put forth the following suggestion: They frequently met in Bellevue with patients who showed scars of previous operations, who gave histories of definite illnesses or injuries, who told of having blood examinations or injections made. On inquiry they were ignorant of what the operation was for, or what was found, or what the illness was, or what the blood test showed. In a study of dispensaries made some years ago there was shown a small book, slipping easily into the vest pocket, which each patient in one of the dispensaries was given. This little book, which was kept by the patient, contained very brief statements, over a doctor's signature, concerning the complaint from which the patient suffered. It was worth considering whether it would not be advantageous for hospitals to see to it that each patient on discharge had some such similar book containing the proper entries. If this system became general it would result in time in a large number of patients having an accurate record of their past medical history.

Dr. S. S. Goldwater said he would be ungrateful if he did not express his profound appreciation of the splendid report which Dr. Corwin had presented. Before coming to the meeting he had felt that Dr. Corwin was facing an impossible task. Conditions existing in New York hospitals had never before been presented so graphically. He had been asked to say a few words about the private room and the ward; the professional and economic problems involved. One might start by defining what was meant by private room and ward. When one spoke of a ward it might be taken to mean the thing that formerly existed in some hospitals and still existed in some places, a large barrack, sometimes lighted, at others very poorly lighted, sometimes ventilated, sometimes not ventilated, with no facilities for classifying patients and no way of changing the environment of the patient. Sometimes there was no receiving department and an absence of special examining rooms. This was the type of hospital that lacked decency and where all the surroundings were what they should not be. So there were wards and wards. To-day one found, even in the municipal hospitals, 20, 30, 40, and even 50 per cent. of the ward capacity in the form of one, two or three room ward units and every facility for separating patients. Usually there was in addition a veranda which provided for outdoor treatment. The condemnation of the large ward had now led to the other extreme with a tendency to have many single rooms which meant a great increase in the cost of construction and maintenance. In this connection the experience of the Boston City Hospital was of interest. There was a great outcry against the absurdity of putting a pneumonia patient and a nephritis patient in the same ward under the same conditions. So a small hospital of 80 beds, each having a separate room, was built. A nurse, when asked how she liked the new arrangement, answered that it would be all right if she had some means of seeing what was happening to the patients. The same nursing force that could care for 40 patients in a ward could not take care of those same patients in separate rooms. The result of this experiment was disastrous. Then Boston City Hospital swung back when another addition was built, and there was not a single quiet room and even the service room was separated from the ward by a glass partition. Both of these extremes were wrong. Private rooms should be provided for ward patients only where it was an advantage to the patient to have a separate room outside the ward. The private room of course had the advantage of preventing contagion provided other measures directed to that end were also employed. However, if the doctor and nurse put on a gown and gloves and then passed from one room to another without changing or sterilizing them, as he had seen done on one occasion, this advantage was nullified. Other advantages of the single room were that the light could be adjusted, there was more quiet, and one could show more attention to the individual patient in the matter of contact with his family. Dr. Goldwater said one was shocked in Japan when he found males and females being treated in the same ward, but one had to consider their temperament and manner of living. When one found the female friends of the male patient spending a great deal of time in the ward one came to realize that classification into male and female did not mean anything anyway. In Pekin the average Chinaman wanted at least four or five of his family with him day and night. In Hong Kong the hospital was constructed with anterooms for the patients' servants. Coming to a consideration of the economic side of the question of private rooms and wards, the difference in the cost of construction of a good type of private room and good accommodations for a patient in a ward was about 100 per cent. The difference in the cost of maintenance was also very great; for instance, the cost of cleaning the same space was double in a private room what it would be in a ward, for there was not only the ceiling and floor but four walls and many more corners. When it came to

the nursing side a greatly increased nursing force was required for private rooms. There was an adequate number of private rooms in the hospitals of this city. If these private rooms were turned over to persons of moderate means for the small price they would be able to pay the hospitals would be unable to carry on unless they were provided with stiff endowments. There was at present a shortage of nurses and if more private rooms were operated this shortage would be still more acute. A larger force of domestics would also be required. All this would mean that the hospital would have to have larger funds. Dr. Corwin had spoken of a hospital having a surplus of $150,000. That was a most exceptional and fortunate hospital. He thought that if they looked into the affairs of that hospital they would find that it employed an overwhelming amount of pupil nursing, and that a large percentage of ward patients were paying their way. One also had to take into account the fact that the proportion of ward patients paying their way was influenced by different conditions as the rise and fall of wages, and changed conditions of living which made people go to a hospital because they did not have room in their homes to care for a sick person. He could not agree with Dr. Corwin that the ward patient should pay no more than merely the cost of his care. One ought to see that the private pavilion earned at least the interest on the capital invested and anything over and above that should be applied to the free wards. The report showed that only 17 per cent. of the total number of patients in the hospitals of the city were private or semi-private full pay patients. It was true that the vast majority of decent working people did not have the sort of incomes which permitted them to pay their way; when sickness came they needed help. The deficiency in the cost of maintaining free wards might be met by charitable gifts and such gifts ought to be far larger than they were. He did not see why givers should make a difference between municipal and private hospitals. The poor person in a municipal hospital was just as much entitled to help as when that same patient was in a private institution. Of course he thought the taxpayers should listen with more open ears to the needs of the city hospitals. He felt that Commissioner Coler had not had a fair deal. A much lower standard was permitted there than in other hospitals. Dr. Goldwater expressed the hope that the central hospital bureau which was proposed would be established.

Dr. W. GILMAN THOMPSON said, in part, that it had long seemed to him important that a city which had 182 hospitals and which was constantly erecting new ones or reconstructing older ones should have a central bureau of information where any and all practical facts concerning existing hospitals might be attainable for guidance, either in organization, construction or management. Had such a bureau existed a generation ago, we might have developed a much less heterogeneous assortment of hospitals than we had with these institutions as they now existed, founded many of them on a basis of religion, language, of sex, age, of some special organ of the body, or even of some one disease, like a recent hospital for cutting out tonsils. All this might be desirable in the individual case, but it had unquestionably led to an overlapping of interests, a poor economic situation, and a general lack of scientific cooperation. Meanwhile the cost of hospital construction and equipment had increased by leaps and bounds. There was a certain economic unit of size for a hospital. Much of the personnel, for instance, required for a hospital of 50 beds could equally well manage a service of 100 or more beds. Much of the equipment now regarded as essential for every well organized hospital for accurate diagnosis, like *x*-ray apparatus, or good clinical laboratories, might serve a hospital of any reasonable size without duplication. With this pioneer work accomplished and a bureau once established, it would be relatively easy to keep the information always timely, through a well organized active bureau. Municipal hospitals were dependent for maintenance upon a budget system which often suffered through reductions made by those in authority who might be poorly informed and quite inexperienced in modern hospital requirements. Comparison between the service rendered and the results obtained in the municipal and privately supported hospitals, respectively, which might readily be procurable from an impartial bureau might be utilized to great advantage in securing adequate appropriation from city funds. Dr. Thompson traced the development of the modern hospital from little more than a boarding house for the sick to the modern institutions like great hotels with elaborate engineering, laundry, kitchen and diet kitchen departments equipped with all modern machinery and economic devices, and with laboratories, physiotherapy facilities and all the elaborate paraphernalia of the operating department, and showed that the modern hospital building must be studied architecturally as a factor in treatment. It was a very serious problem to construct a modern hospital, or even to devise an addition to an existing one. The first thing to do was to collect all the composite information possible from the experience of others. A hospital bureau would be prepared to furnish all this information. It would be prepared to answer questions on a large variety of subjects as, for instance, "Do you pay your internes? Do you continue to pay your nurses when on prolonged sick leave? How much did your complete *x*-ray department cost? Are your visiting staff permitted to retain fees paid by accident insurance companies for operation? Do you have an elevator man at night? What is your per capita meat bill? Have you occupational therapy? Have you a special workshop? What is the salary of your teacher? What is the relation of your social service department to the medical staff?" Scores of questions like these were constantly arising which a central hospital bureau could be prepared to answer. The organization of such a bureau need be neither elaborate nor expensive. The personnel that would be needed would consist in a competent director and possibly an assistant, two investigators to visit hospitals and obtain information, a stenographer and two clerks to file and keep records, compile statistics, tabulate data, and answer correspondence under dictation. In summing up, Dr. Thompson outlined the functions of the proposed Hospital Information Bureau as follows: (1) To collect information of all kinds regarding the details of hospital construction, organization, maintenance, and administration. (2) To tabulate and report this information on request. (3) To publish from time to time information regarding important facts concerning the general hospital situation in the city as, for instance, whether the hospital beds were adequate and properly distributed in reference to the population, etc. (4) To collect architect's plans of existing new hospitals, and also the general literature on the subject. (5) To furnish information especially for those who were contemplating new hospital construction. (6) To aid in equalizing and balancing hospital service in many ways as, for example, in securing uniformity on hospital record forms and preventing overcrowding in some institutions while others were practically empty. In order to illustrate the principles of economy of service which should be an important function of the bureau to bring about, it should preferably be inaugurated under the direction or patronage of some existing organization concerned with general hospital affairs.

Mr. BIRD S. COLER, Commissioner of Public Welfare, spoke briefly for the municipal hospitals. He said they knew the weak points in these institutions. One of these was a shortage of nurses and there were other defects but on the whole they were doing fairly well. It had been said that propaganda stood in the way of progress, and we had had an illustration of this in educational lines. For a time every fad that came along was introduced into the educational system until these fads became such a burden on the budget that when the question of medical education came along, they said "take it off." So the facts in reference to hospitals must be properly presented to the heads of the city government if the hospitals were to receive sufficiently large appropriations. It must be remembered that private hospitals were receiving appropriations from the city to aid them in the care of charity patients. Dr. Thompson, in the course of his address, had spoken of obtaining money from foundations. Mr. Coler expressed the hope that they would not accept money from a foundation because the foundations were going to have full time teachers in the medical schools who would do nothing but teach. The medical schools being

closely related with the hospitals this was a question that would affect the hospitals. He believed that a teacher should be able to *do* the thing he was *teaching*. Again the refinements of standardization might be carried to extremes and sometimes that was worse than having no standardization. They might, for instance, carry the standardization of nurses to the point where only a post-graduate collegian could qualify for a nurses' training school. Commissioner Coler strongly emphasized that the city was working intensively in cooperation with the Academy of Medicine and the Public Health Committee and was interested in this study of hospitals. The place to have this proposed bureau was here in the Academy of Medicine. Those interested in the medical school work in public hospitals knew what tremendous advances could be made where there was a proper cooperation between these institutions. If they could have this cooperation between great public hospitals, the Academy of Medicine, the private institutions, and the medical schools, it would be possible to develop a post-graduate medical work which would make New York City the great medical center in this country, but foundations must be kept away so that they would not standardize things—so that they would be ineffective before they were fairly under way. He assured the Public Health Committee that in establishing a Hospital Information Bureau they would have the cooperation of the city hospitals.

SECTION ON SURGERY.

Stated Meeting, Held October 7, 1921.

DR SEWARD ERDMAN IN THE CHAIR.

Recurrent Carcinoma of the Tongue, Treated by Radium and Roentgen Therapy.—Dr. M. J. SITTENFIELD presented this patient, a man 54 year sof age, referred to him by Dr. Lewisohn, in December, 1920, for recurrent carcinoma of the tongue. Two months previously excision had been performed and the growth found to be a squamous cell sarcoma. Rather than submit the patient to the very radical surgical procedure that would have been necessary, Dr. Lewisohn suggested a trial of intensive radiation. At the time the patient came under observation there was an ulcer extending along the right lateral border of the posterior part of the tongue about ¾ of an inch in width, and ¼ of an inch in depth, necrotic looking with indurated borders, causing him great pain. Aside from this the patient was suffering excruciating pain from the side of the face upward along the temporal region, necessitating the constant us of narcotics. Having just returned from abroad where he had observed the more gratifying results in radiotherapy through the use of the newer technique and modern apparatus, Dr. Sittenfield said he decided to institute intensive radiation. The man received five hours of deep roentgen radiation, one hour on each of five consecutive days, over both submaxillary and cervical glands. The local lesion on the tongue was treated by small repeated doses of radium element, 100 to 150 milligram hours, applied directly over the ulcer. Within sixteen days after the beginning of treatment, the ulcer began to heal, pain was diminished, and the patient reported that his tongue felt lumpy. After five weeks his pain had almost entirely disappeared, so that he left off all narcotics, and was able to pursue his usual activities. Since February 8, 1921, two months after beginning treatment, he has been entirely free from clinical manifestations of the disease. Since the advent of the newer intensive radiation technique, the speaker had treated two other cases, but not sufficient time had elapsed to report a clinical arrest.

Dr. RICHARD LEWISOHN, after congratulating Dr. Sittenfield on his brilliant result in this case, stated that the primary operation had been performed in October last year, and consisted in cleaning out the sub-maxillary glands, ligating the lingual artery, and local excision of the tumor. The pathologist's report stated that the growth was carcinoma. They had been very much chagrined to see the man come back with a large recurrence which was causing terrific headaches and difficulty in swallowing. They thought at first of doing a resection of the jaw and removing the greater part of the tongue. This would have been a very formidable operation, so he thought it would be best to give the man a chance to be treated with radiation, as it was doubtful whether he would survive the extensive operation that would be necessary. No specimen of the secondary growth was excised, but clinically it was a very extensive and rapidly recurrent carcinoma. The result, as shown by Dr. Sittenfield, was certainly excellent.

Dr. E. G. RAMSDELL said it might be of some interest in connection with this case to report some observations made at Sir Berkeley Moynihan's Clinic this summer. Sir Berkeley Moynihan said he had given up the use of radium and that he was using fulguration and diathermy in superficial carcinomatus. He had treated tumors of the bladder in this way and with that type of treatment had had very good results. He stated that he hoped he would never do another excision of the tongue, that he cleaned out the submaxillary glands and treated the local lesion with fulguration and diathermy. These cases had been followed for a two-year period and remained free from recurrence. With radium one could not control the reaction and some patients had a great deal of pain, swelling and trouble, whereas with this treatment the reaction was very much less severe and the results very good.

Dr. BURTON JAMES LEE said Dr. Sittenfeld should be congratulated on his immediate results. Every case of this sort he thought should be reported by saying that one had suggestive results to date. Too often the radiologist had been unduly enthusiastic and later had seen untoward results. He thought the primary lesion could properly be treated by radioactive means. It was fairly well proven that the disease was embolic in its metastasis into the nodes of the neck. He had seen the neck nodes successfully treated by dissection and insertion of radium, at the point of severance of lymphatics. In these cases one should say the result was a very suggestive one, to date. The case further demonstrated the usefulness of *x*-ray therapy in such a condition.

Dr. SEWARD ERDMAN said that Dr. Sittenfield had certainly obtained a very satisfactory result for this period. He could not help feeling that since surgery for cancer of the tongue had been so disappointing in results and so mutilating to the patient that *x*-ray and radium should be given a trial if they were going to help even in a palliative way and did not give a final cure. If they helped to heal the local ulceration that would be welcome, for all surgeons were familiar with the excruciating suffering caused by carcinoma of the tongue and the distressing foulness of the mouth. Last year he had referred a case of ulcerating carcinoma of the tongue for radium treatment. The patient had a very foul ulcer, which healed and cicatrized. The man went on and died with metastases in the neck, but at least he had been saved a great deal of suffering and discomfort by the healing of the horrible ulceration.

Dr. SITTENFIELD, in reply to a question as to the length of the spark gap, the number of milliampères he had used, and the thickness of the filter used with the *x*-ray, stated that he had used a 15-inch spark gap, 2 milliampères, and a zinc filter 0.5 mm. in thickness. The radiation was administered at a focal distance of 50 cm. A dose under these conditions required about 2½ hours in order to get an erythema dose. With the new technique and a more accurate dosage it would be possible to accomplish much more than heretofore. They were now beginning to see a little more daylight, and an effort was being made to arrive at a correct and proper dosage for these conditions. Dr. Sittenfield said he quite agreed with Dr. Lee that they ought not to be too enthusiastic about the ultimate outcome, he was presenting this case as one in which the disease had been clinically arrested for one year. He had two other cases treated by this method with apparent success, but he did not feel that enough time had elapsed to report them. If they remained clinically arrested for a year he would be very glad to present them before the society.

Bilateral Congenital Dislocation of the Hip: Result of Treatment.—Dr. WALTER M. BRICKNER said he presented this case, not because the cure of congenital dislocation of the hip was remarkable, but because such a case was usually presented before orthopedic surgeons, and also because it illustrated what might be

accomplished under favorable conditions without open operation and without Lorenz muscle rupturing procedure. The child was now between four and five years of age. When she first came under observatiin, in June, 1919, she was two years 8 months old. At that time she walked with the waddle typical of dislocation of the hip, and had an extreme lordosis and characteristic elevation of the trochanters. She suffered pain and stumbled a great deal in walking. She had been treated by an orthopedist by a brace on the knees without recognition of the hip dislocations. The *x*-ray plates showed this characteristic upward dislocation. At the Park Hospital both hips were reduced by manipulation under ether without any particular difficulty. A plaster cast was applied extending to the knees, with the hips abducted to a right angle and rotated in. An *x*-ray picture the next day showed that one of the hips had again become dislocated during the fixation in plaster. The cast was removed and the hips replaced; this time the thighs were rotated out instead of in, and this time they remained in place. On September 9, a little over two months after the reduction, the child was admitted to Mt. Sinai Hospital. The cast was removed and a second cast was applied with the hips flexed to less than a right angle. A month later this cast was removed and the hips found in place without any tendency to luxate. A few days later, however, it was found that both joints were again luxated. They were again reduced with both thighs at full right angles but the knees free. On November 2 the child was sent home, but the cast was not removed until nearly four months later, March, 1920. At this time the hips were in place and remained so. Daily massage was instituted to overcome the shortened flexors, especially of the sartorius, and by May the lordosis had disappeared. On May 25 the child walked freely, though there was still a tendency to waddle. At the present time, over two years later, the child walked and ran normally without any waddle or lordosis or pain. *X*-ray pictures showed the heads of the femora in the acetabula and the bones enlarging at the normal rate of growth.

Dr. REGINALD H. SAYRE said that Dr. Brickner had obtained a beautiful result. The first picture showed a great deal of twist in the neck of the femur. In these cases it was not always necessary to do an osteotomy to correct the twist so as to get the toe joints to the front when the femoral head was in place. There was not much overhang to the upper edge of the acetabula, so it was not a very favorable case, and one would not have expected it to do so well.

Dr. ERDMAN asked what length of time the orthopedists usually kept the leg in complete abduction and flexion in order to prevent recurrence of the dislocation.

Dr. SAYRE, replying to Dr. Erdman's question, said they generally left the first cast on for three months, and then tried to bring the legs down toward a normal position, pulling them down as far as they could and at the same time leaving them solid. Dr. Lovett had told him that he sometimes left the first cast on for nine months. Dr. Sayre said that if he got one of these cases that was well in the course of a year's time that was about as fast as he expected to correct the deformity, though occasionally he had seen dislocations in very young children corrected in a shorter time. In a few cases he had been much surprised to see how much more promptly he could remove all supports in young children and have them well in eight or nine months, but generally one could count on eighteen months' treatment.

Dr. Brickner, in closing the discussion, said the child was 2 years 8 months old when the first cast was applied. The whole period of treatment was about 11 months. The child walked unaided during the eleventh month. The first cast was left on a little less than three months, the second cast about a month more. After its removal the dislocations recurred. He would not again remove the casts so early; he felt that it was wiser to continue the fixation for a longer period.

Fracture of the Second Cervical Vertebra with Anterior Dislocation.—Dr. WALTER M. BRICKNER presented this patient. He said that from the therapeutic standpoint those familiar with the active traumatic hospital services would agree that in such a service the serious injuries fell into three classes. The first class included those who died promptly either while being carried to the hospital or within a few hours. In the second class were included compound fractures of the skull and certain abdominal injuries in which prompt operation might save life. The third group comprised injuries which, while extremely serious, did best by being left alone. He had treated cases of crushing fractures of the pelvis which made perfect recoveries by being left alone.

The case presented was that of a man 32 years of age, junior ship engineer, admitted to the speaker's service at the Broad Street Hospital on March 25, 1921, after having been caught in a dynamo and sustaining a fracture of the body of the second cervical vertebra with great forward dislocation. He had also sustained a compound fracture of the left tibia and fibula just above the ankle, and a superficial laceration of the scalp. The neck was held rigidly in position and the man complained of exquisite pain on motion. He had the following signs and symptoms of spinal cord disturbance: There was a burning sensation in the back and sides of the neck, extending downward onto the shoulders; marked hyperesthesia of both anterior triangles of the neck, lateral to the thyroid cartilages, in the general area supplied by the third cervical nerve. Subjectively also, he complained of numbness of the tip of the right thumb, on the chest there was slight hyperesthesia and diminished temperature sensibility from the third to the eighth ribs on the left side, and in the areas supplied by the nerves from these segments. There was also some hyperesthesia and diminution of the thermal sense of the left upper and lower extremities. The dislocated axis could be felt prominently in the pharynx and there was a corresponding depression in the back of the neck. There was no dysphagia. There was no disturbed motility. The upper and lower left abdominal reflexes were absent; others were normal. The roentgenogram showed fracture of the second cervical vertebra and forward dislocation of the axis (and with it of the atlas and cranium). In view of the mildness of the cord symptoms it was felt that reduction by operation was not indicated. In a case of this kind one might feel tempted to make an effort at reduction of the dislocation to bring the head and first two cervical vertebræ in line with the rest of the spinal column where they belonged. Such an attempt might easily have produced hemorrhage in or on the cord and might even have been fatal immediately, so the patient was merely kept quiet in bed. Examination on May 5 showed that the neck was not held as rigidly as before, rotation was possible within an arc of 15 degrees on either side; flexion and extension were also limited, and there was some hyperesthesia of the areas supplied by the second and third cervical nerves. The cord symptoms were diminished and some had disappeared. On May 10 the man walked without support, and on the following day was discharged from the hospital at his own request. On July 6 the man's status was as follows: Rotation was possible within a radius of between 30 and 35 degrees to either side. About 20 degrees of both flexion and extension were also possible. The depression at the site of the injury was still palpable; also the projection in the pharynx. The cord symptoms had practically disappeared, except that paresthesia of the right thumb still remained. It involved, also, the terminal phalanges of the right hand and occasionally the tip of the right shoulder. The abdominal reflexes were as before. There was hyperalgesia of the skin of the middle of the left thigh, with occasional paresthesia here. The man was examined again a month later, when rotation of the neck was possible to 40° on either side. Wide flexion and extension were possible, but flexion of more than 20° caused tingling of the finger tips and arms. The deep muscle reflexes were livelier on the right side than on the left side. The paresthesia was still present in the left thigh. The patient's gait was improved, and he had gained five pounds in the month. Examination on September 5 showed the man to be normal with the exception of a slight limitation of rotation of and lateral flexion of the neck. The depression at the back was still palpable, as was the projection of the body of the vertebra in the pharynx. He was now free of the paresthesia and numbness once noted in the

right hand, shoulder and left thigh, had no pains and was, in the speaker's opinion, in very good health.

Dr. REGINALD H. SAYRE mentioned that it was his experience that fractures in the spine were very much slower to heal than in other parts of the body. He had had a number of cases of fracture of the neck in which the patients were allowed up and about after the subsidence of the early symptoms and the symptoms had returned, and it was necessary to protect the neck later. He had had two cases of dislocation of the neck sent him by colleagues. One had fallen doubling his head under his body and his arms were paralyzed. On stretching the neck the arms lost their paralysis. He kept this patient protected for about six months, and recovery resulted. The other patient had fallen from a tree and had broken his neck. He lost the power of his bladder. He got over the paralysis and after six weeks went about his business. Two weeks later he had to go back to bed in the hospital. He then came on from Atlanta and was referred by Dr. Fisher. After protecting the neck for eight or nine months he recovered. He had seen several cases that made him feel that injuries of the spine had to be protected longer than other parts of the body.

Traumatic Fat Necrosis of the Female Breast.—Dr. FRANK E. ADAIR presented these patients in connection with the paper of the evening. The first patient was a woman who had been struck on the breast by another woman carrying a baby. A tumor developed just where the blow was struck. In this case the muscles had been dissected off and the axilla cleaned out. The second patient had had an operation for an ectopic pregnancy and was given a hypodermoclysis under the breast? The tumor was diagnosed as carcinoma, and due to a difference of opinion as to the diagnosis, it was finally decided to do a simple mastectomy, leaving the muscles. The third patient had fallen down thirteen steps, striking the right breast on a sharp-cornered post. In this case the diagnosis was benign tumor. These cases illustrated the different types of trauma that might cause fat necrosis and the various types of operation that were performed.

A Further Report upon Traumatic Fat Necrosis of the Female Breast (with lantern slides and presentation of post-operative cases.)—Drs. BURTON J. LEE and FRANK E. ADAIR made this presentation, in which they recalled that they had reported two cases of traumatic fat necrosis encountered at the Memorial Hospital before the American Surgical Association in 1920, which were published in the *Annals of Surgery*, August, 1920, Vol. 2, page 188. Since making that report they had encountered the three additional cases which Dr. Adair had presented this evening, which afforded additional evidence as to the clinical behavior of this lesion, and pointed to it as a distinct clinical entity. In one of the cases presented the condition was diagnosed as carcinoma of the breast and a radical operation was performed. In the other two cases all the evidence pointed to the condition as being benign and conservative surgical procedures were employed. In their former report they had stated that the greatest emphasis should be placed on this disease because of its resemblance to carcinoma, and the fact that it might be mistaken for carcinoma and a radical operation performed when such a procedure was not necessary. Some of these cases of traumatic fat necrosis presented characteristics quite suggestive of malignancy, while in other instances the evidence was not so marked. They did not hesitate to say that the differential diagnosis between carcinoma and traumatic fat necrosis might be difficult. A history of the appearance of a mammary tumor with no preceding definite trauma would practically eliminate fat necrosis as a possible diagnosis. Traumatic fat necrosis was not accompanied by pain. Deep adhesions and dimpling of the skin were nearly always present in traumatic fat necrosis. Axillary nodes, if present, had not the hard consistency of those associated with carcinoma. In connecting the appearance of the tumor with a history of trauma one should bear in mind the four medicolegal points usually required: 1. The history of trauma must be sufficiently definite and of a severity adequate to produce tissue damage. 2. The site of the trauma and the location of the lesion must be identical. 3. A proper time relationship must exist from the receipt of the trauma to the appearance of the tissue changes. 4. Proof should be at hand that the tissue was normal before the receipt of the trauma. They were indebted to Dr. Ewing for a description of the outline of the gross and microscopical appearance of the disease. This description was published in the *Annals of Surgery* of last year. Grossly the lesions did not present the smooth, opaque texture of carcinoma nor the chalky points or streaks. There was opaque discolored fat tissue well demarcated from the normal fat tissue. Microscopically areas of necrosis in fat tissues were to be seen with new connective tissue cells, growing in and about these areas of necrosis. The growth of new tissue was very abundant. With the giant cells that one saw scattered through the tissue a luetic granuloma might be superficially suggested, but the lesion seemed to have no connection with syphilis. The giant cells were of the so-called foreign body type. Certain portions of the sections showed proliferation of the nuclei of fat cells probably representing certain changes in fat saponification. The blood vessels showed an obliterating endarteritis. The ages of the five patients in this series were 52, 36, 40, 47, and 54, all within the cancer age. All were fat, corpulent women with a large amount of subcutaneous fat. All gave a history of trauma; in three instances hypodermoclysis had been given. Skin fixation was present in all but one of the cases, a feature that would lead one to believe he was dealing with a malignant condition. Two of the cases had shown marked ecchymosis following the injury. The time intervening between the receipt of the injury and the appearance of the tumor varied in these cases from three weeks to ten years. The diagnosis in two cases was carcinoma, in the third benign tumor, in the fourth traumatic fat necrosis, and in the fifth fibroadenoma. The incidence of the lesion varied from 1.8 per cent. of the cases diagnosed as carcinoma to 7 per cent. of those diagnosed as benign tumor. The three points especially to be emphasized were: (1) The present study furnishes important additional evidence that traumatic fat necrosis is a disease not infrequently encountered and one that must be carefully differentiated from carcinoma. (2) They hoped the study would stimulate the pathologist and the surgeon to study the gross and microscopical characteristics of this lesion and believed that such study would reveal many cases of this disease hitherto unrecognized. 3. It is possible that some cases diagnosed as carcinoma by the gross appearance may not have been carcinoma but traumatic fat necrosis.

Dr. EDWARD WALLACE LEE asked Dr. Burton Lee whether he had had the opportunity to observe the termination of the cases that he said he had had under observation, and that were not operated upon. It would be interesting to know what the history of those cases would be.

Dr. SEWARD ERDMAN stated that this was a subject of great interest that Dr. Lee and Dr. Adair had brought to the notice of the profession. He wondered if they had at the present time any possible explanation of the determining etiology. It seemed strange that one never encountered such tumors involving the abdominal wall which was so often adipose and frequently the site of trauma. The question arose as to why the breast should seem to be particularly predisposed to develop this lesion. He suggested the question as to whether lactation might possibly be a factor and asked whether the lesion occurred in the virgin breast as well as in the breast that had lactated.

Dr. CHARLES EVERETT FARR said he had been working on traumatic fat necrosis for 10 years. He had not encountered a case involving the breast, but had some 10 or 12 cases involving other parts of the body. He had one case in a new-born infant. The cases with two exceptions were in males, and one was of 30 years' duration. He thought he could answer Dr. Lee's question as to the end results. It was a calcareous cyst filled with fat and products. There seemed to be no cause but trauma. The disease was common. He had seen a large number of cases of fat necrosis where he was not allowed to investigate. The one of thirty years' duration was on the thigh and was due to a blow. Most of the lesions were on the arm or shoulder, or in the groin.

Dr. BURTON JAMES LEE, in closing the discussion, said he thought Dr. E. W. Lee's question had been answered. The cases referred to as under observation were very recent cases, one having been seen only a few weeks ago and the others a few months ago. They had not been followed long enough to warrant one in drawing any conclusions. As to the reasons for the lesion he did not understand them completely. Following the injury to the fat, a production of new connective tissue appeared, which was probably an effort at protection. Further than that he could not explain the pathology. All the instances he had reported were in breasts which had lactated. He felt that the disease was not bizarre, and the fact that Dr. Bloodgood had seen two cases confirmed that opinion. Many patients were treated for breast tumors by radium and the *x*-ray or had a breast removed and no microscopic diagnosis was rendered, and there was no pathological report. It was quite possible that some of these remarkable cures without microscopical examination might well have been instances of this disease.

Synergistic Analgesia.—Dr. JAMES TALOE GWATHMEY and Dr. J. GREENOUGH. (See MEDICAL RECORD, October 1, 1921, c. 14. p. 583.)

Dr. ALLEN O. WHIPPLE stated that when this method was first introduced, in this series of cases which Dr. Gwathmey had reported, and he first heard of it, he thought it was rather complicated, that it was a gunshot technique compounded of many different agents and he was free to confess that he was prejudiced against it. He did not use it himself for several months, but in watching the results during and after operation he was, rather slowly perhaps, converted to the method, and when he began using it on patients his attitude entirely changed from one of prejudice to one of enthusiasm. Three things had much impressed him. First, the marked difference in the muscle relaxation when patients were having morphine and magnesium sulphate and nitrous oxide oxygen anesthesia. He had been greatly impressed by this fact and all the men using this type of anesthesia said the same thing. Second, there was a markedly lower pulse rate and absence of the usual symptoms of so-called postoperative surgical shock as compared with ordinary ether or nitrous oxide oxygen anesthesia. Third, the comfort of the patient; there was seldom nausea and vomiting, and the patient seldom complained of pain and the next morning did not have the washed-out look of persons who had gone through the experience of ordinary ether anesthesia.

Dr. JOSEPH MANUEL RECTOR of Jersey City said it was a pleasure to add from his clinical experience to Dr. Gwathmey's presentation. He had had the opportunity of being with Dr. Gwathmey, and operation with this method was quite feasible. He was about to report 100 cases in which this method was employed. He began with morphine and magnesium sulphate, and later added chloratone, paraldehyde, cannabis indica, and deodorized tincture of opium. Giving hypodermoclysis, drugs by mouth and by rectum, he found rather complicated, and the nurses and internes found it added considerably to their work where he was operating on ten or twelve cases a day, so finally he evolved a simpler technique. He gave one hypodermic of morphine 2½ hours before operation, and 2 hours before he gave a sigmoid instillation. The patient gradually passed into a condition of sleep. Analgesia began about one hour after the administration of the instillation. The patient first lost sensation in his legs and at the end of about two hours the patient was completely analgesic. The pulse usually dropped after operation from 120 to 80, and respiration from 26 to 24 to normal. The blood pressure usually fell 10 to 20 millimeters of mercury. After operation there was practically no shock. The cases operated on by this method were abdominal, abdomino-pelvic, and vaginal, perineorrhaphies, trachelorrhaphies, etc. In some of these cases he had talked to the patient while operating, and the patient did not know the operation was going on. There was no stage of excitation before or during the operation. Gas pains seldom annoyed the patient. He had been so impressed by the advantages of this method that he had made it a routine procedure with the exception of some cases that did not come in time. Inhalation was used entirely for cutting the skin and abdominal walls, but seldom after opening the peritoneal cavity. He used in some cases a dram of chloroform and 3 ounces of ether. In others he combined ether, chloroform, and ethyl chloride, not exceeding 1 or 1½ ounces of inhalation.

Dr. EDWARD WALLACE LEE recalled the time when Dr. Gwathmey gave an anesthetic in a very simple way and questioned whether the technique of anesthesia was not becoming rather too complicated.

Dr. ARTHUR LEIGHTON SHERMAN said he had a leaning toward this method, the development of which he had watched from a distance. It seemed important to him, however, to ask the question as regards its safety, inasmuch as at any time the hypodermoclysis might become an intravenous injection, and this latter Dr. Meltzer had distinctly warned against as very dangerous to the lower animals. In passing these 2-inch needles under the skin nobody could be sure that he would not puncture and therefore infuse a vein. With this possibility in mind he felt that careful experiment should be carried out, giving intravenous injections of various strength solutions of magnesium sulphate to test its toxicity, when thus given to the lower aminals, and careful deduction formed as to what would be a safe strength to inject into the human, with the thought always in mind that it might, in whole or in part, find its way into the vein.

Dr. GWATHMEY, in reply to Dr. Sherman, said they had begun in the laboratory and had studied the action of magnesium sulphate while they were developing the method. Calcium chloride, 2½ per cent., was in the physiogical antidote to counteract the depression in hypernea of magnesium sulphate; 10 to 15 c.c. injected intravenously (slowly) was the amount used. Out of all this work, contrary to Dr. Lee's idea, they had developed a method that was very simple, three hypodermics and then nitrous oxide-oxygen. It was not at all a complicated arrangement. As Dr. Whipple had said, the comfort of the surgeon and the comfort of the patient fully compensated for the trouble that one took. It was new work and the idea was different from that of the third stage anesthesia we were now using. The condition was one of analgesia plus unconsciousness. The patient did not go into third stage inhalation anesthesia.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

LES NOUVELLES MÉTHODES D'EXAMEN DU CŒUR EN CLINIQUE. By R. LUTEMBACHER. 183 pages with 36 figures. Price, 20 francs. Published by Masson & Cie., Paris.

SURGICAL ANATOMY. By WM. F. CAMPBELL, M.D. 681 pages with 325 original illustrations. Price, $6.00 net. Published by W. B. Saunders Company, Philadelphia.

DIAGNOSTISCHE UND THERAPEUTISCHE IRRTUMER UND DEREN VERHÜTUNG By PROF. DR. J. SCHWALBE. Augenheilkunde 1 Vol., Frauenheilkunde 5 Vols. Published by Georg Thieme, Leipzig.

THE ANATOMY OF THE HUMAN ORBIT. By S. ERNEST WHITNALL. 428 pages with illustrations. Published by Oxford University Press, American Branch, New York.

HEART DISEASE AND PREGNANCY. By SIR JAMES MACKENZIE. 138 pages with diagrams. Published by Oxford University Press, American Branch, New York.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By ZACHARY COPE. 223 pages with illustrations. Published by Oxford University Press, American Branch, New York.

THE CARE OF EYE CASES. By ROBERT H. ELLIOT. 172 pages with 135 illustrations. Published by Oxford University Press, American Branch, New York.

THE LIFE OF JACOB HENLE. By VICTOR ROBINSON. 117 pages with illustrations. Price, $3. Published by Medical Life Company, New York.

Medical History.

Cleora Augusta Seaman, One of the Pioneer Women in Medicine.—In connection with a recent article on Dr. Elizabeth Blackwell (MEDICAL RECORD, Nov. 19, 1921, c. 21, p. 922), the history of Cleora Augusta Seaman, written by her daughter, Lucy Seaman Bainbridge, and published in the *Medical Woman's Journal* of March, 1921, is of added interest. She followed, ten years later, the trail blazed by Elizabeth and Emily Blackwell. Her history is particularly striking because of the unusual handicaps and difficulties which she surmounted in order to carry out an irrepressible desire to relieve human suffering. In spite of a frail body, an early marriage, and the care of seven children, Mrs. Seaman found time to study medicine, but it was not until she was well along in life that she received the degree of Doctor of Medicine from the Western Homeopathic Medical College in Cleveland (her home) in 1860. At this time this was the only college in Cleveland that would admit a woman. Being in poor health, Mrs. Seaman each day was driven to the college. In a tiny gallery were placed a comfortable armchair and footstool, with drapery at the sides. The male students would look up and smile and joke about their "guardian angel." However, they were still happier when they were invited to her home to quiz in anatomy or other branches and then stay to one of her bountiful suppers.

Before receiving her degree Dr. Seaman had become much interested in the study of hydrotherapy and medical electricity and had read practically everything written on those subjects at that time. After her graduation she added a wing to her home and installed a bathtub for the use of electricity in water, the first of its kind in the State of Ohio, so far as can be learned. She was most successful in relieving pain and reducing inflammation of swollen joints by this means. Her record for doing good warded off attempts to ridicule this venture. She was always actuated by a deep and lofty altruism, and worked for souls as well as bodies. Her house bore no sign, no card, and there was no advertising, but a host of ailing women, realizing not only her sympathy but her ability, came to her for relief in the troubles peculiar to their sex. At first no charge was made, but later it was deemed wise to have those patients who were able to pay carry with Dr. Seaman the expense of the work for the poor. Dr. Seaman kept in her home one chamber called the "Lord's Room," which was always occupied by a poor student studying for the ministry or someone sick or in sorrow.

In the late '60s women were excluded from the classes of the medical college and, as a result, largely through Dr. Seaman's untiring zeal, a woman's college was organized and chartered in 1868. She was made its first president and professor of theory and practice and delivered lectures on the Therapeutic Uses of Electricity. In connection with the college she was instrumental in establishing the Seaman Free Dispensary, which was largely attended and gave the students ample opportunity for practical study.

Dr. Seaman was born in Middlebury, Vt., in 1814, and died in 1869. The outstanding features in the record of her life are her strong character, her indomitable will, and her instinctive sympathy with human suffering. She exerted a wide influence in her community because of her altruistic work, an influence which spread abroad to ease the path of the long line of medical women that have followed her. From the vantage point of the present, when the World War has demonstrated the ability of women physicians to do constructive work, to surmount difficulties, and to win respect and confidence, when women physicians have done a work in the relief of war-ridden countries that can never be forgotten, it is difficult to realize the attitude of Dr. Seaman's time toward the woman physician, as illustrated by the following experience: In the early spring of 1860 Dr. Seaman visited an Eastern city and called at the home of a clergyman whose home had previously been in her own city and who had left a smaller charge for a large and influential church. She handed the maid a card which read "C. A. Seaman, M.D., 65 Seneca Street, Cleveland." She waited patiently. Forgetting all the hospitality he had received from her, the narrow-visioned reverend gentleman penciled on the back of the card, "I refuse to see any woman who has so unsexed herself as to study medicine." Cleora Augusta Seaman will be long remembered as a woman who studied medicine solely that she might relieve human suffering and who helped make it possible for other women to secure larger opportunities to serve humanity.

The Search for John Hunter's Coffin.—In referring to the celebration of the two hundredth anniversary of the present church edifice of St. Martin-in-the-Fields, a writer in *The Morning Post* of London, of November 5, says that, like many other churches in old London, St. Martin's has suffered most of the misfortunes which come under the head of "vicissitudes," and some of these have affected the worthies committed to its care by confiding relations and friends. The church records refer to the burials of Robert Boyle, Nell Gwyn, and John Hunter, of whom the greatest for our purpose today is the great high priest of Nature, founder of scientific surgery.

When Benjamin Latchford and Charles H. Petter, worthy church wardens of sixty years ago, announced that any person having relatives buried in the vaults of St. Martin's had better remove them quickly, or agree to their being built in forever, it occurred to Frank Buckland to search for the body of the famous surgeon. In the sexton's old register book he found the following entry:

Leister Squar, Oct. 22, 1793.

M. "John Hunter, Esq., ¼ past 4 o'clock. 6l. 10s. 2d. No Candles. N-3-V. Duty 3d.—C. 4 ij. yrs. Aperplexy."

M. meant male; the letters and figure indicated the vault, and C. meant that the "searchers" had given a certificate that Hunter had died from natural causes.

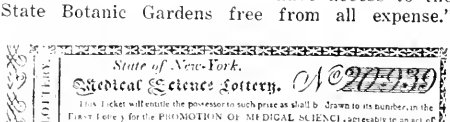
Day after day Frank Buckland rummaged about in the vaults, examining each coffin by the light of a bull's-eye lantern as it was removed. As

the coffins decreased in number he was beset with fears, especially as somebody had whispered that, after all, John Hunter shared with "Old Q" the shelter of St. James's, Piccadilly. He was encouraged to continue by one of the laborers declaring that he had seen the surgeon's coffin in 1832, and he remembered it well, because "John Hunter invented vaccination." In all, 3,258 coffins had been removed; two only remained; they were Buckland's last chance. If either was not that of John Hunter, his labor had been in vain. "As one of them moved slowly off I discerned first the letter J, then the O, and at last the whole word, John. My anxiety was now at its height, and quickly running to one end, Mr. Burstall at the other, we moved the coffin away. At last I got it completely off, and to my intense delight read upon the brass plate the following inscription:

"'JOHN HUNTER.
Esq.,
DIED 16th OCTR.,
1793.
AGED 64 YEARS.'"

Two important events arose from the discovery—the reinterment of John Hunter in Westminster Abbey, and the erection of a marble statue to his memory in the Museum of the Royal College of Surgeons. Buckland's father was Dean of the Abbey at the time, and he used all his influence to insure that the famous surgeon should lie in the great temple of silence and reconciliation. On the north side of the nave you will find him, between Wilkie and Ben Jonson.

A Medical Lottery.—On March 12, 1810, an act was passed by the New York Legislature to establish a lottery to raise money to purchase the Botanic Gardens established by Dr. Hosack at Elgin, three miles outside New York City. The request for this lottery had come from the New York Hospital and the Medical Society of the State of New York. The act suggests that the Botanic Gardens "may become a great public benefit by being able to promote medical science in this State." A committee was formed by the act "to treat with the State and attend Hosack for the purchase," etc.; and a commission was formed who had "the power to raise the consideration money by a lottery." The act also stated that "physicians and students of medicine throughout the State shall at all times have access to the State Botanic Gardens free from all expense."



Five members of the lottery were named. The act was published in the Public Laws of the State of New York, Thirty-third Session of the Legislature, Albany, 1810, Chapter 50, page 17. The lottery ticket reproduced is a photograph of the original ticket in the collection of Mr. Frank L. Reuss of Albany, to whom I am indebted for the loan of this ticket for photographic purposes.—HENRY VIETS, in *The Albany Medical Annals.*

Early History of the Use of Male Fern as a Vermifuge.—In *La Presse Médicale* for July 16, 1921, xxix, 57, Leclerc states that this remedy goes back to Theophrastus, who recommends it for both "broad" and slender worms (the original distinction between tapeworms and round worms). Only two other writers up to the time of the XVIII century are known to have mentioned this drug, which seems to have fallen into obscurity. These are Marco Gatinaria and Simon Paulli. The resurrection of this remedy is due to the charlatanism of the XVIII century. A Swiss surgeon named Nouffer hit upon a novel way to provide for his widow by bequeathing her the secret of a wonderful remedy for tenia. This was marketed under the name of Widow Nouffer's Remedy, this lady becoming, as it were, a prototype of Mrs. Winslow and Lydia Pinkham. It had considerable vogue toward the end of the reign of Louis XV and the widow became well-to-do. In 1773 Louis XVI paid her or her heirs 18,000 livres for the secret and had his minister Turgot proclaim the formula. This consisted of powdered rhizome of filix mas in infusion of lime-tree flowers—about 6 parts to 100. There was a technique in its administration, in which the usual fasting and emptying the bowels was taught. Once no longer a secret, the remedy was quickly forgotten, but a quarter century later male fern was formally introduced into practice by leading therapeutists of the day, including Hufeland. The ethereal extract was not manufactured until long afterward—about 1825.

Death of Schmiedeberg.—The death of this pioneer in scientific therapeutics took place last July. He was born in 1838 and his career corresponds very closely with that of the German dominion of the University of Strasbourg, for he joined that faculty in 1872 and was in control of the chair of experimental pharmacology up to the time of the French occupation in 1918. The chair and laboratory were not established until after Schmiedeberg had been brought on from Dorpat for the purpose. He was born in Courland, and after his graduation from Dorpat he became assistant to Büchlein, who was at the head of the Institute of Experimental Pharmacy of the local medical school. When he moved to Strasbourg he, in association with Klebs and Naunyn, began to publish the *Archiv für experimentelle Pathologie und Pharmakologie*, which has issued over 90 volumes. The number of papers published from the laboratory is 220. Schmiedeberg's "Treatise on Pharmacology" has gone through seven editions. His example led to the establishment of similar chairs in most of the world's universities. While sharply differentiated from other chairs because of its exclusively experimental study of drugs in their action on living beings, experimental pharmacology shades into biochemistry, ordinary pharmacology, physiology, and pathology and serves as a connecting link between other branches, as, for example, between physiology and pathology. It was 38 years ago that the deceased attacked the belief that alcohol stimulates the brain cells. In 1895 he showed that ions have a special pharmacological action.—*La Riforma Medica.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 100, No. 27. Whole No. 2669. | NEW YORK, DECEMBER 31, 1921. | $5.00 Per Annum. Single Copies, 25c.

Original Articles.

POLYNEURITIS OF INFECTIOUS ORIGIN.

DISCUSSION OF THE PATHOGENESIS OF NEURITIS DURING INFECTION, WITH SPECIAL REFERENCE TO DISORDER OF HEPATIC FUNCTION; DISTINCTION FROM RADICULITIS; TREATMENT.

BY TOM A. WILLIAMS, M.B., C.M.,

WASHINGTON, D. C.

CORRESPONDING MEMBER OF THE NEUROLOGICAL SOCIETY OF PARIS, OF THE NATIONAL ACADEMY OF MEDICINE OF RIO DE JANEIRO, ETC.

Pathogenic Consideration. That toxin is the most frequent cause of polyneuritis is assumed because of the etiological rôle of such poisons as alcohol and arsenic, and because of the diffusion of the action of these so widely throughout the nervous system. When polyneuritis occurs during infections, it is again assumed that the pathogen is a toxin. However, that toxins so different in their manifestations as those from the microorganisms of diphtheria, scarlatina, typhoid fever, and sepsis should give rise to the same syndrome has not been explained. Further, no explanation is offered of the comparative rarity of polyneuritis in the course of zymotic disease. The polyneuritic syndrome found in diabetics has been given another interpretation, *i.e.*, that of a degenerative process in the spinal cord; while the polyneuritis reported as due to malaria is not necessarily toxic, for capillary emboli by destroyed erythrocytes are capable of explaining its symptomatology.

While alcohol causes polyneuritis only after prolonged ingestion, a very few doses of a mineral poison will produce a long standing multiple neuritis; and an acute infection, especially diphtheria, of apparently only a short duration sometimes leads to a prolonged attack of neuritis more or less multiple. The polyneuritic nerve is in a very different state from that of the nerve infiltrated by a local infection, for in the former exudation of connective tissue elements is absent. All that we find is a hyaline swelling and later disintegration of the myeline sheath, and still later degeneration of the neurofibrils, scarcely then an inflammatory process at all in the full sense. It is not likely that alcohol in itself produces this hydration effect, for it dehydrates colloids. French pathologists have regarded its effect as secondary to its action upon metabolism chiefly incurred by damage to hepatic function. They support this belief by the damaged hepatic function shown morphologically by a cloudy swelling followed by a disintegration of the hepatic cellules which is seen in acute poisoning by heavy metals such as arsenic, and also in the acute yellow atrophy produced by chloroform, and they point to the cloudy swelling of the noble elements of the liver in the course of prolonged or severe infections.

Many clinicians, especially the French, have remarked that polyneuritis is often the product of two or more pathogens, as for example a severe infection in an alcoholic. The explicability of this relatively frequent duplex agency is simple on the assumption that a single pathogen is a common product of each of the two noxæ acting simultaneously.

Pyrexia *per se* can have nothing to do with polyneuritis; for it may be absent after prolonged high fever, and may occur when the fever is of short duration and low degree. The comparative rarity of polyneuritis in fevers is, however, dependent upon multiple factors which we have not yet learned to analyse. It is no more remarkable than the variable incidence of delirium, of herpes, of albuminuria, of cardiac insufficiency, of achylia, of bronchial catarrah, of asthenia, of stomatic discomfort, and of cutaneous eruptions in different patients having acute generalized infections. The polyneuritis, like these, must be a function of the ratio between tissue resistance and pathogenetic potency, modified by wise or unwise interference with the physiology of the patient by himself or by attendants.

When the functions of that great biological filter, the liver, are impaired, the nocuous proteins from the food fail of elaboration into the pabulum required by the tissues; and furthermore are highly detrimental to them. When cloudy swelling of the renal epithelium is only slight, these substances are quickly excreted, but when the kidney is sufficiently impaired, then there is retention of products highly toxic to the tissues. One of these, pyridine, has been shown experimentally to produce a high degree of cloudy swelling. Both protein and nervous tissue in a weak bath of this substance will swell up to more than twice their bulk because of hydration. Now hydration is a function of variation from isotonicity. The acid ions are particularly damaging to the delicate adjustment of tissue interchange regulated by the alkaline plasma of the blood with its exquisitely balanced safety vent in the alveoli of the lung. Whether or not the noxious action of these substances is qualitative, specific, or merely a function of their hydrogen-ion content *qua* acidity is yet to be determined. However, so far it has been assumed that the former is the case because of the minuteness of the dose of such alkaloids as morphine, atropine, etc., which will disturb cellular function even to a lethal degree.

However, smallness of dose is equally true of cyanogen, where the chemical reaction of the tissue is simple, far from specific, quantitative, and is definitively neutralizable in a known chemical way by nitrites, which form an immediate antidote to this poison. The solution of this problem of specificity should not be beyond the ingenuity of biological chemists.

Clinically there are no specific differences in the polyneuritic syndrome induced by the different agencies, the peculiarities described concerning different types not being invariable and in some cases being inexplicable by local action upon the nerves by direct absorption. For instance, diphtheria toxin affects the palate far more frequently than it induces a polyneuritis, which leads one to believe that it is a specific toxin acting upon the nerves by direct absorption.

It is, however, to be considered whether or not the pathogen of multiple neuritis in the course of infections may be the same in them all and not different from that induced by alcohol, and perhaps even in some degrees assimilable to the process induced by the heavy metals themselves.

The lecithin, in which nerve tissue is so rich, contains within itself the seeds of its own disintegration, for from choline, one of its derivatives, with a formula $(CH_3)_3 = \overset{N}{O^1H} - CH_2 - CH_2\,OH$, oxidation quickly produces an isomer of the highly toxic muscarine, or by losing H_2O the still more toxic neurine $(CH_3)_3 = \overset{N}{O^1H} - CH - CH_2$. This substance can be produced in large amounts by feeding eggs or brains to an animal of which the intestine is occluded. It is not difficult to imagine the clinical significance of this fact in patients in whom an infection, such as typhoid, has led to an inertia of the intestine.

On the other hand, indol, another product of intestinal stasis, is shown experimentally to possess an antineuritic property which is equally decided with its derivative alpha-keto-beta-propyl-indol. Also antineuritic is N-meythel-beta-ethyl-indolinon. In spite of this, not all the derivatives of indol are antineuritic N-methyl-beta-ethyl-indolinon is negative, as is also alpha-phenyl-beta-methyl-indol. The antineuritic properties of thyroid secretions are attributed by some to their indol-forming property.

Albuminuria, indicating an attack upon the renal epithelium, is not infrequent in polyneuritis. In addition in the series reported by Klippel[1] there were urobilin, indican, and alteration of the urinary pigments, all indicative of hepatic disturbance. He insisted too upon the significance of tachycardia in these cases, which showed hepatic cirrhosis in the hypertrophic stage. In Gordon's[2] case there was reported a variation of the symptoms corresponding to the amount of urinary sugar.

It is right to say that this interpretation is opposed by such cases as that of Poljakoff and Chroschko, where they incriminate directly the *Bacillus coli* in the bladder, which it had reached from an intestine with thinned walls; but it is significant that a post-mortem examination of the case which confirmed the diagnosis of polyneuritis showed also the changes in the liver described by Claude,[3] consisting of cloudy swilling, etc.

The changes reported in the blood vessels along the nerves by Paulian[4] are to be expected both in toxic and infectious processes and do not help us to a decision regarding a pathogen.

It is doubtful if polyneuritis is ever syphilitic in cause, although, of course, it may occur in syphilitics. Very significant is the case of H. Oppenheim in a syphilitic which was not benefited by specific treatment but soon responded to the usual measures.

In support of the directly infectious nature of polyneuritis are cited a number of cases occurring in trench warfare in which the motor fibers are chiefly affected and in which the cranial nerves and sphinctors also share. These cases are of benign course as a rule; but before adjudication they require consideration from the point of view of toxin of hepatic origin. Others have reported epidemica of polyneuritis and not only in the Orient, which have given rise to the opinion that a specific organism may be in question, but these reports are in need of a critique in that the question of dietetic privation has to be considered, and the clinical diagnosis must be clearly affirmed to the exclusion of the radicular type of encephalitis and of poliomyelitis, while the matter of coincidence has to be considered. For the report of a few cases usually attracts increased attention to a condition which leads to the detection and report of many more, which would otherwise remain unnoticed, or at least unpublished.

That the pathogen affects not only the peripheral nerves but in some cases the central nervous system is indicated by the changes in Korsakoff's syndrome, where there is reported very definite neurolysis of the centrum ovale. It is clinically manifested by the delirium which accompanies the polyneuritis in these patients.

The meninges too show a reaction in some cases of polyneuritis. This consists first of hypertension, later of hyperalbuminosis, and last of all sometimes of a mild lymphocytosis plus a few leucocytes. These signs may last for six weeks after onset and have been reported in cases of infectious polyneuritis.

We are not considering the epidemically occurring "neuronitis" which has been described by recent observers, for this is thought now to be merely a clinical form of a virus resembling that of poliomyelitis, possibly the same as epidemic encephalitis.*

If these conclusions are warranted, it can be assumed that on account of a failure of hepatic function† from other causes, polyneuritis might ensue. This, however, I must leave for future consideration in order to cite some instances of polyneuritis from different infections, the occurrence of three of which within a short period impressed me with the desirability of presenting this subject for your consideration.

†The numerous attempts to test hepatic function in considered in this communication.

*The numerous attempts to test hepatic function in the laboratory are not regarded as satisfactory by clinical pathologists. Hence, none of these tests have been used in any of the cases reported here and the foregoing considerations are presented as a basis for future study by others, as organized means for investigation of this kind have not been at my hand.

CASE I.—Thus a woman of 53, wife of a well-known Government official, referred by Dr. Gill because during convalescence from diphtheria, which she had contracted two months before, there had ensued weakness of voice, numbness of feet and thighs, and more recently a progressive weakness of the limbs. She was very nervous and was suffering also from osteopathic treatment.

Examination revealed absence of the triceps, radial, and biceps reflexes as well as a reduction of the patellar, achilles, and plantar, while there persisted the deltoid, masseter, and abdominal reflexes. There were subjective tinglings in the extremities, and tenderness both to prick and pressure was increased; the vibration sense was diminished in the legs, arms, and trunk; the nerve trunks were tender. The spacing sense was diminished in the left hand, where she could not distinguish two points nine millimeters apart. The localization of touch was almost lost in the toes and ankle, and scarcely perceptible in the hands. The walk was unsteady, the hands unskilful, and the motor power much diminished, yet there was no perceptible atrophy. Both optic disks were slightly pale. There was a slight tachycardia. She was seen several times, during which the symptoms rapidly regressed after the administration of antitoxin which was recommended, so that she was able to go to her new home about six weeks later.

The diagnosis, of which there was no question, was post-diphtheretic polyneuritis, and the recovery was gratifyingly rapid.

CASE II.—A fellow psychiatrist, of bilious type, aged 35, consulted me because of a numbness and tenderness which had recurred after the subsidence of an attack two weeks before which he had attributed to a septic state derived from tonsillitis. The chief symptom was an intolerable itching in the right foot, and considerable tenderness on walking, along with tingling of the fingers, and pain in the hand when he clasped tightly.

Examination revealed tenderness of the nerve trunks in the upper arms, and the popliteal region, and slight tenderness on deep pressure of the muscles. There were no sensory losses, even spacing being intact, vibrations being felt everywhere, and the attitude sense was unimpaired. The reflexes were all present and the motility was unimpaired.

He was sent to a laryngologist, who cleaned out the tonsils, which were full of purulent foci chiefly staphylococcic, after which he made a rapid recovery, not even returning for a second examination.

This is an example of infectious polyneuritis in its incipiency, that is to say before the noxa had sufficiently affected the neurofibrils to interfere with their conductivity, although it had done so sufficiently to augment their tenderness.

The role of faulty hepatic metabolism is pointed to in such an instance as that of a much prolonged posttyphoid polyneuritis in a man who had jaundice at 18, hepatic colic at 26, and in whom there was decided tenderness over the liver before the attack of typhoid fever.

CASE III.—Mild polyneuritis in the course of typhoid is not so rare, but a severe attack occurring after the cessation of the fever is an unusual occurrence. Such a case in a Federal judge I saw with Dr. Claytor six years ago, and which he published soon after. The recovery of this case was slow, six months being required before he could walk satisfactorily, and nearly two years elapsing before he could do so in comfort, while paresthesiæ did not altogether disappear even then. It might be significant that this patient was treated on the principle of full feeding by a diet in which eggs, as custard, played a large part.

CASE IV.—A corporation official of 56 was seen with Dr. Mason, because six months before there had been recurrent paresthesiæ, the soles feeling like a soft pad, itching of the hands, and a muscle-bound and rheumatic feeling in the legs after walking. Eight years before there had been a dilatation of veins in abdomen and thigh, with successive painful ruptures which lasted for about a year. A rupture had occurred six weeks before I saw him. He had had lumbago about two years ago, while two days before there had been a hemorrhage from the throat.

Examination showed a pretty well-preserved man of feminine type, except that the breasts were masculine. The reflexes were sluggish, the cremastor and abdominal were scarcely present. Vibration sense and that of attitudes were diminished in the toes. The deep pain sense was accentuated, especially in the legs and wrists, and the nerve trunks were slightly painful.

A diagnosis of very mild polyneuritis was made. The possible etiological factors were increased. He had acidity, a blood pressure of 156-98, a slow pulse of 66, but without cardiac hypertrophy, normal urine, and a history of gonorrhea fifteen years before, with the presence of a 2-plus positive serum reaction to the gonococcus, which was already under treatment by vaccines, which had produced a severe reaction, comprising twitchings and cramp in the back and general malaise.

It was recommended that vaccine be continued, that thyroid gland, ½ grain per day, be administered, and that meat extracts, of which he had been taking a great many, should be eliminated from the diet. Dr. Mason informs me he made a rapid and uninterrupted recovery, returning to business the following week.

Influenza is frequently followed by mild neuritic pains lasting for several weeks. In a few cases there is a definite, severe polyneuritis.

CASE V.—An instance of a milder type is that of a nurse, aged 41, who had not been well since an attack of measles one year before. Two months before examination she had influenza and a temperature of 103°, since when she had not been free from sciatica and neuralgic pain in the face.

Examination showed dulled reflexes and increased deep pain sense in the left arm and leg, while a blood pressure of 132 and 110 indicated a heightened peripheral resistance, with a weakly acting heart. Her dietary was defective. She was recommended to cease the cold baths she was taking in the belief that they were tonic, to be massaged thrice weekly, and to take a modified model diet which I prescribeed. In three days the blood pressure had decreased to 124-90, and she felt much better, while one month later she was quite well.

The *diagnosis* of polyneuritis presents no difficulty to a well trained neurologist, the syndrome being so distinctive; but by those who are not versed in the refinements of the technique many mistakes are made. Diagnosing as neuritic, conditions entirely different is commoner than to fail to diagnose polyneuritis.

I need not go into the *differential diagnosis* of well-known syndromes clearly described in all modern text books. This is particularly so as regards poliomyeletis, meningitis, encephalitis, myositis, and arthritis. The diagnosis from radiculitis* is a particularly thorny one for the inexperienced; and as knowledge of the latter condition is not generally diffused I have elaborated a table to include the chief differentia from neuritis.

Treatment.—Neuritis must be treated in accordance with its cause, *i. e.* the detection and elimination of mineral or other poison, when the nerves will regenerate spontaneously. Local sepsis must be sought for and eliminated.

Local application of heat, radiant energy, electrical ionization, is sometimes highly beneficial. Massage is nearly always an advantage if properly given.

*In a recent edition of a well known neurological text-book even the name radiculitis is unmentioned in the index, and there can be found no allusion to the syndrome even where the dorsalis is described.

SYNDROME.	*NEURITIS.*	*RADICULITIS.*
Definition.	Irritation of peripheral nerves.	Irritation of spinal root.
Etiology:		
Toxin.	The usual cause.	Doubtful.
Chemical poisons: Alcohol or metals, especially arsenic or lead.	Frequent.	Doubtful.
Diffuse bacterial poisons aside from local exudation, especially diphtheria and influenza.	Occasional.	Doubtful.
Metabolic poisons: lithemia, arthritism.	Occasional.	Doubtful.
Endocrine imbalance.	Possible.	Doubtful.
Focal infection.	Occasional.	Doubtful.
Tuberculosis.	Scarcely.	Frequent.
Syphilis.	Doubtful.	Commonest cause.
Neoplasm.	Occasional.	To be suspected.
Physical agencies: Cold, trauma, etc.	Occasional.	Especially trauma.
Concomitant of arthritis.	Of the neighborhood.	In the spine.
Pathology:	Usually degenerative from toxicosis, or by strangulation by neurodocitis.*	Often inflammatory; by strangulation, by inflammatory or neoplastic compression.
Onset:	Often abrupt.	Insidious.
Symptoms:		
Pain.	Except in plumbism or pure motor neuritis.	Usual when posterior root is implicated.
Tenderness.	Characteristic, especially of deep tissues.	Absent or minimal.
Conductivity.	Impaired.	Impaired.
Hypesthesia.	Except in early stages, irregularly progressive.	Except in early stages, irregularly progressive.
Sensory dissociation.	Not usual; sometimes pseudotabetic, but never truly of tabetic type.	Occasionally of syringomyelic type in tuberculous radiculitis; of tabetic type in syphilitic radiculitis.
Motor weakness.	Usual.	When anterior root is affected, best marked in tuberculous radiculitis.
Atrophy.	Severe and of long duration except in mild cases.	Less evident except in tuberculous radiculitis.
Deformity.	Contracture and stretching of tendons and ligaments.	Contracture and stretching of tendon and ligaments less marked.
Reflexes.	Impaired except at first.	Impaired.
Trophic changes.	Early and evident.	Scarcely.
Extent.	According to distribution of nerve affected. In polyneuritis more marked peripherally.	In the segmental distribution of the roots affected.
Diagnosis:	Increased deep tenderness with or without hypesthesia. Syndrome conforms to distribution of peripheral nerves.	Hypesthesia both cutaneous and deep. Syndrome conforms to distribution of roots.
Differential Diagnosis:	From trauma, osteitis, arthritis, myositis, meningitis, poliomyelitis, encephalitis, myelitis.	From the same.
Prognosis:	Highly favorable upon removal of cause.	Unfavorable in proportion to destruction of sensory fibers. Favorable as regards motor fibers except when dense cicatrices have occurred.
Treatment:	Elimination of the pathogen; metabolic regulations; physical agencies to stimulate local nutrition.	Removal of the pathogen; rest of the regions affected.

*A term to denote inflammation of the fibrous sheath or bony canal through which a peripheral nerve passes; *e g.* the fascia lata for the n. femorocutaneus or the aqueduct of Fallopius for the n. facialis.

The *metabolic* condition I look upon as of supreme importance in many cases. Even the most obstinate sciaticas may yield in a week or two to carefully considered metabolic regulation, such as the following:

In the morning upon waking 5 ounces of hot water containing 10 grains of sodium bicarbonate. Half an hour later, after a rest, a large plate of raw or cooked fruit and milk or cream, followed by abundant cereal and milk with bread and butter. No meat, eggs or fish.

Wait four hours or more before the next meal, which should be preceded by ten minutes' recumbency on the right side, and consist of a small portion of hot vegetable soup if desired, not more than four ounces of meat or fish, which must be quite fresh, a very large plate of succulent green vegetables, potatoes sparingly, and nothing more than a taste of sweets; no custard, ice cream, or junket.

The third meal should be taken at least five hours later and may be a repetition of breakfast, but salad or succulent vegetables may replace the fruit, and macaroni or a similar dish may be substituted for the cereal.

Thirst and hunger between meals may be satisfied by water, lemonade, or fruit about one hour before a meal or during the night. Gelatin, coffee, meat juices (gravy and soup), tea, cocoa, salt and strong condiments, alcohol, pastry should be abstained from. All starches and meats must be well cooked. Fresh vegetables must not be over boiled,

e. g. a cabbage divided into four to eight pieces to be put separately into *boiling* water for only eight minutes *without meat or salt*. Fine milled grain should not be taken even in bread.

Where there is evident endocrine abnormality, internal secretions may have to be administered also.

The *mental* disturbance due to pain and lack of sleep must be dealt with also; but one cannot protest too strongly against the indiscriminate giving of anodynes and narcotics, for these disturb metabolism, and interfere with repair, and in a long continued case they produce addiction, which is a most troublesome tendency to get rid of. For restlessness and insomnia the best measures are physiotherapeutic, especially hydrotherapy.

If hepatic inadequacy is a considerable factor in polyneuritis, then in the treatment of polyneuritis of infectious origin, a dilemma is presented because an abundance of protein is needed to build immunity against infections, while an abundance of protein cannot be dealt with by a disordered liver.

Fortunately, however, the dilemma is more theoretical than real, for hepatic potency has large reserves, while a temporary diminution of protein intake is not in practice serious, as it leads to better metabolism after a short interval of diet. Besides, when neuritis occurs, the infection has usually subsided and immunity has already been effected. Hence in practice a low protein diet, rich in saline, is given at once as above.

REFERENCES.

1. Klippel: *Ann. Méd. Psychol*, 1894.
2. Gordon: *N. Y. Med. Jour.*, cx, 1919.
3. Claude: *Thèse de Paris*, 1897.
4. Paulian: *Rev. Neurol.*, 1919.

1746 K STREET, N.W.

THE RELATIONSHIP OF ALASTRIM TO SMALLPOX.

BY V. E. WATKINS, M.D.,

LA ROMANA, SANTO DOMINGO.

PHYSICIAN AND SURGEON, CENTRAL ROMANA, INC.

DURING the past year there has been prevailing in the West Indies, in epidemic form, an eruptive disease closely akin to smallpox, but presenting certain distinctive characteristics which have led some observers to consider it a separate disease entity. The condition has been described by various writers under the names alastrim, Kaffir milk-pox, modified West Indian smallpox, varioloid-varicella, and amaas. The negroes from the British West Indies speak of it as "glass-pox." The disease prevailed in epidemic form during 1920 in Jamaica, Panama, Cuba, and Haiti. It is supposed to have entered Jamaica from Cuba. During the early fall of 1920 it gained entrance into Santo Domingo from Haiti, through Barahona Province and has gradually spread eastward until at the present time it exists in epidemic form throughout this Republic.

The disease has been the subject of discussion among medical writers for some time, but there has been no uniformity of opinion as to its character. Osler[1] refers to a mild smallpox in the West Indies and Brazil as "alastrin amas." Castellani and Chalmers[2] discuss the disease under the name alastrim and give the differential diagnosis between it and varicella and variola vera. Their historical sketch is interesting, showing that the disease was recognized by Anderson in Jamaica as early as 1865. They conclude provisionally that the condition "is probably a slightly different form of disease from true variola." Chapin,[3] and MacCullum, quoted by Dr. Deeks of the United Fruit Co.[4] give lucid and interesting descriptions of the recent epidemic in Jamaica.

In reviewing the available literature on the subject one is impressed with the great diversity of opinion as to the nature and character of the disease. Upon one characteristic only do all observers agree, viz., the general innocuousness of the condition. This confusion is confirmed by the varying nomenclature given to the disease, and is due to a great extent to the attempt of recent writers to perpetuate the belief of the earlier observers that the condition is a separate disease, distinct from smallpox.

The first case occurring on our plantation was discovered on June 13, in a Guadeloupian negro, who wandered into one of our country bateys from an adjoining sugar estate near the city of San Pedro de Macoris. From this and from other foci of infection which have been introduced by ambulatory cases, the disease has gradually spread throughout our plantation, covering an area of nearly one hundred square miles. We have had to date (Oct. 29) eighty-five cases, all of which have been isolated in our pest house established at a remote point on the plantation to take care of this epidemic. It is from a study of these cases that the following observations on the disease are presented.

Age.—Children appear to have a relative immunity. Many unvaccinated children have been exposed to the infection during the four months the disease has prevailed here, we finding them on numerous occasions living in the same room with a person sick with the disease. In a few instances we have been compelled by force of circumstances to put children in the quarantine camp with the mother. But we have had only three cases in young children.

Sex.—Males appear to be more prone to contract the disease than females, but five of our patients being women.

Race.—All of our patients have been negroes. Whether the white race is susceptible is a question difficult to answer, for all the whites who come to the tropics are, as a rule, thoroughly and successfully vaccinated.

Incubation.—Our second case developed in the barracone where the first case presented himself just three weeks to the day after exposure. In all cases where we have been able to fix the time of exposure the incubation period has been twenty-one days, rather longer than that given by other observers. It was not until the second week in July, four weeks after the introduction of the first case, that the disease assumed epidemic proportions.

Symptoms.—The disease begins with general malaise, moderate fever, and headache. We have not seen any case presenting the severe bodily pains mentioned by some writers. No initial rash has been detected on the dark skins of our patients. The eruption begins invariably on the third

day in the form of more or less numerous papules on the forehead, face, arms, and hands, which rapidly spread, but less profusely, over the entire body. These papules have the hard, shotty feel characteristic of the smallpox papule. On the third day of the eruption, or the sixth day of the disease, these papules become distinct vesicles, with umbilicated centers. By the eighth day the vesicles have developed into pustules. On the lighter-skinned patients an area of inflammation can be detected about the pustules. The eruption matures in the order of its appearance, first on the head and face and then on the body. In other words, it follows the course of a typical smallpox eruption. In a number of cases the pocks have appeared on the buccal mucous membrane, the hard and soft palate, tongue, tonsils, and pharynx, causing the patient considerable discomfort in swallowing.

Recent writers have emphasized the statement that there is little or no secondary rise in temperature. This has not been our experience. The secondary fever has depended entirely upon the severity of the case. In our confluent cases, of which we have had several, the fever reached 104°, and one patient developed a mild delirium. As a rule, however, the disease has run a very mild course, and in none of our cases has there been the profound toxemia and prostration seen ordinarily in smallpox. In fact, most of our patients were never confined to the bed, and it is interesting to see them walking about, smoking cigarettes, and taking a general interest in their surroundings, although presenting the usual appearance of well-marked smallpox. All of our patients developed the pocks on the palms of the hands and the soles of the feet, which, when profuse, resulted in considerable pain and discomfort, due to the tension on the skin. Itching and burning of the skin at the site of the eruption have not been complained of at all by our patients. In a few of the more severe cases there has been some swelling of the cervical lymph glands, but in all except two very mild cases there has been a marked and rapid enlargement of the epitrochlears, the glands attaining the size of a large hazel nut and occasionally being multiple. No complications have developed in any of our patients. Desiccation is rapid. Considerable stress is laid by some observers upon the lack of pitting or scarring, as a distinguishing point of the disease. Our experience has been that the pitting is entirely dependent upon the severity of the attack, our bad cases all showing considerable pitting about the nose and cheeks. In all cases, however, no matter how mild, the site of each skin lesion is marked by a deeply pigmented spot still apparent on those patients remaining under observation for weeks after their discharge.

Prognosis.—Up to the present time we have had no mortality. The disease has run a remarkably mild course, and, with possibly one exception, there has not been the profound toxemia ordinarily to be expected in a disease with such pronounced local manifestations.

Diagnosis.—The only disease for which the condition under discussion could be mistaken is varicella, and this error would only be possible in a mild case at the beginning of an epidemic. As to the statements that this condition is a strange and rare disease to be differentiated from smallpox, our experience leads to the belief that we are dealing with an epidemic of mild smallpox. The experience of the past few years in the United States has shown that very mild epidemics of true smallpox may occur, and there is every reason, as will be shown later, why such epidemics should occur in the tropics. Brown[5] gives a very graphic description of the disease as it occurred in Haiti, and he has no doubt as to its being true smallpox.

Vaccination.—Upon receipt of the information that smallpox was prevalent in Haiti we instituted throughout our plantation a vigorous and thorough campaign of vaccination, and during December and January vaccinated nearly 7,000 of our people and their families, about 80 per cent. of which were successful. Since the appearance of the first case in June the disease has spread over the entire plantation, and there is not a batey that has not had at least one case. Considering the highly infectious nature of the disease, and the crowded conditions under which these people choose to live, it is a reasonable assumption that the protection afforded by vaccination has been the controlling factor in keeping our morbidity to 85 cases* among a population of some 7,000 people. A number of our patients stated that they had been vaccinated at some time during their lives, *but not one of them presented evidence of a successful vaccination.* I have been unable to confirm the observations of MacCallum (*loc. cit.*) to the effect that it is possible to obtain positive results from vaccination among convalescents. Twenty-two of our more recent patients have been carefully vaccinated with absolutely fresh virus with invariably negative results. Leake and Force[6] conducted a series of experimental inoculations in monkeys and rabbits with material derived from Jamaican and Haitian patients to determine the immunological relationship of the disease, and give the following summary of results: "The fact that definite immunity to vaccinia is produced by previous inoculation with alastrim is additional evidence of the essential identity of alastrim with smallpox."

Conclusions.—The clinical evidence presented by this disease does not warrant any other diagnosis than smallpox. It is submitted that recent writers on the disease have failed to take into consideration a very important factor which is apparent to every observing man experienced in the practice of medicine in the tropics. The people with whom we have largely to deal have lived for generations under climatic conditions and in an environment so diametrically opposite to conditions as they exist in temperate climates that they do not always respond to acute infections in just the same way as do their white or black brethren in the North, and when they become affected with acute diseases the clinical picture as we know it in temperate climates becomes at times so modified as to deceive an inexperienced or casual observer. For instance, our lobar pneumonias do not always present the classical symptoms seen in more northern latitudes, and the late influenza epidemic here differed in many particulars from the descriptions given of the disease in the United States.

*A number of mild cases have undoubtedly concealed themselves and escaped detection.

Excluding those diseases which are recognized as essentially tropical, it may be stated as an aphorism that no infectious or contagious disease runs true to form in the tropics except pulmonary tuberculosis.

It is not strange, therefore, that smallpox here should present clinical differences from the disease as known in colder climates, and the attempt to describe it as a separate and distinct disease under another name only leads to confusion and creates a false sense of security. He would indeed be a bold sanitary official who, in the face of our present knowledge, would relax his sanitary measures because he believed the disease to be alastrim or Kaffir-pox and not smallpox.

REFERENCES.

1. Osler: Practice of Medicine, 8th Ed.
2. Castellani and Chalmers: Manual of Tropical Medicine, 2nd Ed., p. 1108.
3. Chapin, Henry Dwight: An Epidemic of Kaffir-pox in Jamaica, MEDICAL RECORD, October 2, 1920.
4. Annual Report of Medical Department of United Fruit Co., 1920, p. 12.
5. Brown, C. J.: Smallpox in Port au Prince, Haiti, *U. S. Naval Bulletin*, July, 1921, vol. 15, No. 3, p. 695.
6. Leake and Force: Experiments on Alastrim, *Public Health Reports*, June 24, 1921, vol. 36, No. 25, p. 1437.

EUGENICS AND EUTHENICS IN THEIR RELATIONS TO THE TUBERCULOSIS PROBLEM.*

BY S. ADOLPHUS KNOPF, M.D. (New York and Paris).

NEW YORK.

THE modern conception of tuberculosis as a non-hereditary disease, while not absolutely correct from a strictly scientific viewpoint, may be considered to be accepted by the vast majority of students of the tuberculosis problem in its social as well as medical aspect. Direct bacillary transmission—that is to say, cases in which the bacilli of tuberculosis are found in the placenta — do occur, but are exceedingly rare. Prior to writing my article on tuberculosis for the "Twentieth Century Practice of Medicine" I looked up the literature on the subject and could only find that about 60 cases had been reported during the preceding 40 years. Both medical and social workers have a right to consider this a negligible quantity, and it is of incalculable advantage that the former strong belief that pulmonary tuberculosis, popularly known under the name of consumption, was an hereditary disease is gradually disappearing. The assurance which may be given to the patient whose father, mother, or ancestry have been tuberculous, that he has not inherited the disease, and that the fact that some of his near relatives may have died of it is by no means an indication that he, too, must fall a victim, gives him the peace of mind and the hopeful outlook so essential to recovery from the disease.

If, however, direct bacillary transmission occurs, as just stated, only in the rarest instances, it behooves us as students of eugenics to find out how we can account for the prevalence of the disease in general and the frequency with which it occurs in children of tuberculous parents. Of course, we know there are many post-natal causes of infection. When the tuberculous mother nurses the child she may infect the intestinal tract of the infant by her own milk, which may contain the bacilli; or the child may be fed on milk from tuberculous cows. In some sections of our country statistics have shown that in no less than 10 per cent of the children infected with tuberculosis the causative factor was the bovine type of the bacillus. Contact infection results when the mother kisses the infant on the mouth, or if she carelessly coughs in its face and droplet infection ensues, or if the infant is fed artificially she may insert the rubber nipple of the milk bottle in her mouth to test the temperature and sweetness of the milk, or in feeding the child some cereal, she may taste it from the same spoon with which she feeds the baby.

Aside from such well-known sources of post-natal infection and the infection in adult life arising from the careless disposal of the sputum of the tuberculous invalid, recent investigations have shown that there exists also a source of infection which, because it is so rarely recognized, is all the more dangerous. Prof. A. Calmette of the Pasteur Institute of Paris spoke of this source of infection at the recent tuberculosis conference in London as "healthy carriers of tuberculosis."[1] In other words, there are seemingly perfectly healthy individuals who, unknown to themselves, carry countless virulent tubercle bacilli in their system, and if they come in contact with a predisposed individual, particularly an infant or child, an infection is almost inevitable.

At the same congress, Gerald B. Webb, ex-president of the American National Tuberculosis Association, made the following statement concerning this dangerous source of infection: "The question upon which we must be alert is that of the tuberculosis carrier. In so many cases a parent before becoming a manifest consumptive had been a carrier of disease and had disseminated millions of bacilli in his immediate neighborhood."

During the past 25 years antituberculosis workers have done their best to combat all the known sources of post-natal infection in child life and of communication of the disease in adults, and these efforts have not been in vain. These workers claim that it is owing to their labors that there has been a marked decrease in the tuberculosis death rate in our country. Some statisticians, however, claim that this lower mortality rate is due to the improvement in general sanitation and better nutrition of the masses, which have reduced the death rate in general and also that of tuberculosis. Be this as it may, to the tuberculosis worker must be given credit for having had a great share in this improvement in individual and general hygiene.

Educating the masses as to the prevention of post-natal infection in children, as well as contact infection in adults, has done and is doing incalculable good, and in the few existing preventoria quite a percentage of the inmates who had been much exposed to tuberculosis and strongly predisposed by inheritance are apparently made

*Read before the Second International Congress of Eugenics, held in New York, Sept. 22-28, 1921.

strong and vigorous enough to resist the development of the disease. In almost every State of the Union there are numerous sanatoria and special hospitals, although as yet not enough to treat, cure, and isolate tuberculous disease in its various stages. Yet thousands of tuberculous individuals still die annually, in spite of popular education, in spite of preventoria, in spite of numerous institutions for the treatment of the disease, and in spite of apparent advance in phthisiotherapy.

It cannot be said that our studies in immunity have advanced sufficiently to count in the reduction of morbidity and mortality of tuberculosis. These studies have made only one thing sure—namely, that tuberculosis, in the vast majority of cases, was contracted during childhood, and that the tuberculous infection which remains latent becomes tuberculous disease most frequently between the ages of 18 and 35. It is then that an inherited predisposition, a "habitus phthisious," or an acquired predisposition make themselves manifest and the morbidity and mortality from tuberculosis is highest. Unfortunately, these are also the ages in which the procreative functions in man and woman are perhaps at the highest point, where marriages are most frequently contracted and children most frequently conceived. It is thus, in my humble opinion, at this period when we should consider the importance of eugenics in its relation to the tuberculosis problem.

I stated at the beginning of my paper that the bacillus of tuberculosis is very rarely found in the fetal organs. What, then, is responsible for this predisposition to the disease? We know that the child is more often found tuberculous when the mother is the tuberculous parent. This is not only to be accounted for by the fact that the mother is in closer contact with the child, but I am convinced that the primary cause of the tuberculous predisposition is a mingling of the blood in the maternal and fetal circulation. The bacilli lodged in countless quantities in the tuberculous lung of the mother are constantly secreting toxins of varied virulence which enter the circulary system of the mother and cause fever, anorexia, and emaciation. The maternal blood, reaching the placenta and fetus, impregnated with toxins, affects all the cells of the future child and thus the foundation for the predisposition or the habitus phthisicus is laid (a constitution below par, a cylindrical or flat chest, long body, deficient muscular development and little adipose tissue, a tendency to contracting infectious diseases and a particularly suitable field for the invasion and spread of the tubercle bacillus). The presence of alcohol has been demonstrated in the newborn child when the mother has been addicted to chronic alcoholism throughout pregnancy, or if shortly before the time of delivery she had imbibed frequently of strong alcoholic drinks. This alone would justify the conclusion that the toxins of Koch's bacillus in a consumptive mother may mingle with the circulatory fluid of the fetus.

In the assumption that something is inherited from the tuberculous parent, with the exact nature of which we are not as yet familiar but which we know is very rarely bacillary, I do not stand alone. The greatest living authority on tuberculosis statistics, Karl Pearson of London, quoted in Baldwin and Gardner's recent contribution on the subject,[2] "considers that heredity plays a large part in transforming infection into disease." This means that in many cases where there has been a slight bacillary infection from without, which should have been sufficient to render the individual immune, the hereditary factor overcomes this and the infection becomes actual disease. This endogenous development of the disease without direct bacillary transmission is perhaps much more frequent than heretofore thought. To quote again from the just-mentioned work: "The British epidemiologist and statistician, Brownlee, mentions his acceptance of the theory of immunity conferred by childhood infection, which, however, breaks down and causes two-fifths of adult phthisis from endogenous spreading. The inference is that three-fifths must be from exogenous sources."

Our recent war experience has shown us how many young people are physically below the standard health and unfit for military service, and that thousands of them are unfit for the duties of parenthood. For the following statistics I am indebted to the courtesy of Major General Ireland, the present Surgeon-General:

REJECTIONS, SELECTIVE SERVICE MEN, LOCAL AND CAMP EXAMINING BOARDS.

	Local Boards	Camp Boards
Total	549,099	207,617
Pulmonary tuberculosis	44,305	14,612
Suspected tuberculosis	16,899	156
Tuberculosis of other organs	8,731	679
Mental deficiency	33,636	7,963
Defective physical development	5,604	1,756
Deficient chest measurement	2,105	194
Underweight	59,022	11,586
Underheight	6,556	2,060
Malnutrition	676	93
Bones and organs of locomotion	113,287	58,536
Arthritis	3,934	2,539
Syphilis	8,802	...
Tabes	578	...
Paresis	252	...

The actual number of selective service men, first, and second registration, examined by the local boards was 3,764,101.

The actual number of selective service men, first and second registration, examined by the camp boards was 2,745,073.

The statistics for 1,961,692 selective service men as published in "Defects Found in Drafted Men" have been raised proportionately to cover the complete number 2,745,073.

We are at this moment mainly concerned with tuberculosis, its predisposing causes, and their relation to eugenics. Among the just-mentioned 3,764,101 men examined, there were 58,917 found actually suffering from pulmonary tuberculosis, 17,055 with suspected tuberculosis, 9,410 afflicted with tuberculosis of other organs; 7,360 were rejected because of defective physical development. 2,299 for deficient chest measurement, 70,608 because of underweight, and 769 for malnutrition. These four latter conditions are well known to be factors predisposing to tuberculosis. But I go even further by saying that bone and joint defects, for which 171,823 were rejected, were probably also in the majority of tuberculous

origin, which would mean 338,241 either actually tuberculous, suspected of tuberculosis, or by reason of their physical defects predisposed to the disease. If we add to this figure 9,632, afflicted with syhpilis and its sequelæ, which also predisposes to tuberculosis, we have a total of 347,873.

It is not unreasonable to suppose that the same defects found in men at draft age would be found in women at about the same age.

What can, should, and must be done to remedy this appalling condition of our nation's health? From our studies thus far we have learned that in order to reduce the morbidity and mortality of tuberculosis we must have, besides a rigorous individual and popular prophylaxis, a better physique, a stronger physical make-up. Against an inherited weak physique and physiological poverty in children and adults we must provide recreation centers where the masses can congregate and have plenty of fresh, pure air in winter and summer, particularly for prospective mothers, more maternity sanatoria, more open-air and sanitarily supervised kindergartens, more parks and playgrounds, more open-air schools, more outdoor school instruction, and more calisthenics and breathing exercises outdoors or with open windows at recreation time. Singing, recitation, botany, and geology should be taught outdoors whenever possible. Our municipal and school boards and public welfare commissions should combine to bring these improvements about. Compulsory military or physical training for boys and girls, encouragement for outdoor sports for old and young, and the utilization of roofs in cities where sufficient space for playgrounds is not available should also demand the attention of our authorities and philanthropists.

The social causes of a weak physique arise from underfeeding, intemperance, bad housing, bad factory, bad mine and workshop sanitation, child labor, woman labor, the social evil, etc. These are matters for the statesmen to attend to. These causes must be removed, and without their removal eugenists will be powerless to achieve success in their endeavor to help in the solution of the tuberculosis problem.

The diseases which predispose to tuberculosis are numerous, particularly measles, diphtheria, typhoid, smallpox, syphilis, grippe, etc. Many of these diseases are preventable either by detecting the carrier as in typhoid and diphtheria, or by vaccination or serum injections against the disease. Others are usually curable if discovered in time and properly treated. Medical science knows how to stop many epidemic diseases predisposing to tuberculosis, if the public would only trust it and if Federal, State, and municipal authorities will aid. All these environmental causes come under the heading of "euthenics."

What suggestions can we make to remove that strange and insidious source of infection which I have referred to as the healthy tuberculosis carrier, whose existence has been heretofore almost totally ignored? How many might not have been discovered had time and opportunity permitted to examine every man or woman drafted for service so as to be sure that he or she was not a tuberculosis carrier? What should be done now, and how may many still be discovered? Obligatory examination for tuberculosis of all individuals wishing to enter wedlock, so that if he or she happens to be a tuberculosis carrier, transmission of the predisposition to his or her child or causing post-natal infection may be avoided by careful instruction and guidance. There should be at least one annual examination for tuberculosis, typhoid, diphtheria, venereal diseases, etc., of all individuals desiring to pursue such occupations as nurses, dairy employees, dealers in milk, meat, or other food substances. This would be helpful in doing away with the danger arising from contact infection by many healthy tuberculosis carriers who are not aware that they are capable of transmitting the disease. The masses should be educated to the fact that a tuberculosis carrier, instructed and conscientious and careful with the disposal of his secretions, particularly of mouth and nose, is perfectly safe to associate with, and even marriage may be permitted.

There are also a number of useful citizens, men and women, who are slightly affected with tuberculosis, knowingly or unknowingly, and whose tuberculous condition can only be detected by a most careful examination. They, too, may marry after their recovery, which is reasonably sure to take place if timely and properly treated. A single pregnancy in the woman predisposed to tuberculosis does not necessarily mean a development or aggravation of her condition, or a tuberculous infant, providing she has the proper hygienic and dietetic care for a sufficient time prior, during, and after confinement. On the other hand, frequent pregnancies following each other in rapid succession, will surely undermine the mother's health, aggravate a predisposition or an existing slightly tuberculous condition, and will most likely bring into the world feeble and strongly predisposed children.

All this means that the solution of the tuberculosis problem is not possible without judicious, humane, and scientific birth control. Only healthy parents can procreate healthy children. When the children are too numerous so that most of them, and particularly the latter born, had no chance to develop into mentally and physically strong men and women, they, in turn, will have children frail and subject to disease.

In an admirable address entitled "The True Aristocracy," contributed to this congress, my esteemed friend, the distinguished vice-chancellor of the University of Liverpool, Prof. J. George Adami, very justly says that under modern conditions, through the larger families of the unfit, the race is deteriorating and not improving. He suggests a selective mating among the physically, mentally, and morally sound.[2] I have taken a careful history of many cases of tuberculosis covering a period of 25 years, and this has revealed to me that with surprising regularity the tuberculous individual, when he or she comes from a large family, is one of the latter-born children—the fifth, sixth, seventh, eighth, ninth, etc. The healthiest children, as a rule, are those of young people who married at a comparatively

early age. Eugenics has amply proved this, and here again birth control enters as a factor. Young people, strong and vigorous, would gladly enter wedlock if they could know that it was within their power to have only as many children as they could well provide for.

At the time of the marriage, the minister or magistrate who conducts this sacred act, or better yet, the official who issues the license, should hand to the couple a carefully prepared pamphlet containing instructions in parenthood and the duties and obligations this involves. Of course, no license for marriage should be issued except to such as have been found physically and mentally fit to become the fathers and mothers of the future generations. Individuals physically below par should be advised to delay marriage, and if that seems not feasible, they should be advised to delay having children until both husband and wife are physically in fit condition.

It is not necessary here to go into the details of the many moral advantages of early marriages, such as the diminution of prostitution and venereal diseases. Even in our well-to-do and healthy families, considered our best American stock, and where larger families would be no burden, early marriages are unfortunately not encouraged. The opponents of birth control love to dwell on the theme of so-called race suicide. If this is applicable it should only be spoken of in such instances where health, wealth, and culture abound and still family limitation is practised to a very appreciable and deplorable degree. Birth control in cases of a distinctly tuberculous father or mother, among the poor and underfed, is not race suicide but race preservation.

We lose in this country about 50,000 children annually from tuberculosis. What heartache and suffering the birth and the death of these 50,000 little ones, in many instances even unwelcome, have caused to the parents is difficult to conceive. There are overwhelming statistics to be found everywhere, showing conclusively that the larger the family, and particularly among those in moderate or poor circumstances, the greater is the death rate among the children. As to the economic loss which the commonwealth sustains from bringing into this world thousands of children mentally and physically crippled, I will confine myself to tuberculosis alone where we have been able to calculate, at least approximately, what this unthinking procreation costs. I stated above that 50,000 children die annually from tuberculosis in the United States. Figuring the average length of life of these children to be seven and one-half years and their cost to the community as only $200 per annum, represents a loss of $75,000,000. Such children have died without having been able to give any return to their parents or to the community. Who will dare to calculate in dollars and cents the loss which has accrued to the community because so many mothers died of tuberculosis when an avoidable pregnancy was added to a slight tuberculous ailment in a curable stage?

As eugenists we are interested in the possible results of birth control. Should our laws become more tolerant in this respect? Should birth control clinics become a general feature, as they have been in Holland and are now in England? Should these clinics function not only to help the poor and sick woman to prevent too frequent pregnancies, but also to help the healthy, childless wife who longs for offspring, but hesitates to seek or cannot afford to pay for private expert advice, to have her often curable sterility overcome? If our Government should be willing to spend as much money, or even a good deal less, for the study of the best possible and most careful means of preventing conception and encourage the study of the causes of sterility and their cure and allied subjects to improve the human race in general, as it is willing to spend to improve our animal industry, what would be the result?

In answer to this question and in defense of my advocacy of a judicious birth control, I should like to quote just a few statistics from Holland: "What is the physiological effect of voluntary artificial restriction of the birth rate, or "voluntary parenthood"? In Holland, where the medical and legal professions have openly approved and helped to extend artificial restriction of the birth rate, the health of the people is shown by its death rate, which has been lowered faster than in any other country. At the eugenics congress in London in 1912, it was stated that the stature of the Dutch people was increasing more rapidly than that of any other country—the increase being no less than four inches within the last 50 years. According to the Official Statistical Year Book of The Netherlands, the proportion of young men drawn for the army over 5 ft. 7 in. in height has increased from 24½ to 47½ per cent. since 1865, while the proportion below 5 ft. 2½ in. in height has fallen from 25 per cent. to under 8 per cent."

I do not believe that before an audience of eugenists further arguments on my part are necessary to substantiate the bold assertion that without birth control we will not control tuberculosis. In a statement issued a few years ago by Dr. Haven Emerson, then Health Commissioner of the City of New York, and one of the best-known authorities on hygiene and social welfare work, he said that any physician who does not give advice to his patient which will, if followed effectively, save her from any surgical risk is not living up to his responsibilities. He further said: "The patients of the tuberculosis clinics are, to all intents and purposes, under the personal care of the clinic physician. Wherever the patient's health might be jeopardized by the unavoidable risks and strains of pregnancy, such patients may, according to my understanding of the law, be informed as to how to avoid conception."

I have said that without birth control we will not prevent tuberculosis. I go further and say that without birth control the number of insane, mentally deficient, syphilitics, and criminals will not decrease. The support of these defectives costs the State of Massachusetts 35 per cent. of its income, and the cost of maintaining such institutions in the United States in 1915 was no less than $81,000,000 (Fisher). Yet our institutional care for this class of dependents in asylums, prisons, reformatories, hospitals, etc., is only sometimes curative, more often only palliative, and

rarely preventive. Birth control scientifically studied, judicially imparted, and carefully supervised would, in addition, prevent such social and economic catastrophes as wars and famines, would decrease underfeeding and insanitary and insufficient housing, all of which are the precursors not only of tuberculosis, but of typhus, cholera, etc., and last, but not least, of that social discontent undermining the very foundation of our civilization.

Even as great and conservative an authority on the subject of birth control as Irving Fisher, professor of political economy of Yale, admits this. In his recent article, "Impending Problems of Eugenics" (*The Scientific Monthly*, September, 1921), he has this to say: "If birth control exercised by individual parents could itself be controlled by a eugenics committee it could undoubtedly become the surest and most supremely important means of improving the human race. We could breed out the unfit and breed in the fit. We could in a few generations and, to some extent, even in the lifetime of us of today conquer degeneracy, dependence, and delinquency, and develop a race far surpassing not only our own but the ancient Greeks."

Dr. Marie Stopes, one of the most distinguished of English advocates of birth control, very justly said at a recent mass meeting held in Queen's Hall in London: "Constructive birth control is the key of all racial progress. It should be one of the planks of the League of Nations' platform. It is the only true safeguard of international peace."

In conclusion let me repeat what I said recently in the preface to the new edition of a lecture on "Birth Control in Its Medical, Social, Economic and Moral Aspects," which I had delivered some time ago before the American Public Health Association: "To any unbiased mind it must be evident that our very experience before, during, and after the recent world war answers all objections to judicious birth control in its medical, social, economic, moral and even spiritual aspects. What this world needs now—after the fearful catastrophe which was started by a nation in which unlimited procreation among rich and poor, the educated and the uneducated, the well and the sick, was not only encouraged, but officially rewarded—is not a greater but a better population. The empire which sought world dominion and the enslavement of other nations had the highest birth rate and the most rapid growth of population, and yet it was France, which had by its birth control produced not as many but better soldiers, which withstood the most terrific onslaughts of the enemy's hordes. The generals of the German army sacrificed their soldiers *en masse* in close columns; it would seem that these military leaders felt that the empire had produced such great masses of men that they did not need to be so sparing and economical with human life.

"The world needs now and for all the future the very best kind of men and women, not servile masses blindly obeying war-drunk monarchs and militaristic rulers, not a mass of weaklings, bound to succumb before reaching manhood or womanhood, unable to serve or produce. We need children, but only such as are welcome to the home which physically, mentally, and morally sound parents have provided. The parents being economically situated so as to be able to give enough food, enough clothing, enough playtime to their children and live in comfort and enjoy life themselves. The State will then be able to provide enough educational facilities for children, and child labor will be done away with. Parents and children of the present generation should receive a physical and moral training and practical education that, with the help of a wise Government and enlightened statesmen, should be instrumental to create a future race of true men and women, physically, mentally, and morally sound, spiritually high-minded, images of their creator."

The true aristocracy dreamt of by Professor Adami will then dominate the world.

Let this great Congress of Eugenists strive to attain this end.

REFERENCES.

1. London Letter, MEDICAL RECORD, August 27, 1921.
2. Baldwin, Edward R., and Gardner, Leroy U.: "Reinfection in Tuberculosis" *The American Review of Tuberculosis*, August, 1921.
3. *Scientific Monthly*, November, 1921.
4. Drysdale, C. V.: "The Small Family System: Is It Injurious or Immoral?" B. W. Huebsch, Nek York.
5. Knopf, S. Adolphus: "Birth Control in Its Medical, Social, Economic, and Moral Aspects"; Second Edition, 1919, publ. by the New York Women's Publ. Co.

16 WEST NINETY-EIGHTH STREET

THE AGES OF PARENTS OF GENIUS.

BY CASPER L. REDFIELD,

CHICAGO, ILL.

IN my writings on intellectual eminence I have studiously avoided the term "genius" for several reasons. One of these is that I do not believe in genii any more than I do in witches and fairies. Another is that the word has a vague and uncertain meaning, and means different things to different persons.

Originally, a genius was a guardian deity which accompanied a person throughout life and guarded and directed him. Later it came to mean a person possessed of an intellect which was independent of and superior to all of the processes of nature. With many persons, genius is half-brother to insanity. It is common to designate as a genius some child who is particularly skilled in playing the violin, writing limericks, or drawing pictures, but who is otherwise intellectually mediocre if not actually stupid. On the other hand, it is not common to designate as geniuses men of such robust intellects as Aristotle, Franklin, and Humboldt.

In the present case I find myself compelled to use the word, but shall intend it to mean great intellectual power. The reason for my present use of this word is that I wish to have something to say about "Hereditary Genius" by Galton, "A Study of British Genius" (1904) by Havelock Ellis, "The Trend of the Race" (1921) by Prof. Samuel J. Holmes of the University of California, and some work by other men cited by those writers. Additional references will be my "Control of Heredity" (1903), my "Dynamic Evolution" (1914), and my "Great Men" (1915).

In his recent book Holmes gives some space to the influence of the order of births, and to the ages of parents at the birth of offspring, in relationship to size, weight, vitality, longevity, and intelligence of the offspring. In this he quotes all of the persons mentioned and purports to give a review of all of the information on the subject. Here I will confine my remarks to that part which involves the age of parents in years and the intellectual powers of the offspring.

In writing about British men of science, Galton gave the ages of the fathers in 100 cases. These men were prominent and a few were eminent, but the average was not high because the investigation was confined to a single group of men in a single country.

Ellis investigated a variety of things about 1,030 persons of British genius. As one part of his work he gave the ages of the fathers in 299 cases. These men were of a higher grade than those recorded by Galton because they included all kinds of intellectual excellence, whereas Galton's was restricted to one small group.

A. H. Yoder, in investigating the "Boyhood of Great Men" of the eighteenth and nineteenth centuries, gave the ages of the fathers in 39 cases. These men averaged higher than those investigated by either Galton or Ellis, but the number was small and the grade not the highest because restricted to a small period of the world's history.

In all of these cases, finding the ages of parents at birth of superior children was merely incidental to other work, and in no case did any of these men establish a standard of the normal distribution of births by which their work could be measured. As a consequence, these statistics by Galton, Ellis, and Yoder are mere curiosities having no scientific merit because not properly calibrated.

In my work I picked out about one thousand of the most eminent men of the world's history, as indicated by encyclopedias, and went deliberately at the job of getting the ages of the parents when their children were born, and the ages of the grandparents and earlier progenitors at the births of the next persons in succession in the lines leading to the eminent men. By this means I put the matter definitely and positively in the domain of heredity, because, if a person is affected by the age of his grandparent when his parent was born, it can be only through heredity. This is something which does not appear in the work of Galton, Ellis, Yoder, or any other person who has touched on the ages of parents.

In this work I succeeded in getting definite information in 1,028 cases in the pedigrees of 571 eminent men. These 1,028 make my work on this point alone more than twice as comprehensive as those of Galton, Ellis, and Yoder put together. Furthermore, the average grade of the men in my investigation is far above the average of the others, because it is not restricted to some small group but is the cream of the entire history of the entire world.

In addition to determining what happened in the production of the most eminent men of the world, I established a standard of the normal distribution of births so as to provide a scale which would indicate to what extent the production of great men differed from the production of ordinary men. This scale was made by tabulating 1,800 births as they are found in the genealogies of New England families. New England stock is considered to have been good stock, and those parts of that stock which got into published genealogies are rather above the average of New England. That standard was checked against 3,600 births registered in Chicago, 16,385 births registered in Dublin, 16,301 births registered in Edinburgh and Glasgow, and 100,057 births registered in Finland and Sweden.

In establishing this standard for comparison, I put this matter of age of parents on a scientific foundation, and I am the only man who ever did put it on a scientific foundation.

I published the names of the 571 eminent men and the 1,028 birthranks in their pedigrees so as to give others an opportunity to check over my work. I also published the details of the standard, tables in which I put the standard and pedigrees of eminent men in parallel columns, and a diagram showing the results of the comparison.

In referring to this matter Professor Holmes says: "The evidence compiled by Redfield, however, may be offset by the data gathered by Ellis in the Study of British Genius." He then gives the table compiled by Ellis, but omits the comment made by Ellis on this particular matter, which comment is that "the fathers of our eminent persons have been predominantly middle-aged and to a marked extent elderly at the time of the distinguished child's birth."

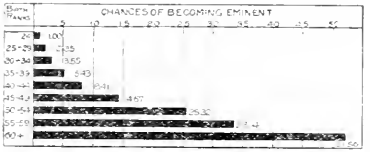
That statement by Ellis was a good guess, but it was nothing but a guess because he did not have any standard by which he could prove his statement. Let us put the results found by Ellis, and my results, alongside of the standard of normal distribution of births and see what we shall see.

Percentages of Births to Fathers of Different Ages

Ages of Fathers	Normal Pedigrees	Pedigrees of Eminent Men	
		(Ellis)	(Redfield)
— 24	9.06	3.68	1.63
25–29	23.05	15.05	9.77
30–34	26.00	27.09	16.63
35–39	19.67	19.73	19.19
40–44	13.39	14.72	20.23
45–49	5.50	10.03	14.53
50–54	2.22	4.35	10.12
55–59	0.72	2.68	4.30
60 +	0.39	2.67	3.60
	100.00	100.00	100.00

That table shows that Ellis and I get identical results, and that one does not offset the other, as intimated by Holmes. In the pedigrees of eminent men, both of us find a shortage of fathers at all ages under 30, and a surplus of fathers at all ages over 40. The differences between us are that my table departs further from the normal than does that of Ellis. When it is remembered that both of us are investigating eminent men, and that the men in my list are of a much higher grade than those in Ellis' list, it will be seen that the two investigations confirm each other. They show that the older the parents the greater is the intellectual power of the offspring. This is made clear by the diagram on the next page.

But let us carry this thing a step further. Let us bring into one table the statistics of Galton, Yoder, Ellis, and myself against the normal distribution of births. This table shows that we all get the same result. Each one of the four



investigators who tabulates the ages of the fathers of prominent or eminent men finds that men of this character come principally from elderly parents.

PERCENTAGES OF BIRTHS TO FATHERS OF DIFFERENT AGES

Ages of Fathers	Normal Pedigrees	Pedigrees of Eminent Men			
		(Galton)	(Yoder)	(Ellis	Redfield
— 24	9 06	1 00	2 56	3 68	1 63
25–29	23 05	15 00	5 14	15 05	9 77
30–34	26 00	34 00	25.64	27 09	16 63
35–39	19 67	22 00	33.33	19 73	19 19
40–44	13 39	17 00	17.95	14 72	20 23
45–49	5 50	7 00	7 69	10 03	14 53
50 +	3 33	4 00	7.69	9 70	18 02
	100.00	100 00	100 00	100.00	100 00

I object to Ellis' statement that my results may be offset by the results found by some other person when a comparison of the two shows that they confirm each other instead of offsetting each other. I also object to the assumption that a small, fragmentary investigation, not on a scientific basis because not calibrated, can be used to offset another investigation more than three times as comprehensive and fully calibrated.

But my principal objection to what Holmes has to say is that he classes my work with those of Galton, Yoder, and Ellis, whereas my work stands upon an entirely different foundation and is aimed at an entirely different thing. With those men, as far as this matter is concerned, the age of the parent at the birth of the child was the sole thing. They did not see or consider anything beyond. With me the age of the parent is simply the coefficient of a variable, and it was so written in my "Control of Heredity," from which Holmes quotes. That variable is the active agent, and the coefficient simply represents the extent to which the agent acts. Hence, the real thing I am presenting is a product, that product being the extent to which an organism modifies its own protoplasm by its own activities before reproducing. This is something totally different from mere age, which, standing by itself, is mere duration, and that is nothing at all, as far as producing an effect is concerned.

My investigations into the ages of progenitors of eminent men is more than twice as comprehensive and thorough as those of all the other men put together. My investigations into thousands of normal cases for the purpose of establishing a standard of comparison stands alone, no other person having done anything of the kind. And all of these things are merely preliminary steps in obtaining coefficients and establishing their value.

Comparing the ages of parents with the quality of offspring is one step in my proceeding. The utmost produced by Galton, Yoder, and Ellis combined amounts to only a fragment of that first step.

Comparing the activity of parents with the quality of offspring is a second step in my proceeding. This second step also involves the establishment of a standard which will indicate what is the normal activity of parents up to the time of reproducing. Neither of these factors of the second step has ever been touched by any other person, and my work on this matter is the only one of the kind in existence.

Combining the first and second steps into a product and comparing that product in parents with the quality of offspring is the third step in my proceeding. No other person has done anything of this kind.

Carrying the product back step by step, through preceding generations of animals of remarkable powers, or animals remarkable for lack of powers, is the fourth and final step in the proceeding, but does not represent all that was done for the purpose of determining the accuracy of the results.

So far herein I have been referring to investigations into the origins of men of great intellectual powers, men commonly referred to as geniuses. In addition, I directed special investigations into the Jukes, the Ishmaels, and the Kallikaks; into parts of royalty and the nobility of various countries, and into the marriage customs and activities of various tribes and races of men both living and dead. Going further, I carried my investigations down through the lower animals, plants, bacteria, and protozoa. As an illustration of the age end of the investigation, the following table will serve:

APPROXIMATE AVERAGE AGE OF REPRODUCTION

Rabbits	1 year
Cattle	4 years
Horses	10 years
Apes	16 years
Digger Indians	21 years
Eskimos	23 years
Polynesians	26 years
Chinese	29 years
Chicago in 1913	31 years
New England in 18th Century	33 years
Galton's Men of Science	36 years
Ellis' Men of Genius	37 years
Yoder's Great Men	38 years
Redfield's Eminent Men	40 years

Let us return to Holmes' book. He quotes my statement that "children of young parents are lacking in physical stamina and mental power," and calls it "an exaggeration." He says "there is no adequate reason for concluding that youth of parents *per se* is responsible for the degenerate heredity of the offspring."

That statement by Holmes represents dogma for which he has no scientific foundation. If he had said the "youth of parents *per se* is not responsible for the degenerate heredity of the offspring" he would have been on sound scientific ground. "Youth of parents *per se*" refers to mere duration, and mere duration is not responsible for anything. But inserting that "*per se*" into either form of statement misrepresents what I presented. Age of parents means time, and I have repeatedly pointed out that time is a factor

in measuring work performed, and is not a factor in measuring anything else. "Youth of parents" means a small coefficient, and that in turn means a small product in the development of powers by exercise. The fact that Holmes uses the term "youth of parents *per se*" when referring to my work is evidence that he is either juggling the facts or else he does not have the slightest idea what it is he is criticising. Also, when a biological work issued 18 years after my "Control of Heredity" was published contains comments of the kind I have quoted from Holmes, it is good evidence that none of those biologists who have hurled their thunderbolts at my head have taken the trouble to learn what it is they are condemning. What I originally presented remains to this day untouched by any criticism.

527 Monadnock Block.

WHY IS THE WASSERMANN?

By CHESTER TILTON STONE, M.D.,

Brooklyn, N. Y.

How many of us are relying too strongly upon the Wassermann test in determining the proper treatment for our patients? Do we realize the stress and faith we have taught the lay public, as well as ourselves, to place in this reaction which no one can say is absolutely correct? If this is a false teaching we are inspiring, and if too we are stimulating and fostering an incorrect standard, it is high time that we at least modified our beliefs and teachings. I am not an iconoclast. I am merely trying to bring up a subject which has been smouldering in my mind since I did my first test. If others care to fan the sparks and produce a flame which will give us more light, my efforts are well rewarded.

A patient comes with a definite chain of symptome which point to, or at least makes us suspicious of syphilis. The Wassermann test is made. It is reported negative. We at once look for other causes and forever rule out further thought of lues. A patient is sent for a routine Wassermann in the course of his general examination. His blood is reported negative. Straightway we exempt him from the luetic draft. A patient is under treatment for syphilis. He is sent to the laboratory that we may learn whether he is cured. The report is negative. He is discharged supposedly recovered. A man wishes to marry. He comes for a clean bill of health. His Wassermann is found positive. He denies all infection. We either call him a liar or tell him that it is hereditary and forbid his marriage, until well. Let us for a moment follow these set cases which all of us see daily. The first enters our office.

If we are in general practice we will either treat the patient symptomatically, search deeply for some mysterious disease which is causing his symptoms, or send him to one or more specialists. In the latter case we will carefully underscore Wassermann negative in his report and the patient will tell the specialist several times that his blood has been found all right. In my mind the real specialist will in most cases recognize the symptoms and, if he is a descendant of Thomas, institute specific treatment despite the findings of the laboratory. 'Tis true many cases in this class are very obscure. However, we still have our therapeutic tests. Many overlook that which is plainest and the patient starts drifting from office to office, condemning the profession as he goes, until he finally quits in disgust.

The second patient is called in. It is perhaps years later that after receiving a negative report, he reaches one doing special work. His symptoms are now real and his suffering intense. Despite his protests that he is free from infection, he is put on specific treatment. He may clear, or it may be too late, and the chain of symptoms be aggravated by treatment.

Patient number three, after receiving his negative report, has married. Some years have elapsed. He develops "stomach trouble" for which he seeks relief. His "stomach doctor," in questioning him, learns that he has been discharged as cured by Dr. X, prominent in his line. After a year of unsuccessful treatment the patient returns to Dr. X. Another Wassermann is made and found negative. Despite the fact, he is given further treatment. The stomach responds. He is then advised to bring in his wife and children.

Now the man who wishes to marry comes in. He has just proposed and expects to wed within a month. He is sent to a busy laboratory. A girl takes his blood in test tube No. 2. She has just taken another specimen in tube No. 1. Her attention is diverted. Tube No. 2 is placed in No. 1 hole in the rack. The marriage is postponed.

Are we being fair to our patients, to the profession, to ourselves by such methods? We most certainly are not. We are by far too easily satisfied. Consider if you please for a moment where and how our tests are made. There is the high class serologist. Does he always do our tests or are they done by assistants? How are these chosen, trained, and supervised? Is he careful, conscientious, masterful at his art? Are his reagents carefully standardized? What tests and methods does he employ? What is his standard scale? Does he run tests individually or *en masse?* This last point is the big stumbling block in many instances. Here is a vital question to be settled for each patient. Who of us would think of treating one hundred patients at one operation? Still, in the laboratory one hundred innocent patients may be doomed by one error in technique.

All of the above questions apply to the fair, the mediocre, and the commercial laboratories. As we go down the scale the awful truth confronts us that the search is more for the feathers of the eagle than the antigenic properties of the blood. Many laboratory workers are incompetent and many ignorant, merely doing the best they know how. Still we persist in honoring equally reports from any source whatsoever. Recently, as I have done in several instances of special cases, I split a specimen of blood, sending a sample to each of four reputable serologists. Four different reports came back on the same blood. Now who was right and what is the meaning of right?

The faults are numerous. They seem to lie in improperly performed tests due to carelessness, ignorance, and in trying to do too many tests at one run. Instead of (as I suggested in "Sources of

Error in the Wassermann Technic," *New York Medical Journal*, June 20, 1914) concentrating on one method and perfecting it, every one is trying to think of a new one to be called by his name. Then too, the scale varies. A 1+ with one worker is a doubtful with another, etc. There seems to be a growing doubt with many whether this is a test for syphilis. Other diseases give a positive Wassermann, and 10 per cent. of syphilitics do not react. It remains to be proven.

From my series of cases the following are picked at random: A. R. B. and B. E. had hemorrhoids (?) removed, Wassermann negative, later proved to be condylomata which cleared under specific treatment; no history of infection. W. W., no history of infection, Wasermann negative, vague pains throughout the body; cleared under specific treatment. C. S., history of infection, treated twenty years before, Wasermann negative, showing symptoms of beginning paresis when first seen. H. D. came with diagnosis of carcinoma of penis, Wassermann negative; failed to respond to radium, cleared under specific treatment. D. J., history of five miscarriages, no history of infection, Wassermann negative. After course of treatment gave birth to two healthy children. E. L., treated for years for tuberculosis, spent some time in Saranac, Wassermann negative. Now being treated for syphilis of lungs. Clearing.

It is useless to attempt a reform without suggesting the alternative. First of all we need more careful research along these lines, followed by clinical demonstrations of the results. We must have a standard test. This test to be used in identically the same way by every worker. If need be, there should be a laboratory inspector to see that no variations are introduced. Reports should be based on a standard scale. One plus should mean the same wherever seen. A better checking system should be installed to avoid mistakes in specimen tubes. Until this time arrives we should not place too much reliance on the absolute meaning of a negative or a 4+ Wassermann reaction.

Do not forget that common sense plus therapeutic tests did much before the Wassermann was ever used.

62 PIERREPONT STREET.

Medicolegal Notes.

Hypothetical Question Held Too Broad.—In an action for death alleged to have been the result of a fall in alighting from a train, counsel for the plaintiff asked several physicians, experts, substantially the following question: "If she received an injury to her left side and a shock to her knee and body by falling on the ground, and she was at that time suffering from tuberculosis, and afterwards was continuously confined to her bed until she died, what is your opinion as to whether or not that injury hastened her death?" There was no testimony that the deceased's side was injured by the fall, and no testimony that any part of her body was injured except her knee and ankle. It was therefore held that the hypothetical question was too broad, because it assumed the existence of facts the evidence did not tend to prove. The question was defective. There was, however, evidence tending to establish some of the facts assumed in the hypothetical question; and it was held that counsel for the defendant, if he desired to have eliminated the particular fact which he claimed on appeal there was no evidence to sustain, should have called the trial court's attention to it by specific objection to such fact, and it was too late to make the specific objection for the first time on appeal.—Payne v. Thurston, Arkansas Supreme Court, 230 S. W. 561.

Medical Testimony as to Powder Burns and Shock.—In an action on an insurance certificate, where the insurer pleaded suicide as a defense, it was held that the testimony of physicians in relation to the question of shock from two bullet wounds immediately over the heart and within an inch of each other, and the effect of the shock, and in relation to powder burns, was properly admitted over objection that the physicians had not qualified as experts, the matter of powder burns being of common knowledge and on the question of the effect of shock on the human body no higher degree of expert knowledge being obtainable than that of qualified physicians and surgeons.—Bear v. Sovereign Camp, W. O. W. (Mo. App.) 230 S. W. 369.

Question to Medical Witness as to Result of Injuries Held Not to Invade Province of Jury.—In a personal injury case a medical witness, who had testified that the plaintiff had suffered a gradual and progressive degeneration and weakening, both physical and mental, was asked by plaintiff's counsel: "Could that result from the injuries?" and replied, "It could be produced for that reason." It was held by the Kansas City Court of Appeals that the question did not invade the province of the jury because "the most that this doctor could say would be that in his opinion it might be produced by the injury. The plaintiff could have used either the terms, "might, could, or would," and the question would have been proper under the decisions of the Missouri courts.—Roach v. Kansas City Rys. Co. (Mo. App.) 228 S. W. 520.

The Missouri Supreme Court holds that while an expert may express his opinion as to whether or not an injury is permanent, his answer, in order to stand the test of judicial criticism, must show that the result which he has indicated will follow to a reasonable degree of certainty. In other words, his opinion is held incompetent if based upon a mere possibility as to what may occur in the future.—Mahany v. Kansas City Rys. Co. (Mo.) 228 S. W. 821.

Ocular Symptoms Admitted to Prove Existence of Neurasthenia.—In an action for personal injuries the petition alleged permanent injury to the plaintiff's whole nervous system and that the plaintiff was suffering from neurasthenia. The Supreme Court of Texas, in answer to a question certified by the Court of Civil Appeals, holds that medical testimony as to ocular symptoms was admissible, the condition of plaintiff's eye being both a symptom and a result of traumatic neurasthenia, though no affection of the eye was pleaded. The court cited H. & T. C. R. Co. v. Hanks, 58 Tex. Civ. App. 298, where it was held that evidence was properly admitted of kidney trouble, because symptomatic of cellulitis, a diseased condition of the covering of the bones of the foot, the issue being whether the injured party had cellulitis, and Ft. W. & R. G. Ry. Co. v. White, 51 S. W. 856, holding that evidence was admissible to show the spitting up of blood, where this indicated an injury to the chest.—C. L. Smith Oil Co. v. Riggs, (Tex.) 230 S. W. 139.

Agreement Not to Practice by Seller of Practice.—The Iowa Supreme Court holds that an agreement on the sale of a physician's business and good will to other physicians, that the seller will not engage in the practice of medicine or surgery in the town or surrounding country for a period of 10 years is valid, but that a suit to enjoin the seller from practicing in violation of the contract would not lie where it appeared that the seller's treatments in the past had been mainly emergency cases in the vicinity of the town, that he recognized the binding obligation of the contract and that most of the transactions occurred shortly after the defendant's retirement and a considerable time before the suit was brought.—Gates v. Leonard, (Iowa) 183 N. W. 462.

Experts Testimony Invading Province of Jury.—The Nebraska Supreme Court holds that it was not error to refuse to permit a physician to testify whether he could discover any reason why the plaintiff in a personal injury case could not have been at work when examined, the physician having fully detailed the condition of the affected parts. The questions called for a conclusion, which it was the jury's duty to determine.—McGowan v. Dresher Bros. (Neb.) 183 N. W. 560.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, December 31, 1921.

THE NEEDS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

THE World War caused of necessity a great increase in the duties and responsibilities of all the government medical services, but the greatest and most lasting increase has been in the work of the United States Public Health Service. The medical corps of the Army and Navy, although larger than before the war, are nevertheless reduced approximately to a peace footing, but the work of the Public Health Service has permanently increased and cannot for many years, if ever, be lessened to any appreciable degree. This is due in great measure to the fact that the care of the disabled veterans has been entrusted to the Service, and in nearly equal measure to the increase in the merchant marine from some 6,000,000 tons in 1914 to 16,000,000 tons in 1921. As is known, one of the duties of the Service, and the one for the performance of which it was originally established, is the care of sick and disabled sailors of the merchant marine. Furthermore, the quarantine stations of the country are now maintained by the Public Health Service, and much additional labor is also thrown upon it through the increasing cooperation with State and municipal boards of health in public health and interstate quarantine duties. An indication of these increased activities is given in the great expansion of the personnel from a total of 2,044 in July, 1917, to 15,095 in May, 1921. Of this personnel the surgeons numbered 508 in 1917 and 3,249 in 1921, but the number of regular commissioned officers fell in this time from 212 to 199, the increase being chiefly in the corps of acting assistant surgeons, whose number rose from 296 in 1917 to 2,166 in 1921; at the present time there are 884 reserve commissioned officers who may be called upon in an emergency.

This is a most unsatisfactory condition and one which cannot fail to cripple the Service in a time of stress. As one can readily understand, reliance upon an emergency personnel is very far from desirable or even safe. It is not easy to secure competent medical men for temporary service, even at high salaries; moreover such persons will not be likely to remain in the Service if a better opportunity presents itself elsewhere, and so just when they have become familiar with their duties and are getting to be of use to the Service, they may "float" away to some other more pleasant or more remunerative occupation.

To meet this situation and to raise the Public Health Service to a parity with the other government services a bill has been introduced into both Houses of Congress "To reorganize and to promote the efficiency of the United States Public Health Service." This bill provides for the transfer of not to exceed 550 officers of the Reserve Corps, including 50 dental surgeons and 50 scientists other than medical officers, to the regular corps of commissioned officers of the service. This would at once raise the number of regular medical officers to 650, the 450 new officers being already seasoned men with an experience of at least three years in the Service or in the Medical Corps of the Army or Navy. The bill also provides for admission to the regular corps of commissioned officers, of engineers and experts in various branches of science whose services are demanded in public health work. It will also secure the addition to this corps of 50 dental surgeons, the necessity for whose services needs no emphasis in these days. Finally the proposed legislation places the commissioned officers of the Public Health Service upon the same status as regards pay and promotions and provision for retirement as medical officers in the other branches of government service.

The country is to be felicitated upon the enacting of this measure of justice to the Public Health Service—for we take it for granted that Congress will pass the bill without opposition. The health of the country is largely in the keeping of this Service, especially in times of danger through threatened invasion of disease from without or of epidemics arising within our own borders, and the increased efficiency of the Service means greater security from sickness of every man in the United States and of every member of his family. The only objection to a bill of this nature which it could occur to anyone to raise would be on the score of economy, and such an objection will not hold in this case, since the measure calls for no increase in appropriation; none is necessary, indeed, for the present appropriation is ample to put into operation all the changes contemplated. The carrying into effect of the provisions of this bill will save the lives of many of our people, and the desirability of its speedy passage admits of no question.

HUTINEL'S DISEASE.

IN 1893 Hutinel described an affection which he termed cardiotuberculous cirrhosis of children. With the exception of Küssmaul's *mediastinopericarditis callosa*, which is probably the same affection, it does not reappear in literature for many years. Hutinel redescribed it in 1908, and since that period there have been a number of contributions to the subject. As described by the French pediatrist the disease begins as a bronchitis or a

pleurisy and then there supervenes an enlarged liver with ascites, with the added picture of asystolia, edema, and cyanosis. But there may be neither antecedent bronchitis nor pleurisy, the initial manifestation being an adhesive pericarditis. During life the cardiac lesions may give inconspicuous and diverse symptoms. Autopsy in advanced cases shows a large nutmeg liver, pericarditis, pleurisy, mediastinitis and at times tuberculous peritonitis. The entire process is regarded by Hutinel as a tuberculous perivisceritis. There has been much speculation as to the mechanism and sequence of these lesions. According to one view adhesive pericarditis in the child is quite capable of setting in motion the entire sequence, while another view is that the involvement of the heart is entirely secondary.

In the *Revue médicale de la Suisse romande* for October, 1921, xli, 10, Curchod contributes an article on the subject with several personal cases. Under the head of theories and differential diagnosis one certainly would expect some reference to the peculiar affection known as polyserositis, but there is none, and the bibliography contains no allusion to such a malady under any of its numerous synonyms. Nevertheless some of the cases which have been described under polyserositis might well have been cases of Hutinel's disease. The latter is indeed peculiar to children while polyserositis is regarded as an affection of adults; nevertheless the patient with Hutinel's disease may be in his twenties when he comes to consultation. Some cases of polyserositis are tuberculous and the entire syndrome has been looked upon by some internists as a paratuberculosis.

In one respect there seems to be a marked difference. Polyserositis has been essentially a medical disease ending in a cachexia while in Hutinel's disease resection of the thorax has been thought of even by the discoverer himself as a means of relieving the compression of the heart by its fibrous investment. In Curchod's three cases one was regarded as inoperable while two were subjected to operation, one result being "satisfactory." The patient lived two years after operative relief. The other case ended fatally despite operation. The latter is known as precardiac thoracectomy, the technique of which was originally formulated by Brauer. There was apparently no additional attempt at cardiolysis.

In his clinical and autopsy details Curchod on several occasions uses the term polyserositis, apparently as a convenient descriptive term, but there is no point of contact with the polyserositis of internists which has an extensive literature and which was independently isolated as an autonomous disease by a number of clinicians, as Bamberger, Pick, Curschmann, and others. Originally the clinical pictures differed among themselves, but eventually were brought under a single fundamental disease. One cannot escape the conviction that the latter broad conception can readily be made to include Hutinel's disease.

A SOMEWHAT QUESTIONABLE QUESTIONNAIRE.

As is known to those whose great privilege it is to read the *Journal of the American Medical Association*, the editor of that periodical announced a few weeks ago that a questionnaire on alcohol as a therapeutic agent had been sent to some of the physicians of the country; to be exact, it was stated that it had been sent to forty thousand members of the Association and ten thousand non-members — fifty thousand in all, or about one-third of the total number of practitioners in the United States. It seems a pity, if the Association was to be put to the great expense of this straw vote, that the finality of the result could not have been better insured. The question to be settled, assuming it could ever be settled in this loose way, is : "Does alcohol possess any therapeutic value?" The questions asked were: "Do you regard whisky as a necessary therapeutic agent in the practice of medicine; if 'yes,' in what diseases or conditions do you regard whisky as necessary?" And then the same question was repeated twice, substituting the word beer for whisky in one, and wine for whisky in the other. There were several other questions in the list, but they were irrelevant and could serve only to befog the issue.

If an all wise Congress had decided to forbid the use of arsenic in medicine for the reason that people had been killed by the drug, and it was thought desirable to get the opinion of the medical profession regarding its therapeutic value, what would be thought of a questionnaire sent out to a limited number of individuals asking if the recipient regarded Fowler's solution as a necessary therapeutic agent, and in what disease or condition he regarded it as necessary; repeating the question with the substitution of Donovan's solution, and again with that of iodide of arsenic? And what would be thought of the accuracy of the returns as indicative of the true belief of the medical profession, if the questions were sent to about one-third of the practitioners in one country of the world, and answers were received from a little over half of these? And finally, how much weight would be attached to a majority vote on one side or the other, if all practitioners were regarded by the questioner as equal in experience and knowledge, the opinion of a one year graduate being accepted as of equal weight with that of a man of fifteen or twenty years' practice, or that of an acknowledged authority in pharmacology and therapeutics?

This is the MEDICAL RECORD'S own questionnaire, and any one who wishes to answer it may do so. The answers, no doubt, like those to our esteemed contemporary's questionnaire, would be varied, mutually contradictory, and absolutely inconclusive.

INTRACARDIAC INJECTIONS.

THE emergencies of the late war gave an impetus to the practice of intracardiac injection, notably in certain shock cases. This subject had its beginnings in part at Vienna in 1905 in a series of ex-

periments in which laboratory animals "killed" with chloroform were reanimated by intracardiac injections of adrenalin. Control cases of intravenous injection proved unavailing. While in these experiments the heart was laid bare, it was suggested that in human emergencies the injection could be made through the thoracic wall. Several years later Latsko reported reanimation in cases of human cardiac arrest, in which the latter method was used. Recently Vogt was able to report fifteen collected cases of this type, to which could be added several others. All the cases in this series are examples of permanent reanimation, and do not include temporary benefit and failures. Guthmann, who reported five cases in all, had two successes and three failures. In the latter the patient had peritonitis and the rally of the heart was not permanent. His two successes were in internal hemorrhage and chloroform syncope respectively. In addition to cases in surgical and obstetrical practice there are medical indications, notably in cardiac failure due to either heart lesion or general infection. Schultz practised these injections in a child of 7 years with double pneumonia in which cardiac lesions with broken compensation preexisted. In regard to the substance to inject, one cannot depend on the usual cardiac stimulants but must make use either of adrenalin or pituitrin, or both combined. The technique is very simple, the injection being made in the left intercostal space one or two finger-breadths to the left of the sternal border. The dose is 1 cm. of a 1 1000 solution, according to Cheinisse (in *La Presse Médicale* for October 22, 1921, xxix, 85), from whose article most of the preceding data are borrowed.

"Granulie."

This term has long been used in France to express miliary tuberculosis as distinct from pulmonary consumption. In English the corresponding term would be granulia or granulosis. Both affections are due to the activities of Koch's bacillus, yet differ clinically to a noteworthy extent. But "granulie" is apt to break out in the subject with ordinary pulmonary tuberculosis, in which case the disease picture will be greatly modified, especially as the basic affection may have become latent. In *Le Progrès Médical* for October 29, 1921, xlix, 44, Ramond sketches the following picture: A girl of 23, still in apparently good condition, is undergoing the evolution of a pleuro-pulmonary tuberculosis which has only recently caused symptoms. The personal antecedents are good but the family is badly tainted. Under the indicated management the patient throws off the attack, becomes symptom-free and is back in her normal place in society. Of a sudden the author is summoned to find the patient gasping for breath with 60 respirations a minute. These symptoms had but recently set in. She had a high temperature. The entire chest seemed involved in some acute process. Had the author not known the history, he might have been much embarrassed in making a diagnosis; but the latter was only too obvious—a hopeless, miliary tuberculosis expressed clinically as a suffocative catarrh. If one were summoned suddenly to such a patient for the first time it would be necessary to exclude cardiac disease, pulmonary edema from Bright's disease, bronchopneumonia, and perhaps other maladies. It should not be difficult to do this, and we are left with the diagnosis of acute miliary tuberculosis—granulia. If the symptoms are less acute and less pronounced typhoid fever may require exclusion. Caseous pneumonia and "galloping consumption," so called, are quite different from granulia.

News of the Week.

Gorgas Memorial Medical School.—A movement has been started to raise a fund of $2,000,000 to establish a medical school as a memorial to Major General William C. Gorgas. The present plan is to have the entire nation contribute to the fund and to locate the school at Tuscaloosa, Ala., where General Gorgas lived as a boy. Dr. Seale Harris of Birmingham, Ala., is chairman of the national committee.

New State Health Department Secretary.—Mr. Curtis E. Lakeman has been appointed secretary of the New York State Department of Health to succeed Dr. John A. Smith, resigned.

The Polyclinic Hospital of this city which was loaned to the U. S. Government during the war, is soon to be returned to its trustees, according to a recent announcement of Col. C. R. Forbes, Director of the U. S. Veterans' Bureau. Complaint had been made that the Government was keeping the hospital after the necessity for so doing had passed. The ambulance service will be restored on January 1, but the entire hospital will not resume its functions until a short time after its return to the trustees.

Sale of Horsehair Shaving Brushes Prohibited.—Because it has been found that anthrax may be contracted through the use of shaving brushes made from horsehair, the Public Health Council of the State Department of Health has passed a regulation, effective January 1, prohibiting the manufacture, sale, or offering for sale of such brushes in the State of New York.

A Protest Against the Cornell Clinic.—At the November meeting of the Bronx County Medical Society resolutions were unanimously adopted protesting against the establishment of the clinic for pay patients by Cornell University. The establishment of the pay clinics is declared to be inimical to the best interests of the public at large and of the medical profession in particlar because such clinics are in direct competition with the physicians who practise in city. The resolutions condemn the conduct of the physicians who permitted their names and their positions to be used for newspaper publicity in the advance announcements of the clinic, and assert that these very men will not and cannot offer their services to the patient, but will merely act in an advisory capacity far from the clinic rooms. Finally for these reasons, the society "recommends that the respective county societies to which these men belong and under whose jurisdiction Cornell University Medical School exists shall take proper and fitting action to reprimand these men and the University and furthermore shall recommend to its members that they do not accept positions in a

dispensary that works to the economic detriment of their brethren."

Danger from Automobile Exhaust Gases.—At the suggestion of the Surgeon General of the United States Public Health Service, the State Commissioner of Health has issued a warning regarding the danger to health and life from the inhalation of exhaust gases from automobiles. The effect of these gasses is produced very quickly, usually before the victim realizes the danger. The following precautions should be observed in all garages: (1) Always open the garage door before starting the engine. (2) Do not allow the engine to run for any length of time in a closed garage. (3) Do not work near the exhaust of a running automobile engine. (4) Special precautions as to ventilation are necessary when in garage pits. (5) When the exhaust is used for heating a closed car the system must be free from leaks.

Influenza at Coblenz.—Influenza is reported to be epidemic in Coblenz. All the schools have been closed because of the outbreak, but admissions to the hospitals remain about the same as during the earlier period of the epidemic.

"Wireless Telephone Health Bulletin Service."—The United States Public Health Service has inaugurated a bi-weekly "Wireless Telephone Health Bulletin Service" by broadcasting through the Naval Radio Station at Anacostia Va., a message of holiday good cheer to the country. It is planned to send through the same facilities at 9 P.M. every Tuesday and Friday a wireless message comprising advice as to how the average man and woman may insure continued good health. The messages will be of such wave length, it was said, that any radio station, amateur or professional, which has a telephonic attachment, may be able to read them. Under very favorable weather conditions the service expects its "helpful health hints" to be heard on the Pacific Coast, in Europe, and in northern South America.

Eyesight Saving Campaign Begun.—Industrial, engineering, and educational agencies are linking their efforts in the nation-wide movement for the conservation of vision. Big industries have taken up the question with serious concern in an effort to minimize accidents and reduce the number of the nation's industrial blind, now placed at 15,000. Dr. John J. Tigert, United States Commissioner of Education, has been elected a member of the Board of Councilors of the Eyesight Conservation Council of America, which includes Dr. Arthur L. Day, director of the geophysical laboratories of the Carnegie Institution, Washington; Dr. Thomas D. Wood of Teachers College, Columbia University; Dr. Allen J. McLaughlin, United States Public Health Service, Washington; Dr. Frederick R. Green, secretary of the council on health and public instruction of the American Medical Association, Chicago, and Dr. W. S. Rankin, State Health Officer of North Carolina.

A Disease Prevention Hospital in Philadelphia.—The first integral part of a hospital devoted exclusively to the prevention of disease was recently opened at the Children's Hospital, Eighteenth and Fitzwater streets, Philadelphia. The Associated Medical Clinic, which has been operated by the children's bureau, has been transferred to the department for the prevention of disease in charge of Dr. J. Prentice Murphy. This department includes a health clinic, diphtheria clinic, preschool nutrition clinic, mothers' conference, school nutrition class, mothercraft, boys' health club, dental clinic and everything that can be taught a mother to help her in seeing that her children are healthy.

Annual Report of Henry Street Nursing Service.—The Records office of the Henry Street Settlement's Visiting Nursing Service has issued a report which shows that it has established nursing centers in the Bronx and Richmond, and conducts in all twenty-two of these centers. During the past year more than 42,000 patients were taken care of. The 212 visiting nurses made last year more than 336,722 visits, at an average cost of $1.01. The service is now 40 per cent self-supporting. The work has grown to such an extent that the Henry Street building no longer affords accommodations for the activities that it conducts. A part of the report deals with the plans for the new administration building which Mrs. Jacob H. Schiff is to erect at 97 and 99 Park Avenue as a memorial to her husband which will be used primarily for the administration of the Visiting Nursing Service.

Hospital Notes.—The largest of the hospitals which the Shriners of North America plan to build in a number of cities throughout the country has been begun in St. Louis. Ground was broken on Dec. 14 with impressive ceremonies. The hospital will be open to any crippled child regardless of race or religion and treatment will be free.

A special clinic for treatment of goiter and kindred afflictions and an additional structure for medical and surgical patients are to be added to Seton Hospital, Cincinnati.

The Garretson Hospital, Philadelphia, is to have an addition which will increase its bed capacity by sixty-three. In addition the new hospital building will have a department of oral surgery, which will be conducted in conjunction with the Philadelphia Dental College, and a training school for nurses. It is proposed to change the name of the hospital to Greatheart.

Construction on an addition to the Children's Hospital, St. Louis, is to be begun at once. The addition to the building and equipment will cost between $200,000 and $300,000, and will be covered by the hospital reserve fund and a gift of $52,500 from the Rockefeller Foundation. Special provisions are being made for the accommodation of private patients.

Plans for the collection of $150,000 for the construction of a new city hospital in Roanoke, Va., are announced. Of this sum $104,000 has already been subscribed and partly collected. Work will be begun not later than the latter part of March, 1922.

A tuberculosis hospital unit is to be constructed at the Marion, Indiana, Soldiers' Home. It is estimated that the new institution will cost upward of $140,000.

The Bikur Cholim Hospital Association laid the cornerstone for its new $1,500,000 building at 810 Bushwick Avenue, Brooklyn, on Dec. 18. The Federation of Jewish Charities has expressed its dis-

approval of this undertaking, claiming that there is no need for a Greater Bikur Cholim Hospital. It is claimed that the policy of the new institution will be unique among Brooklyn hospitals in that no charity case will ever be turned away without medical attention.

The drive for $250,000 for an addition to the New Rochelle (N. Y.) Hospital has been closed, and announcement made that a total of $275,000 has been contributed.

Gifts and Bequests.—By the will of the late Alice M. Hirst of Philadelphia one-half of the income from a residuary estate of $65,000 is bequeathed to the Hospital of the University of Pennsylvania.

By the will of the late Cora Feltus of Philadelphia the sum of $20,000 is bequeathed to the Pennsylvania Epileptic Hospital and Colony Farm at Oakbourne, Pa.

Professor Bergonie of the Faculty of Medicine in the University of Bordeaux has received the Edward Longstreth Medal in honor of his invention of the "electro-vibreur" for locating metal fragments in the bodies of wounded soldiers.

Dr. Franklin H. Martin of Chicago has received the Distinguished Service Medal by order of Adjutant General Harris. The citation read: "For exceptionally meritorious and distinguished service as Chairman of the Committee on Medicine and Sanitation of the Council of National Defense. He rendered valuable assistance in solving the important medical problems of the war."

Dr. Charles E. Perry of Athol, N. H., has been appointed by the Governor of New Hampshire to the position of superintendent to the State Hospital for Tuberculosis, Glennscliffe.

Dr. Charles A. Ravey has tendered his resignation as city health officer of Burlington, Vt., in order to succeed Dr. H. E. Buttles as serologist to the State Laboratory of Hygiene.

Dr. George Gates, former medical director of the Red Cross, returned to this country on the steamship Lorraine on Dec. 24.

Dr. A. C. Vickery has been appointed superintendent of State Hospital No. 2 at St. Joseph, Mo., to succeed Dr. Porter Williams, who has been appointed superintendent of the hospital at Nevada, Mo.

Dr. Joseph F. Londrihan has been appointed head of the staff of St. Mary's Hospital, Hoboken, N. J.

Dr. Frank B. Broderick of Detroit, Mich., has been elected State Welfare Officer of the Charles A. Larned Post of the American Legion.

Harvey Society Lecture.—Dr. George H. Whipple, Dean of the University of Rochester Medical School, will deliver the fourth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, Jan. 7, 1922. His subject will be "Pigment Metabolism and Regeneration of Hemoglobin in the Body."

Obituary Notes.—Dr. HENRY J. BERGOLD of Brooklyn, N. Y., died of arteriosclerosis at his home on December 20, at the age of seventy-two years. He was graduated from the New York University Medical College in 1871 and was the last surviving member of his class. He was long a visiting surgeon to St. Mark's Hospital.

Dr. JOSE ALEMAN of Havana, Cuba, died in New York City on Dec. 11, at the age of forty-one years. He was graduated from Havana Medical College and studied in medical schools in Europe.

Dr. JAMES M. BENTLEY of Cincinnati, Ohio, died after a prolonged illness in Baltimore, Md., at the age of thirty-four years. He was graduated from the University of Cincinnati College of Medicine in 1911. During the World War he served as regimental surgeon to the 136th Field Artillery. On his return home at the close of the war he became a member of the faculty of the University of Cincinnati and the College of Pharmacy, and was also a member of the staff of the Children's Hospital and the Cincinnati General Hospital.

Dr. LEANDER MORTON FARRINGTON of Manchester, N. H., a graduate of Harvard Medical School in 1894, died on December 10, at the age of fifty years. He was a member of the staff of Notre Dame Hospital and on the Board of Censors of the Manchester Medical Association.

Dr. BENJAMIN H. MARKLEY of Reading, Pa., a practising physician for forty-four years, who continued in active service until a few months ago, died on December 11, at the age of eighty-three years.

Dr. WILLIAM SIMONTON PACK, a graduate of the Medical College of the State of South Carolina, died at his home in Greenville, S. C., at the age of sixty years. He was a member of the American Medical Association and of the South Carolina Medical Association.

Dr. NELSON H. MESICK of Glenco Mills, N. Y., a graduate of Albany Medical College in 1868, died suddenly of heart disease on December 14, at the age of seventy-six years.

Dr. CHARLES L. BEACH of Hartford, Conn., died after a prolonged illness on December 15, at the age of seventy-three years. He was graduated from the New York Homeopathic Medical College in 1872.

Dr. LUCY EMMA WETHERBEE-ROCKWELL, a graduate of the Boston University School of Medicine in 1899, died at her home in Worcester, Mass., on December 19.

Dr. FRANZ A. R. JUNG of Washington, D. C., died of heart disease at his home on December 16, at the age of fifty-two years. He was graduated from the University of Leipsig in 1894. He organized the Red Cross station at Munich, Germany, at the outbreak of the late war.

Dr. JOHN RANKIN of Brooklyn, N. Y., died of acute dilatation of the heart on December 21. He was graduated from the Long Island College Hospital in 1882, was a Fellow of the American Medical Association, and one of the founders of the Bushwick and Caledonian Hospitals.

Dr. WILLIAM HENRY TIPPIE, a graduate of the Starling Medical College, Columbus, Ohio, in 1895, died on December 11, at his home in Tremont City, Ohio, at the age of sixty-one years.

Dr. C. BRADLEY DOANE of Allston, Mass., a graduate of Dartmouth Medical College in 1895, died at the Massachusetts General Hospital in Boston on December 19, at the age of fifty years.

Dr. REUNETTE E. BOONE, of Santa Rosa, Cal., a graduate of the Syracuse (N. Y.) College of Medicine in 1881, died on December 10, at the age of seventy-six years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Dec. 9, 1921.

The Royal National Orthopedic Hospital.—This is the only institution of its kind in London and during the past decade there has been a tremendous increase in the calls upon it. Attendances have grown from 11,000 to 82,000 in twelve years. There is now a waiting list of 1,000 crippled children, and this statement is complemented by the tragic one, that, but for the few urgent cases, a year and a half must elapse before patients can be taken in for treatment. A dinner was held on December 7 last at the Victoria Hotel, presided over by Prince Henry, the second son of the King, to further a special appeal in aid of the funds of the hospital. The speaker said, in part, that the Royal National Orthopedic Hospital was the oldest in the country and the only one of its kind in London. It was founded in 1834, and had carried on its work steadily, often in the face of great difficulties, ever since. When he told them that it had cured or relieved well over half a million crippled children of the poorest class they would begin to realize the magnitude of the work which called for their help. The need for it was now greater than ever. If they thought how many crippled children could be noticed in London, or in any great town and considered what a small proportion of the existing cases caught the eye, they would hardly be surprised when he told them that they had over 1,000 children on the books awaiting admission. The present buildings of the hospital were new and up to date, and were opened by his grandfather, King Edward VII, in 1909. The figures showed that the need for more beds and more out-patient accommodations was very real. They appealed confidently to the generosity of the public, for they all knew that the voluntary system of maintaining hospitals had stood the test of time and must be continued. Fifteen thousand pounds were required to equip and open as a county branch, the magnificent site and hospital at Stanmore, which should provide for the waiting list. In addition they proposed to provide twenty more beds for patients of small means, accommodations for a school of orthopedic surgery and for all modern electrical and other treatments. These were urgent and necessary extensions. The financial position of the hospital was more than acute. The hospital owed £14,000 to its bankers. It had already received £3,000 from the new Hospitals Commission. The cost per bed in the hospital compared most favorably with that of any London hospital. Patients themselves contributed generously. Their great aim was to form a center of a national scheme for carrying on the work of orthopedics and to provide accommodation for the treatment of all the crippled children and adults of London and the Home Counties, and for special cases from all parts of Great Britain. Patients of the hospital came from all over the country, and there was hardly a town in the British Isles that could not show strong healthy citizens who had come as young cripples to that hospital. A school of orthopedic surgery would enable the special knowledge of the hospital to be disseminated all over the country. Their opportunity for usefulness, therefore was almost unparalleled and money only was required to enable them to take it.

Necessity for Systematic Propaganda in the Nutrition of the People.—Dr. E. C. Van Leersum delivered a Chadwick lecture at the Royal Society of Medicine on Nov. 24 last, in which he laid stress on the fact that rational feeding is made difficult by the complexity of modern life and he further pointed out that the war emphasized what was known partially before through scientfic experiments that we can do with much less food than we thought we could; but that the lesson is already forgotten again, and most people eat to their heart's content without bothering about economy or health. He took a tilt against the large consumption of meat and stated that the American workman was not satisfied unless he had meat on his table twice or three times a day, although he might very well do with it once, without harm to his health or working power. Van Leersum praised highly the propagandist measures carried on in the United States in order to instruct the masses as to scientific feeding, He said that nowhere except in Germany were found so many scientific investigators who serve industry as in America. The practical sense of the people was reflected in the work of its scientists upon problems, the solution of which promised direct profit. This explained why such men as Armsby, Francis Benedict, McCollum Graham Lusk, Lafayette Mendel, and Thomas Osborne had worked in the field of dietetics. The speaker went on to say that it would be easy to fill a volume with the enumeration and description of the ways in which, in the United States, propaganda is made for rational feeding and drew attention to the fact that the American is much freer in the choice of his means of propaganda than the European, who is more careful to observe the proprieties from an exaggerated fear of making himself ridiculous. The American is a master of advertisement and is never at a loss to find a catching phrase, a slogan to arouse enthusiasm. The operator had been greatly impressed with the attention paid to diet in the American hospitals, and he pointed out that in Europe the problem of feeding in hospitals had, in spite of its importance, not yet received much attention; the matrons, controllers, administrators, and cooks, to whose care it had been entrusted were not experts; at best, they were amateurs as regards feeding and hospital cooking, while the physician was too much taken up by his professional cares to be always able to supervise the carrying out of his dietetic prescriptions. The speaker asked why an end was not put to this unpractical state of affairs by ensuring the execution of these prescriptions in a way similar to that long since taken with regard to medical prescriptions. The work of the dietitians in the slums of American cities also greatly impressed the Dutch professor, and especially was he struck by a popular lecture given in an empty shop in Amsterdam Avenue. In fact,

Van Leersum's lecture was largely a pæan to the superior dietetic methods in America, a laudation which is no doubt, in a considerable measure deserved. However, it may be said that authorities on diet generally do not pay such scrupulous heed to caloric exactitude as formerly, nor do the vitamines constitute such a fetish as they did a short time ago. Neither caloric value nor the possession of the proper vitamine is all that is required to make a diet nutritious, and in discussing and dealing with matters of this kind the injection of some common sense is always useful and desirable. At the same time the American mode of dealing with the diet question is more scientific and sensible by far than the methods in vogue here. Our methods certainly savor somewhat of the slipshod in this direction.

Third International Congress of the History of Medicine.—The congress will be held in London, under the presidency of Sir Norman Moore, from July 17 to 22, 1922. Meetings will be held at the Royal Society of Medicine, the Royal College of Physicians, the Royal College of Surgeons, also at the Wellcome Historical Museum, where there will be an exhibition of objects connected with the history of medicine, surgery, and the allied sciences, including ancient manuscripts, early printed books, pictures, sculptures, and engravings, ancient surgical instruments, medals, and so on. The main subject suggested for discussion by the International Society of the History of Medicine is the principal seats of epidemic and endemic diseases in the middle ages, including plague, gangrenous ergotism, leprosy, and malaria.

The Endocrine Factor in the Production of Immunity and Susceptibility of the Teeth to Caries.—At the meeting of the Section of Odontology of the Royal Society of Medicine, held in the society's building on Nov. 28, last, Mr. E. W. Broderick read a paper on the above subject; his conclusions were as follows: (1) So long as the enamel remains intact there can be no caries; (2) enamel in health progressively hardens as life proceeds; (3) this hardening is due to a progressive laying down of lime salts, taken from the body store of ionic calcium; (4) this body store is, in health, equivalent to the need of the individual at the time, and is preserved by the endocrine apparatus, which is also the fixer of lime salts in the teeth; (5) if the endocrine apparatus is thrown out of balance in the direction of calcium starvation, this reserve store is diminished and fixation of lime salts in the teeth is interfered with; (6) an upset in endocrine balance in childhood, youth, and pregnancy will be in the direction of calcium starvation; (7) calcium starvation will lead to a diminished calcium index in the saliva, with a lessened alkalinity of that secretion, thus directly promoting caries; (8) endocrine derangement, leading to a loss in balance toward calcium starvation, will tend to produce a condition of acidosis by lessening the alkali reserve of the body; in the compensation of this condition the calcium salts, together with other alkaline salts, will be utilized for acid neutralization, and, therefore, not available for hypercalcifying the teeth; (9) if the acidosis be more severe, built-up and fixed inorganic lime will be torn away from bones and teeth to help build up this alkali reserve, and thus preserves life, lowering the resistance of the teeth to caries; (10) that without this susceptibility to caries, exciting causes, such as food fermentation, do not matter; but if immunity be removed, hardly any reasonable care and attention are sufficient to preserve the teeth entire; (11) that endocrine derangement will account for all the conditions leading to dental caries, whether they be diet, lack of vitamines or altered salivary secretion.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 15, 1921, clxxxv, 24.

1. The Pathological and Physiological Basis of the Surgical Treatment of Chronic Gastric Ulcer. David Cheever.
2. Gastro-jejunal Ulcers. Edward R. Lampson.
3. Hemorrhagic Osteomyelitis. Ernest H. Arnold.

1. The Pathological and Physiological Basis of the Surgical Treatment of Gastric Ulcer.—David Cheever outlines the probable sequence of events in the formation of ulcer thus: As the result of an infarction embolus with thrombosis, an area of mucosa is devitalized beyond the critical degree and surface "corrosion" takes place. In the vast majority of cases this heals quickly and spontaneously, having caused no symptoms at all, or only transient symptoms, or very rarely an acute hemorrhage. In the exceptional case, as a result of the extent of the original devitalization, or of failure of the ulcerated area to obtain rest, or of mechanical irritation by gastric contents, or of constant reinfection from the original focus, or of some obscure disturbance of neurotrophic or endocrine control, or of altered gastric physiology, the ulcer does not heal, penetrates deeper into the visceral wall, and becomes chronic. Instead of the rapid proliferation of mucosal epithelium over a relatively intact submucosa and the regeneration of the secretory glands, the defect is filled with granulation tissue over which the mucosa may spread, perhaps with little impairment of its vascular nutrition. On the other hand, this may not succeed, the granulation tissue becomes converted into fibrous scar tissue, both at the base and sides of the ulcer; this tissue becomes more dense and compact and becomes progressively devascularized by the contraction and thrombosis of its vessels. Thus the vascularity upon which the mucosa depends so strongly for the maintenance of its vitality is destroyed, and healing is imperfect, or cannot be made permanent, or fails altogether. Thus is produced a pathological condition essentially similar to chronic ulcer elsewhere. That the clinical results of medical treatment are excellent does not admit a doubt. But there are cases in which the pathological condition makes healing impossible. Surgery offers a direct attack upon the pathological process, and at the same time tries to correct the physiological dysfunction by a permanent artificial expedient. Most surgeons at present place emphasis on the desirability of excision of gastric ulcers. While many favorably placed duodenal ulcers may be excised, it is justifiable not to insist on their removal since the complete rest with freedom from hydrochloric acid digestion afforded by exclusion makes it unnecessary. The figures of various surgeons are quoted, which make it clear that there is a wide discrepancy in the statistics of the results of surgical treatment of ulcer and as a contribution to this field a preliminary survey of 134 cases of gastric and duodenal ulcer from the clinic of the Peter Bent Brigham Hospital, Boston, is presented. Among these 134 patients there were six post-operative deaths, giving a mortality of 4.4 per cent. Of the total number 82 were duodenal ulcers, 51 gastric ulcers, and one was not stated. Of the 82 duodenal ulcers, 48 have been traced, and of these 60 per cent. are well, 12 or 25 per cent. have slight symptoms, and 7 or 14 per cent. have definite recurrence; no case reports a worse

condition than before operation. Of the 51 gastric ulcers, 75.8 per cent. are well, 17.2 per cent. have slight symptoms, and 6.8 per cent. have definite recurrence. When it is remembered that surgical statistics deal only with proved cases of ulcer and that it is undoubtedly true that the patients who are operated upon present more serious conditions and complications on the average than do those who are treated medically, it is reasonable for surgery to claim an honorable and accepted rôle in the treatment of chronic ulcer.

Journal of the American Medical Association.

December 17, 1921, lxx, 25.

1. New and Old Knowledge of Immunity. Ludvig Hektoen.
2. Osteomyelitis of the Pelvic Bones. Emil S. Geist.
3. The Third Year in Infantile Paralysis. R. W. Lovett.
4. The Local and General Serum Treatment of Cutaneous Anthrax. Joseph C. Regan.
5. Food Infections with an Illustrative Outbreak. M. J. Rosenau and Harry Weiss.
6. The Correction of Congenital Cleft Palate and Hare-lip: Surgical Principles Involved. Frederick B. Moorehead.
7. The Nasal Relation of Harelip Operations. George V. I. Brown.
8. Plastic Surgery of the Lower Lip. Varaztad H. Kazanjian.
9. An Adult Living Case of Total Phocomelia. H. R. O'Brien and H. S. Mustard.
10. Cultivation of Rickettsia-Like Bodies in Typhus Fever. Leo Loewe, Saul Ritter and George Baehr.
11. A New Sign for the Diagnosis of Perdicarditis in Children. Sidney V. Haas.
12. Suggestion for the Avoidance of the Wassermann-Fast State in the Treatment of Chronic Syphilis. Archibald McNeil.

4. The Local and General Treatment of Cutaneous Anthrax.—Joseph C. Regan reviews the subject of the serum treatment of anthrax and reports a series of eight cases treated at the Kingston Avenue Hospital, Brooklyn, by the local and general administration of Eichhorn's serum combined with complete rest in bed, with resulting recovery of all eight patients. The serum should be administered both locally around the lesion and generally into the circulation by the subcutaneous, intramuscular or intravenous routes. In mild cases, with little or no constitutional symptoms and a small well circumscribed lesion with little edema, the serum need not be given more often than every twelve to twenty-four hours, and commonly not more than four injections are required of 40 to 50 c.c. each (Eichhorn advises 50 c.c.). The first may be given intravenously, the subsequent intramuscularly and subcutaneously. In severe cases with large voluminous lesions and extensive edema, with or without marked constitutional symptoms, the serum should be administered by the intravenous route in doses of from 80 to 130 c.c. (Eichhorn recommends from 100 to 200 c.c.) every six to eight hours. In septic cases the injections should be made every three to six hours in doses from 100 to 200 c.c. (Eichhorn recommends from 200 to 300 c.c.), and this type of treatment continued until septicemia subsides. Arsphenamine may yet prove a useful adjunct in the treatment of these desperately ill patients. The local injection of serum around the lesion every twelve to twenty-four hours is a most desirable method to replace the local measures until lately in common use. It possesses none of the disadvantages or dangers of the previous methods. In these cases the acute inflammation disappeared from the second to the sixth day of treatment, the eschar separated from the twelfth to the twenty-first day, and the wound healed from the twentieth to the thirty-second day. No sequels were noted in any instance and the scar left was so minute as to pass unnoticed. The acute stage was over within a week.

5. Food Infections, with an Illustrative Outbreak.—M. J. Rosenau and Harry Weiss describe an outbreak of food poisoning caused by *B. enteritidis*, and state that very few such outbreaks have been reported in this country. They occur more frequently on the continent of Europe and occasionally in England. This outbreak occurred in Washington, D. C., among a number of students of the Georgetown Medical School, following a meal partaken of by twenty-five students, eighteen of whom were made ill. They suffered from an acute infectious fever, having a short period of incubation, sudden onset and temperature of from 102° to 103° F., with gastrointestinal symptoms. A study of the situation made it quite clear that the food responsible was bread pudding. Just how it became contaminated has not been worked out. Samples of the pudding showed the presence of *B. enteritidis* and specimens of blood obtained from three of the students about ten days after the onset of symptoms showed specific reactions for a type strain of this organism, but no agglutination was obtained for organisms of the typhoid group or *B. coli*. The fact is emphasized that in the vast majority of outbreaks of food infection the food affected is not noticeably altered in either appearance, taste, or smell. The prevalent idea that poisonous foods must be "tainted" still persists, although long exploded. Bacilli belonging to the Gaertner bacillus group cannot be detected in food or water, any more than the typhoid bacillus or cholera vibrio can be detected with the unaided senses. It is not decomposed food but infected food that is likely to cause trouble. The term food poisoning is not well chosen so far as infections with the Gaertner bacillus are concerned. The bacillus produces an acute febrile infection, specific in nature. The disease in all essential particulars belongs to the group of intestinal infections, including typhoid fever, dysentery, and cholera.

10. Cultivation of Rickettsia-Like Bodies in Typhus Fever.—Leo Loewe, Saul Ritter and George Baehr refer to previous publications in which they reported the isolation of an anerobic gram-positive bacillus from the blood in typhus fever, together with considerable serological and experimental evidence, which tended to support the view that this organism played an important causative rôle in the disease. In the present article they describe the methods by which they have succeeded in recovering from the blood of typhus fever patients minute bodies which are morphologically and tinctorially similar to *Rickettsia prowazeki*. Subsequently these bodies were also cultivated from the blood, brain, and kidneys of guinea-pigs, reacting to the inoculation of blood from typhus fever patients suffering with the endemic or epidemic form of the disease. Similar studies were carried out with a strain of virus originally obtained in Poland and kept alive by numerous successive passages through animals. The same Rickettsia-like bodies were isolated from the blood, brain, and kidneys of guinea-pigs, suffering from the experimental disease induced by this Polish virus. The organisms have also repeatedly been recovered from the blood, brain, and kidneys of guinea-pigs in which the disease had been produced by a previous intraperitoneal inoculation of culture material. The bodies cultivated by these methods differ morphologically from the bacillus of Plotz in that they are even more minute, of slightly hazy outline, and do not assume polymorphous involution forms. With Giemsa stain the bodies always take a ruby red color, they are not stained by Gram's method, and are stainable with ordinary anilin dyes only with considerable difficulty. There are also differences in the cultural characteristics. It has thus far been impossible to grow bodies on a solid medium, such as Veillon's ascitic fluid glucose sugar, a medium on which the bacillus of Plotz grows readily. Attempts at conversion of one form into the other by cultural means have been unsuccessful. Furthermore, in a glucose ascitic fluid medium no acid is formed, although the Plotz organism under similar conditions rapidly produces an intense acidification. Lastly, in contrast to the numerical infrequency with which the Plotz bacillus was encountered in Veillon blood cultures, it is significant that, with the technique described, the bodies could be consistently recovered from a few drops of the blood. Concerning the question as to the identity of the bodies with *Rickettsia prowazeki*, no definite decision is yet permissible. Whether the bodies are of bacterial or of protozoan nature the writers have not been able to decide.

11. A New Sign for the Diagnosis of Pericarditis with Effusion in Children.—Sidney V. Haas describes this sign which he first observed more than ten years ago, and since has repeatedly proven to be reliable. It consists of two lines of dullness to be found in the cardiac area; an outer line to the right and left of the cardiac area, obtained by the lightest possible direct percussion, as usually practised. The cardiac dullness

is outlined in the usual manner and the line marked on the chest wall with a pencil. The bell of the stethoscope is then placed against the chest wall at approximately the center of this area, and in the presence of cardiac effusion light tapping from the periphery toward the stethoscope will reveal a second line within the first line, roughly paralleling it. Repetition of this examination shows a change in the outer line from day to day in the direction either of extension or of contraction, whereas the inner line remains more or less constant. Since the use of this sign pericarditis with effusion has become a very frequent condition in the pediatric service of the Lebanon Hospital, and dependence is placed upon it by members of the staff familiar with it.

The Lancet.

November 26, 1921, cci, 5126.

1. Hunterian Lecture on the Pathology and Treatment of Lupus. W. Sampson Handley.
2. The Relation of Crime and Delinquency to Heredity, Environment and Disease. W. A. Potts.
3. An Address on Knowledge and Understanding. W. D. Halliburton.
4. The Jaw-Neck Syndrome: Its Significance in the Rheumatic Group of Diseases. Arthur Stanley Herbert.
5. A Method of Diminishing Mortality in Empyema in Infancy and Childhood. F. John Poynton and F. N. Reynolds.
6. Sporadic Outbreaks of Plague in the Union of South Africa. L. G. Haydon.
7. A Case of Decerebrate Rigidity in an Infant. A. P. Thomson and A. Piney.
8. Notes on the Formalin Blood Test for Syphilis. C. Suffern.

1. Pathology and Treatment of Lupus.—W. Sampson Handley demonstrates that tuberculous lupus is not a skin disease. It is essentially and primarily a disease of the lymphatics, a destructive lymphangitis of the parietal lymphatic system. This conception is not a sterile one. It has importance both immediate and prospective with regard to the treatment of this obstinate disease. It has long been admitted that a lupoid focus, wherever situated, may sooner or later infect the lymphatic system, but the phenomenon has always been regarded as secondary, and no conclusion has been drawn from it as to the essential nature of the morbid process at the primary focus of inoculation. From Handley's point of view the essential event for the establishment of lupus is the inoculation of the bacillus into a cutaneous lymphatic vessel. The primary lesion is from the beginning a tuberculous lymphangitis, at first of the dermal lymphatics, but soon of anatomical necessity, the process spreads to the subcutaneous lymphatics and to those of the deep fascial plexus. Upon this hypothesis many hitherto unexplained phenomena of the disease become easy to uunderstand and new methods of treatment suggest themselves. It becomes necessary to recognize the existence around the apparent area of lupus of a zone of apparently normal, but really infected skin. Even in the chronic forms of lupus this zone appears to be present. If the surgeon wishes to avoid recurrence he must circumscribe this area. The following operative procedure meets the conditions described. The visibly infected skin must be circumscribed by a ring incision. In order to allow for the area of early microscopic infection, this incision must not come within a quarter of an inch of the visible edge of the disease. The skin edges must now be reflected back for a further quarter of an inch. The exposed area of deeper subcutaneous fat is then surrounded by a ring incision which marks out the area of deep fascia requiring removal. This area is raised from its edges toward its center, until the diseased deep fascia is removed. The surface of the muscles is exposed in the floor of the wound, which is sutured or skin-grafted. Such an operation is impracticable for extensive lupus of the face. Finsen light has a curative effect on the cutaneous manifestations of lupus, but does not reach the deeper tissues. It seems probable that the future will see an extension of radium therapy in lupus as the method of choice. In view of the fact that radium excites an aseptic lymphangitis and in this way obliterates normal lymphatic vessels, an encircling policy, working from the sound tissues toward the diseased areas, is suggested. To be effective treatment must be guided by microscopic conceptions, not by clinical appearances, and must be mainly directed to the invisible growing edge, to the neglect at first of the visible lesion. A rationally planned course of radium treatment on these lines should be effective.

4. The Jaw-Neck Syndrome: Its Significance in the Rheumatic Group of Diseases.—W. A. Potts asserts that while it is well known that involvement of the temporo-maxillary joint is common in certain forms of arthritis and uncommon in others, the paramount importance of this point as a differentiating symptom in the diagnosis, and consequently in the treatment of so-called rheumatic diseases is not sufficiently widely recognized. The whole heterogeneous medley of diseases, generally and vaguely classed under the heading of "rheumatic" or gouty, can be divided sharply into two groups, those in which the temporo-maxillary joint is involved and those in which it is not. When we find this joint affected we can at once conclude that we are dealing with a condition due to some bacterial toxin, and can say definitely, confidently and finally that it is *not* one of gout, however closely that disease may be simulated. If we could with any certainty define our conception of rheumatism and limit the application of the term to cover only rheumatic fever and those subacute and chronic cases which are its sequelæ or appear to be caused solely by climatic conditions, this axiom could be extended to include both gout and rheumatism. Applying the syndrome test with a view to treatment, patients can at once be classed under group A or B, a classification which helps one to find the cause. In class A the diagnosis lies between gout and true rheumatism, and is, therefore, as a rule, comparatively easy, and the treatment is more or less specific. In class B the diagnosis will lie, in nine cases out of ten, between gonorrheal, rheumatoid, and toxic arthritis; if it is the latter we may perhaps be able to remove the cause if it is a focus of infection.

5. A Method of Diminishing Mortality in Empyema in Infancy and Childhood.—F. John Poynton and F. N. Reynolds analyze a series of 71 cases of empyema in infancy from which it becomes apparent that failure to detect an empyema is a factor in an adverse prognosis. They dwell on cough, dyspnea, vomiting and wasting as a combination of symptoms suggestive of empyema. A certain proportion of these cases demonstrate that a small empyema is only one incident in a profound toxemia, and is of no practical importance in the face of a virulent infection, damaging not only the lungs and pleura, but also the meninges and pericardium. It is the cases that sink and die after operation that require special consideration and have suggested to the writers a method of treatment other than resection and drainage, namely, a method of continued aspiration. They have devised an apparatus and technique with the special object of completely emptying the pleural cavity, and maintaining continuous drainage by aspiration without at any time exposing the cavity to the outside air and secondary infection. The apparatus is a straight, round silver cannula ⅝ of an inch in length provided with a shield through which tapes are threaded, which keep it in position on the chest wall. They lay claim to no originality for the principle, but point to very definite advantages of the method and emphasize certain details in the technique. They find that with this method the period of illness is shortened. In cases treated by rib resection the average time before the wound is healed is six weeks; with this method the average time has been fifteen days. There is no secondary infection of the pleural cavity. There is no leakage or soiling of the wound. Osteomyelitis of the rib, so common after resection, does not occur. No anesthetic is required, and the whole procedure can be carried out in a few minutes. The continuous suction assists expansion of the lung. In the series of 71 cases the mortality was 55 per cent., approximately that given by Spence.

7. A Case of Decerebrate Rigidity.—A. P. Thomson and A. Piney describe this case occurring in a girl 4 months old, with a history of three days' illness, during which she vomited all her food and had twitchings of the right side of her face and legs. The clinical aspect of the case after a few days was one of complete decerebrate rigidity of the type expected after ablation

of the cerebral cortex. There was very little change in the child's condition during the two months of her illness. The clinical features of the case bore a close resemblance to the condition of decerebrate rigidity described by Kinnier Wilson. There was nothing to lead one to believe that the child suffered from any brain disease at birth. The autopsy revealed diffuse softening of the cerebral cortex and calcification of the cerebral vessels. The anatomical changes present appeared to be the effect of an inflammatory lesion of about two months standing. The writer has been unable to find an identical case in the literature of the last twenty years, and cases with even a slight similarity are rare.

British Medical Journal.

November 26, 1921. No. 3178.

1. Discussion on Blood Diseases in Children.—J. Hughes Thursfield gives a general survey of the clinical position as regards blood diseases in children at the present time, first classifying the anemias as (1) congenital; (2) secondary, that is, those in which a removable cause is operating to produce the anemia; and (3) primary, those in which an unknown, and at present usually unascertainable cause is operating. He considers von Jaksch's pseudoleucemic anemia of infants as a primary anemia, and suggests that there are only three types of severe blood disease which occur in children before the age of puberty, namely, leucemia, purpura, and a grave anemia to which a number of names have been attached, but which is most familiar, perhaps, by the title of "aplastic anemia." Personally he prefers to call the disease "the grave anemia of children," because the term aplastic seems to him to be strictly applicable to any severe grave anemia, even to some of the secondary anemias in which recovery is the rule, whereas in this disease recovery is very uncommon. In discussing the first type, leucemia, he believes there will be general agreement to the proposition that the leucemic elements of the blood belong to and are derived from the bone marrow. If this is agreed we can arrive at the position that whatever the type of cell met with in the particular case, leucemia is always a disease of the bone marrow. He is prepared to go further and to say that the character of the leucocytes depends chiefly, though certainly not entirely, on the acuteness of the affection. If one accepts this conception it does away with the mixed leucemias. The name "aleucemic leucemia should be reserved for those cases in which the leucocytes, though diminished in number, are mainly the lymphocytic or myeloblastic type, and these should be sharply differentiated from those cases in which with the same paucity of leucocytes the normal polymorphonuclear and lymphocytic cells are the majority of those present. These belong, in the writer's opinion, not to the leucemic group, but to the class of purpura and even more to that of anemia gravis. After death the bone marrow of these "aleucemic" cases is darker red than normal, and both to the naked eye and to the microscope presents a striking difference from that of the anemia gravis type. This latter takes the place of pernicious anemia in adults. There seems to be no mark which separates this type of anemia from cases of severe secondary anemia which recover. It is not a specific entity any more than the pernicious anemia of adults. It is probably dependent upon infection, and if one could only succeed in discovering the focus of infection he might succeed in saving the patient. From time to time there occur fatal profound anemias of the purpura group; almost certainly they also are of infective origin. In the treatment of these blood conditions our main efforts should be directed not so much to a study of the individual type of cell as to the early discovery of the focus of infection. This is also true in treating the leucemias, though the evidence here is not so strong. In the leucemias at present the prognosis is pessimistic and treatment empirical. In other types of severe anemia, if there is failure to detect the focus of infection, the disease progresses to death.

2. Principles of the Treatment of Tuberculous Disease of the Bones and Joints in Children.—Henry Gauvain asserts that to-day it is generally recognized that tuberculous bone or joint disease is but a local manifestation of a more general infection. Radical surgical measures are therefore rarely called for in the treatment of tuberculous bone and joint disease in children. As the indication for their employment has diminished, so the results, both as regards ultimate mortality and from orthopedic consideration, have improved. The lowered mortality is striking and worthy of record. In over 2,000 cases treated to conclusion at Alton the mortality during treatment was under 2.5 per cent. No less striking is the improvement in orthopedic results as shown by a comparison of London cripple school children observed some years ago and noted recently. In the general treatment of bone and joint tuberculosis it is important to remember the value of climatic change. A mass of valuable information is being collected on the selection of cases for marine and inland treatment. Certain cases make better progress inland; others at the seaside. A marine institution for the treatment of surgical tuberculosis should be located where the climate is bracing and mild, the air clear and free from mist and other contamination. The soil should be dry and sandy. There should be an abundance of sunshine of high actinic value. The shore should be flat and there should be considerable tidal excursion. In considering the local treatment emphasis is placed on absolute rest in the recumbent position, with immobility of the part attacked, combined with the adoption of special means to correct or prevent deformity, during the early stages of treatment. As adjuvant measures, heliotherapy, x-rays, and other electrical methods of treatment, balneotherapy, vaccine treatment, and chemiotherapy, judiciously employed, all have a place. The benefits of heliotherapy are clinically demonstrable. In English institutions the contrast between the appearance of patients during the winter months, when insolation is not possible, and during the summer, when it is available, is striking.

7. Congenital Hypertrophic Pyloric Stenosis.—H. Tyrrell Gray and F. N. Reynolds present an analysis of 50 cases of congenital hypertrophic stenosis operated upon by the Rammstedt method from which the following are reached: (1) Accumulating evidence supports Pirie's hypothesis, that hyperadrenalism causes pyloric hypertrophy, which is to be regarded as one of its manifestations. (2) Pancreatic and biliary insufficiency, also resulting from hyperadrenalism, accentuate the pyloric closure and influence the mortality. (3) The sex preponderance (two males to one female) is of similar importance. (4) Gas and oxygen anesthesia will nearly eliminate operative fatalities, both immediate and delayed. (5) Operation should never be undertaken as an emergency. (6) Systematic preparation for operation by lavage and infusion is essential. Even moribund cases can be so rendered operable, and make a good recovery. (7) Such a preparation should never exceed four days at the outside. (8) Now that the operative mortality has been so greatly reduced by the employment of gas and oxygen (37 per cent.), operation is indicated as soon after the diagnosis as the necessary preparatory treatment will permit. (9) The possible risk of performing an avoidable operation is negligible when compared with the prejudicial results of the ineffectual prolonged medical treatment.

Familial Lepra Nervosa.—Gougerot and Ruppe relate this incidence of leprosy as evidence of dualism of lepra bacilli which seemingly may, like the treponema pallidum, present a dermotropic and neurotropic form. In the neurotic type skin lesions of a certain type are always present, although doubtless only secondary to the injury to the nerve trunks. In the family in question the skin lesions were largely achromic.—*Bulletin de la Société française de dermatologie.*

Book Reviews.

TYPES OF MENTAL DEFECTIVES. By MARTIN W. BARR, M.D., Chief Physician, Pennsylvania Training School for Feeble-Minded Children, Elwyn, Pa.; and E. F. MALONEY, A. B., Professor of English, Girard College. With 31 plates, containing 188 illustrations. Price, $3.00. Philadelphia: P. Blakiston's Son & Co.

THIS book is evidently intended for those who are engaged in work among the feeble-minded. The authors classify the different forms of feeble-mindedness, define the terms used, give the prominent symptoms, and also indicate which cases are amenable to treatment by training and which are not amenable. For educational purposes this classification is all that can be desired, particularly as the authors have wisely included only those types which are most commonly met with and which can be readily recognized. The volume should prove of service to physicians, nurses, teachers and all who are interested in education.

RADIOGRAPHIC TECHNIQUE By T. THORNE BAKER, A.M.I.E.E. Price, $4.00. New York: William Wood and Company, 1921.

IT is singular that photography forms one-third of radiographic activity, despite which roentgenologists are generally uninformed on the most elementary photographic principles. In this book the author convinces one beyond doubt how important photographic essentials tend to maximum efficiency in radiographic technique. As an example, an experiment is discussed as follows: Using a radiometer of his own construction, the author plotted a curve showing the density obtained in a negative exposed through one to twelve thicknesses of 1/16 inch aluminum. The author observed that as the thickness of the aluminum increased, which is equivalent to saying that as harder and harder rays cause the photographic effect, there is a distinct fall in density to a certain point (5/16 inch of aluminum); for the next five extra thicknesses the decrease in density is quite slight; then, after 9/16 inch of aluminum, the density falls again with each successive thickness. The results of the experiment would indicate that within a certain range of *x*-ray hardness, a hardness equivalent to some 5/16 inch to 9/16 inch of aluminum, the *x*-ray negative gives a minimum of contrast; therefore, radiographs made within this range of penetration cannot be expected to give good differentiation.

In a manner that is equally forceful the author discusses intensifier screens; where he shows that overexposure is a cogent factor in producing "grain," and that the success in the use of an intensifier screen is greatly dependent upon the intimate contact that must obtain between the screen and the plate. Those of us who are using the Potter-Bucky diaphragm have learned by experience Baker's excellent teaching in this regard.

A chapter is reserved for discussions of dark room equipment, illumination, and the storage and use of dark room chemicals. In this, as in the other chapters of this valuable book, the author displays an intimate knowledge with dark room conditions and gives such advice as is useful in converting the odium of dark room work into important and pleasurable enjoyment. A chapter is devoted to the intensification and reduction of improperly exposed negatives, and another chapter to the production of photographic prints.

In a brief way some industrial applications of the *x*-rays are mentioned, as is also the recent subject of *x*-ray analysis. There is an appendix that gives valuable formulæ, recommendations for the protection of *x*-ray operators, cautions referring to the danger of shock from the high tension current of *x*-ray installations, and a discussion of the Coolidge tube.

There is no other book that contains in such a small compass so much useful information on radiophotographic technique. Says the author: "This book has been written with the object of placing before the reader, be he operator or expert, the various details of photographic technique of which a knowledge is so necessary in radiographic practice." This modest wish of the author is more than realized, for both operator and expert, in a single reading, will gain details of photographic technique of which they had little or no knowledge. This volume should win a unique prominence in every *x*-ray library.

CHIRURGIE RÉPARATRICE ET ORTHOPÉDIQUE Publié sous la Direction de MM. E. JEANBRAU, P. NOVÉ-JOSSERAND, L. OMBRÉDANNE et P. DESFOSSES, Secrétaire de la Rédaction. 2 Volumes in-8°, 1340 Pages with 1,040 Illustrations. Volume I. Contributors: MM. Baumgartner, Binet, Calvé, Claude, Cunéo, Dambrin, Ducroquet, Fredet, Froelich, Gross, Guyot, Imbert, Jeanbrau, Lambret, Lecène, Ledoux-Lebard, LeFort, Lemaitre, Leriche, Marion, Nageotte, Nové-Josserand, Ombrédanne, Patel, Policard, Pont, Réal, Roux-Berger, Sargnon, Sencert, Sicard, Silhol, Tavernier, Trèves, Valois, Villaret. Volume II. Contributors: Mme. Athanassio-Benisty, MM. Binet, Bréchot, Cestan, Chevrier, Cotte, Dambrin, Desfosses, Ducroquet, Dujarier, Duvergey, Fredet, Hendrix, Jeanbrau, Guyot, Laroyenne, LeFort, Leriche, Lhermitte, Mouchet, Nové-Josserand, Rottenstein, Tavernier, Trèves. Price, 80 francs net. Paris: Masson et Cie., 1920.

IN the course of the publishers' note which accompanied these volumes there occurred the following statement: "This book should be read, reread, meditated over, by all surgeons"; and now that we have had an opportunity to become thoroughly familiar with the work, we quite agree with them. This is not a work on war surgery of merely retrospective interest, but was designed particularly to show how the surgical lessons learned at great cost of human life and suffering during the late war may be applied to the problems which arise in civil practice following severe injuries from whatever source. Its purpose is to prevent our making some of the same mistakes in the future which were made before and during the early stages of the war and to point out the methods found most useful in dealing with the immediate and, more especially, the remote results of severe traumatisms of whatever source; for whether the injury is caused by a shell fragment or is received in a factory, a mine, or in an automobile or other street accident, the principles of treatment are essentially the same. As has been seen by the transcription of the title pages, a large number of specialists, many of whom are among the best known surgeons of France, have contributed to these volumes; and this fact in itself affords a guaranty of value.

In Vol. I there is first an introductory discussion of the treatment of wounds in general, fractures and wounds of the articulations, and the localization and extraction of foreign bodies, all this covering about sixty-five pages. Then follow ten chapters, about 325 pages, devoted to exhaustive discussion of the following subjects: Extraction of projectiles; evolution and repair of wounds of the skin, with discussion of the treatment of cicotrices, plastic repair and the building up of a supporting substructure by cartilaginous, osteoperiosteal, or fat grafts; evolution and repair of wounds of muscles, tendons, aponeuroses, blood vessels and nerves; evolution and repair of injuries of bone, including osseous regeneration in general and various complications such as vicious union, excessive callus, adhesions, osteomyelitis; nonunion, or pseudarthroses; evolution and repair of wounds of the articulations; pathology of stumps; general information regarding orthopedic and prosthetic apparatus; and finally certain complications following injuries, including nervous troubles, latent microbism and late infections, traumatisms in connection with tuberculosis, cancer and other affections, chronic edema and elephantiasis.

The remainder of this volume and the entire second volume, about 900 pages altogether, are devoted to the discussion of the injuries of each special region and their treatment under all sorts of conditions by operative or nonoperative methods. Practically all methods developed or found useful during the war are described and their proper application indicated; and it seems as if every conceivable complication and sequel has been mentioned and proper treatment suggested. The section on the abdomen is too brief, but that is perhaps to be expected, as this work is primarily for the orthopedic surgeon; otherwise it seems pedantic to call attention to minor faults when the work as a whole is of such merit; and we thoroughly agree with the publishers that this work should be read and thoroughly digested by all surgeons who have anything to do with traumatic surgery, civil as well as military. For the benefit of those who do not read French it is to be hoped that an English edition will not be long delayed.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

One Hundred and Sixteenth Annual Meeting, Held November 28, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Report of Reference Committee.—Dr. DANIEL S. DOUGHERTY read this report, which stated that at the meeting of October 24, 1921, Dr. John P. Davin offered as a substitute for the recommendation of the Comitia Minora a resolution to the effect that the Medical Society of the County of New York petition Congress not to incorporate in pending legislation any restrictions upon the form of standard alcoholic beverages which might be prescribed by duly licensed physicians. The recommendations of the Comitia was adopted and the substitute resolution referred to the Comitia as a reference committee. The Comitia Minora, sitting as a reference committee, had considered this resolution and recommended that the Society take no action thereon.

This recommendation was adopted.

Annual Reports.—Report of the Board of Censors.—Dr. G. G. FISH submitted this report, in which it was stated that one special and eight regular meetings of the board of censors had been held during the year, each attended by more than a majority of the board. Many complaints had been received of unethical conduct on the part of physicians. These had been disposed of. The board of censors had about completed a plan whereby they would render to the Society a monthly report.

Report of Committee on Membership.—Dr. FREDERICK N. DILLINGHAM submitted this report, which showed that monthly meetings of the committee had been held, each of which was attended by at least four out of five of the members. During the year the committee had considered 199 applications for membership and at the present time twenty-three applications were still under investigation. Of this number 177 had thus far been recommended for membership.

Report of Committee on Legislation.—Dr. WILLIAM P. HEALY submitted this report. He stated that the committee had held nine meetings, each attended by a majority of the members. Many bills introduced into the Legislature had been considered. The Health Center bill was again introduced and also the bill to license chiropractors. The chairman and members of the committee attended the hearings on these bills. While the bills failed to pass at the last session of the Legislature, no doubt they would be presented again this year, so that unrelaxed vigilance was required. As to the drug laws, as they all knew the Whitney law had been repealed, so that now physicians were subject only to the Harrison law. A serious effort would probably be made by the magistrates to have a measure enacted along the lines of the Whitney law.

Report of the Committee on Civic Policy.—Dr. SAMUEL J. KOPETZKY submitted this report, in which he stated that a year ago the Medical Society of the County of New York appointed a committee on civic policy. Its duties were outlined in the amended constitution of the Society. These duties consisted in receiving information from the committee on legislation and from other sources on the bills affecting the medical profession and the public health pending before the Federal, State, and municipal legislative bodies. It should conduct investigations, gather facts, make studies or surveys on the subject matter of the pending measures or upon legislation which might be introduced subsequently, or upon any other subject which affected the medical profession in its relation to the public health, or in the matter of medical economics, so as to be in a position to render service to the Comitia Minora or to the Society upon such matters. Likewise, it might study and when called upon report on all questions relating to medical practice. Conclusions arrived at by the committee on any given topic should be communicated through its chairman in the form of a report to the Comitia Minora at its monthly meetings, and, after approval by the majority of the Comitia Minora or by the Society, such data and conclusions as constituted the reports of this committee should be made available to the committee on legislation, to be used as the latter might desire in the accomplishment of the expressed wishes of the Society upon the given topic. A committee of this kind had become necessary in virtue of the fact that so many new circumstances surrounded the practice of medicine and so many changes entered into the relationship between the doctor and his patients. Dr. Kopetzky then reviewed in brief outline some of the topics considered by the committee, speaking first of commercial laboratories. He stated that it was quite obvious that as a class commercial laboratories were unreliable and untrustworthy, nor were they, as a rule, even run by medical men. The same was true of many so called x-ray laboratories. These laboratories could not and would not exist if they did not receive financial support from physicians. When the profession would heed advice and cease to send patients to these places they would cease to exist. Eliminating them in other ways was not an easy task, as they had in most instances protected themselves by the aid of legal talent. The committee had taken up the study of narcotic drug law enforcement, and after due consideration of the subject had recommended the repeal of the drug laws for reasons often discussed before the Society. Certain interests had tried to have a city ordinance passed containing the unsatisfactory terms of the Whitney bill. The regulations that were finally adopted permitted the police to handle the matter and to have all the power they needed to do this. The physician was now permitted to go unhampered by the reduplication of blanks and other forms and thus far, from his standpoint, a strategic position had been gained. The committee thought a word of commendation was due Dr. Carleton Simon, who, with his police force, had really performed notable work to which the committee heartily subscribed and wished to express the hope that the work would be continued. Another matter which had engaged the attention of the committee was the care of deaf school children. Heretofore nothing had been done for the deaf child; his affliction separated him from his fellows and he was given no opportunity to acquire an education or a means of livelihood, and finally reached a condition of dependency upon his family or the public. This committee, in cooperation with representatives of the American Otological Society and the assistance of Dr. Thomas J. Harris, Dr. Wendell C. Phillips, Dr. L. E. Meierhof, and others, and in cooperation with the Department of Health and the Department of Education, had provided a plan whereby these deaf children would be taught lip reading where they were. A survey of the blind children in the city was made and the work was progressing as rapidly as could be expected. A further report on this subject would be presented later. It was gratifying to know that in this work the committee had the cooperation of the Department of Health, the Department of Education, and the League of the Hard of Hearing. The committee had also been interested in the matter of instituting examination of immigrants for venereal disease at Ellis Island. It was well known that venereal disease had increased to a considerable extent among the peasants of Europe and their entrance into this country was a potential menace. The Surgeon General of the Public Health Service now had this matter under advisement and it was hoped that he would aid in controlling venereal disease among immigrants and thus prevent its spread from this source. Still another subject which the committee had had under consideration was the Workmen's Compensation law. Dr. Miller had appointed a new commission to investigate the entire subject of workmen's compensation. A committee on Medical Questions had been appointed and hearings had been held throughout the State. Dr. Delphey was on that committee. A fact that stood out was that insurance carriers realized that their attitude had been mistaken and that the workmen's compensation law could not be enforced without the cooperation of physicians. It was now recommended that physicians caring for compensation cases keep very careful records of those cases. In this connection the point chiefly to be emphasized was that the profession

were still directing their efforts to secure free choice of physician to the patient under the compensation law and adequate pay for those coming under the workings of the law. The committee also directed attention to the code of ethics promulgated by the American Medical Association, particularly to the employment by physicians of methods designed to attract the attention of the public for the purpose of getting patients. In this respect the foreign press had been a great offender. There were in this country thirty-two races, constituting a population of eight million, who were reached by 2,000 newspapers and periodicals. Through these quacks made an appeal to the foreign element. The method was to suggest that a person was suffering from disease and then when the patient was convinced that he had the disease they cured him and obtained his testimonial. In 1915 the Medical Society of the State of New York and the Medical Society of the County of New York, cooperating with the Department of Labor, had conducted a campaign against these illegal practitioners, which was quite successful. It should be our endeavor to convince the immigrant and his descendant that the advertising quack should not be given support. The matter should be brought to the attention of labor organizations, so that this class of the population would not become a fruitful soil for exploitation in this direction. The committee also called attention to the evils of the "mushroom hospital." By this was meant the kind of an institution that was established when a group of men of no particular talent got together and persuaded some prominent physician or surgeon to permit his name to be used as heading their staff and then obtained a charter under which they practised very mediocre medicine and surgery. This could not happen if eminent men did not allow their names to be used as consultants, and if a really honest attitude were adopted the State Board of Charities would not license these institutions. Cornell Medical College had recently established a pay clinic which was the subject at the present time of considerable controversy. This clinic had not been established long enough to warrant any conclusion. The committee would only ask the leaders of the profession and of the Cornell Clinic whether they had taken due account of the effect such a clinic would have on the medical profession and whether it was not a move toward State medicine. This step would tend to the formation of other groups, for the Cornell pay clinic was only the forerunner of others to come. Their opinion was open to revision, but they felt that today the patient was getting the same clinic treatment that he received before only that he was paying more money than he paid before. The committee disapproved very strongly of the publicity this clinic received in the lay press. Several pictures clipped from the lay press showing scenes at the clinic were shown, and it was declared that it was no answer to these to disclaim responsibility or to disavow them after they had appeared. This put the early activities of the Cornell Clinic on a level with those of the Life Extension Institute, of which this committee had repeatedly expressed its disapproval. It had been well said that the most worthy advertisement that any physician could have was a well merited reputation for ability and fidelity. It was a little difficult to condemn the quack when one found this kind of publicity within the ranks of the profession. The report then went on to deal with the subject of reregistration. It was stated that Dr. Augustus S. Downing had said that if the medical profession would submit to reregistration it would eliminate the quacks. He said that a large majority of the people who employed doctors of electrotherapy and chiropractic thought they were employing licensed doctors and that re-registration would be an effective way of informing the public as to who were and who were not legitimate practitioners of medicine. Reregistration had been very effective in eliminating quacks from the practice of dentistry. The report further called attention to a bill designed to prevent fee-splitting that had been prepared for the last Legislature. The committee had endorsed the bill as it was presented. If it was presented again this winter the committee would again give it their approval. Finally, the report outlined the plans for the new official organ of the Society. It was to be published as a newspaper or bulletin and would contain all the detail that would be of interest to the membership and all matters of general importance, such as programs of medical meetings, hospital news items, and all matters of interest to the profession. It would contain no scientific papers. Its advertising would be conducted in accordance with the standards of the American Medical Association. The paper would be of no expense to the Society either directly or indirectly. It was hoped to have the initial issue appear during January.

Dr. WALTER L. NILES begged permission to speak for Cornell University. He said that no one regretted the unfortunate publicity given the Cornell pay clinic more than did they. They had done their best to guard against it. They had a committee formulate one or two letters and a pamphlet. One letter was sent to the Academy of Medicine and one to the County Society and the pamphlet was given out at Cornell. Nothing was given to the newspapers; whatever they had was formulated from these. Men at the head of the clinic did not know the pictures were to be taken or published. To the best of his knowledge a nurse allowed a photographer to take the pictures, but she did not know for what purpose they were to be used. He regarded this publicity as most unfortunate. The clinic had been established upon the recommendation of the public health committee of the Academy of Medicine and was encouraged and fostered by the dispensary development committee. They wished the cooperation of the medical profession in every way and would welcome an investigation from this organization. They would be very happy to show the workings of the clinic in its every detail. The idea of advertising was always looked upon as implying monetary gain and this clinic was not being run for gain, but, on the contrary, had been operated with the aid of the dispensary development committee. He invited any and all to come and watch the operation of the clinic and to give suggestions with reference to organization and methods of conducting it.

Dr. EDEN V. DELPHEY said that in order that the Society might be informed of the position of the trustees of the American Medical Association on the subject of pay clinics he wished to call to their attention the report of the autumn session of the board of trustees. A committee was appointed to study this question. The principles deemed basic by them were: "(1) that patients should be received by the clinic only when sent by the family physician or received with his knowledge and approval; (2) so far as feasible the patient should be returned to the family physician with written information and suggestions; (3) that the fee charged by such clinic should not be less than that usually charged in general practice, so that, as far as possible, competition of the clinic with the general practitioner should not occur, and the chief consideration should be the public and the medical profession."

Report of the Counsel.—Dr. GEORGE W. WHITESIDE submitted this report, in which he reviewed the activities of the counsel for the year ending November 21, 1921. The report stated that the counsel had attended regularly the meetings of the Comitia Minora and the board of censors and in many instances the meetings of the Society. In the past year there had been quite a number of occasions when legal advice was necessary. On account of the great expense the Society had abandoned the employment of investigators to obtain evidence leading to the prosecution of illegal practitioners of medicine. Arrangements had been made whereby the police department co-operated in complaints of violation of the public health law. Under this arrangement the counsel had forwarded a large number of complaints to the police department and the fifth deputy police woman had appeared before the magistrates in courts of special sessions. A list of the cases handled in this way was included in the report. Dr. Whiteside stated that a number of chiropractors had been tried in the court of special sessions on the charge of practising medicine illegally and had been fined $50 each. Complaints had been received by the counsel from many sources, all of which had received due attention. Conferences had been held on various matters with city, State, and Federal representatives. Matters connected with the violation of the Harrison narcotic law had been referred to the district attorney and when such violations occurred outside of the city they were re-

ferred to the district attorney of the county in which they had occurred. The report further set forth the work of the counsel with legislators in his endeavor to defeat the chiropractor bill and of the advice he had given to various departments of city and State in an endeavor to check the practice of medicine by unlicensed chiropractors and other illegal practitioners of medicine. It was pointed out that the duties of the counsel required considerable time and effort; there was seldom a day when he did not give one or two hours to the work of the Society. In closing, the report commended the police and health departments for the courteous and efficient cooperation extended to the counsel in the performance of his duties.

Report of the Milk Commission.—Dr. WALTER LESTER CARR submitted this report. The figures presented showed that a total of 14,950 quarts of milk was certified daily and that the inspector in the prosecution of his duties had traveled upward of 40,000 miles during the year. The books of the milk commission showed a balance of $1,144 in favor of the Society.

Report of the Special Committee on New Members.—Dr. ERNEST FAHNSTOCK presented this report, in which he stated that this committee, in its efforts to increase the membership of the Society, had districted the city and gone over it thoroughly. They had included men on the interne staffs of hospitals, and had made an effort to get men of character and ability rather than simply a large number. Through their efforts 199 applications for membership had been filed, of this number 176 had been elected to membership and thirty-two were still awaiting the action of the committee on membership.

Report of the Public Health Education Committee.—Dr. JOSEPHINE H. KENYON reported that the committee held its first meeting last April, when it was decided that each member of the committee be held responsible for one or more meetings, which it was decided would be held from October 14 to December 14, 1921. The public health committee of the New York Academy of Medicine had given them most efficient cooperation. Several meetings had been arranged in connection with organized societies, as for instance, the Society for the Control of Cancer, the New York Nutrition Council, the New York Tuberculosis Association, etc. To date the program had been carried out as planned. The audiences thus far had averaged 250 persons; there had been a total attendance of 1,500 to November 28.

Annual Report of the Comitia Minora.—Dr. DANIEL S. DOUGHERTY submitted this report, which consisted in the assembled reports of the Comitia presented at the stated meetings during the past year. The total attendance at the meetings of the Society during the past year was 1840, an average of 230 persons at each meeting. One hundred and seventy-six names had been added to the membership of the society. The net membership of the society on November 28, 1921, was 2,917, an increase of ninety-nine for the year.

Address.—The Law Risks of Medical Practice and Adequate Protection Therefor.—Mr. GEORGE W. WHITESIDE delivered this address, in which he said, in part, that this subject was one of peculiar interest to every practicing physician. This interest remained rather latent as long as everything went well, but became of paramount importance when unfortunate results occurred. The physician in dealing with the human body was dealing with a very variable subject. It was useless before this society to speak of the numerous variations and idiosyncrasies of the human body or of the possibilities of variations in results from the same treatment in different individuals. These the physicians had to face in his work and he might obtain bad results even when applying the most modern and well sanctioned methods. In other words, the practice of medicine involved a law hazard or risk well defined but little appreciated. Taking up some of the liabilities to which the physician was exposed, Mr. Whiteside said that the State maintained that the physician went into the practice of medicine with his eyes open and accepting certain liabilities. There was the liability growing out of his duty or a breach of that duty. When a physician accepted a patient he became a party to a contract. That did not mean that he sat down and signed an agreement, but by accepting and treating a patient he had entered into a contract. The fact that a man was licensed to practice medicine and held himself as being licensed and ready to practice medicine, and the fact that a person came into his office for treatment, ready, able, and willing to pay for such treatment, created a contract if the physician accepted that person as a patient. This created a contract under the terms of which, although a word had not been spoken, the physician assumed a liability in treating that patient. It meant that the physician possessed a reasonable degree of skill and would use reasonable care, his best judgment, and proper precautions as to what he should do. It meant that the physician should use methods of diagnosis and treatment which were approved and sanctioned by those practising in his locality or State. All these representations a physician made simply by putting a shingle in the window, and when he accepted a person as a patient he assumed these obligations. If bad results occurred due to failure on the part of the physician in any one of these particulars—not all, but in one—then the law said the physician was liable. The liabilities of the physician differed very materially from ordinary liabilities because ordinary liabilities were well defined and well understood. The reason was that the medical profession was not sufficiently self-centered and self-interested. The physician became absorbed in treating his patient and forgot to protect himself. He was interested in performing an expert and scientific service and left the door wide open for attack upon himself. In the event of a bad result he then found himself the subject of an attack that brought him before the court and the public in a way that worked very material injury to him because it struck at his most precious possession, his reputation. His reputation was not a concrete thing; it was a psychological condition impressed upon the minds of people that he had certain qualities—skill, application, and fidelity to duty. It was against this more or less intangible thing that the attack was made, and every physician was open to such an attack. Mr. Whiteside said he had known of cases in which the result of the physician's treatment was good, but it took a week to establish that fact before a jury because the patient thought the result was bad. He had known instances in which that thought had been instigated in the mind of the patient because another physician looked with jealousy upon the reputation of his fellow-practitioner. The physician faced problems of that kind, not only in relation to the public but unfortunately in relation to other physicians. There was no particular type of practitioner free from this type of attack. He had heard an obstetrician say that he did not require malpractice defence; that it did not apply to him. Mr. Whiteside cited a case showing that such a view was erroneous. Another physician said he only did diagnostic work and therefore did not need this kind of protection. Mr. Whiteside said that he had seen cases in the last twelve months that showed quite the contrary. Of the cases coming under his observation during this period 20 per cent. were fractures, a large proportion being treated by general practitioners; 19 per cent. were obstetrical cases. Mr. Whiteside cited a case showing the difficulties a physician might get into if he did not treat a case according to well sanctioned accepted methods. If a physician departed from sanctioned practice the court said he did it at his own peril. Another case was cited to bring out the fact that when a physician assumed charge of a case he was supposed to continue to care for the patient unless he was discharged or the patient no longer needed his care. It was not an easy matter to get rid of a patient. Cases were cited to emphasize the fact that a surgeon must have consent to operate. In one instance a surgeon was to operate for an affection of the left ear. When the patient was under the anesthetic he found that the right ear was in greater need of the operation than the left. He operated upon the right ear. He obtained a good result but not a perfect result. Suit was brought because he had operated upon the right ear when he had consent to operate upon the left ear and not upon the right. The element of consent was exceedingly important. Many of these mistakes occurred because the physician thought more about the patient than he did about himself, though he might be doing the best thing in a scientific way. All the advances in modern medicine increased the physician's liability. The improve-

ments in the use of the *x*-ray, in serum therapy, and the myriad of applications in diagnosis and practice of the various laboratory methods, all resulted in greater benefit to the patient and were a wonderful assistance in treatment, but every advance added to the responsibility of the physician, for the law required him to keep abreast of the times, to know these improvements, and to employ them. They also made it easier to discover mistakes. Formerly things passed as proper and approved practice because of ignorance. Now liability could more often be fixed as, for instance, where it was possible to give the ocular demonstration of a mistake by means of an *x*-ray. Cases were cited to show that the *x*-ray might be perverted in court to serve the devil's purpose. It was sometimes forgotten in court that it took an expert roentgenologist to demonstrate what the *x*-ray showed. In most instances an ordinary damage suit was safe in the hands of the jury, but it was better to non-suit a case than to allow it to go to the jury to be speculated with. Malpractice suits against physicians were becoming an increasing burden, and there were, indeed, very few meritorious cases. Mr. Whiteside said that when he had found a meritorious case against a physician he had gone to the physician and advised him to settle the suit out of court and in most instances this advice had been followed. As to malpractice defense, not only was the State society at increased expense to maintain malpractice defense, but insurance companies had increased their rates from 100 to 300 per cent. One company had increased its rates from $15 to $45 per year for $5,000 to $15,000. Insurance companies stated that their experience with this type of cases had been most disastrous; they had, therefore, raised their rates. Under present living conditions it was recognized that it was well to have these various types of indemnities, fire insurance, automobile insurance, life insurance, etc. Why should the physician neglect himself by not insuring himself against the liabilities to which he was exposed in the practice of his profession? Mr. Whiteside then described the plan for an adequate indemnity insurance for physicians at a very moderate rate under which he would defend the cases for the company carrying the insurance. He also stated that after much difficulty he had succeeded in finding a reliable company which would carry this insurance.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

OBSTETRICS AND GYNÆCOLOGY. Edited by JOHN S. FAIRBAIRN. 950 pages with illustrations. Published by Oxford University Press, American Branch, New York.

CLINICAL SURGICAL DIAGNOSIS. By F. DEQUERVAIN. 914 pages with 731 illustrations and 7 plates. Price, $14. Published by William Wood & Company, New York.

COLLECTED PAPERS OF THE MAYO CLINIC (1920). Edited by Mrs. M. H. MELLISH. 1392 pages with illustrations. Price, $12. Published by W. B. Saunders Company.

THE FOLLY OF NATIONS. By FREDERICK PALMER. 408 pages, published by Dodd, Mead & Co.

ÉTUDE SUR LE TRAITEMENT DE LA TUBERCULOSE PULMONAIRE. By Dr. C. M. DESVERNINE. Price, 5fr. 74 pages. Published by L'Expansion Scientifique Française, Paris.

TUBERCULOSE PULMONAIRE CHRONIQUE. By Dr. C. M. DESVERNINE. 45 pages with illustrations. Price, 5fr. Published by L'Expansion Scientifique Française, Paris.

SURGICAL EXPOSURE OF THE DEEP-SEATED BLOOD-VESSELS. By FIOLLE and DELMAS. 87 pages with illustrations. Price, 8s. 6d. net. Published by William Heinemann, London.

Miscellany.

Brillat-Savarin.—This eminent dietitian, as he might be termed, was a student of both chemistry and medicine. To the world at large he is known only as a French gastronomist. From a biography published by Genty, we learn that he was born in 1755, the son of a State Attorney. At the beginning of his career he practised the paternal profession of law. (*Le Progrès Médical*). The possession of private means obviated the necessity for hard work and allowed him to dabble in many things. As an amateur cook he soon became known through his recipes, such as stuffed pheasant, tunny omelet, etc. These dishes he probably picked up through mixing with all sorts of people, and he improved them by experiment. He gave little parties to his friends and on such occasions his formulæ became public property. The Revolution cut short these pleasures, and during this period he held important offices. Being on the side of the Royalists, matters finally went against him. When the Revolutionists sought his arrest he fled to Switzerland and eventually to New York, residing there from 1793 to 1796. Here he supported himself by playing the violin in a theatre and teaching French. He never regretted his American sojourn. Returning to France in 1796, he seems to have made peace with the new Republic, under which he held several important offices. His near relationship to Madame Recamier was a social help to him, and after quiet was restored he divided his time between Paris and the country. He published several romances and eventually his famous work "The Physiology of Taste," the latter at his own expense. He was a man of unusual physique, robust and so tall and large as to merit his nickname of "drum major." In 1826 he caught cold at a funeral and died in a few days of pneumonia, aged 73. A statue in his honor is to be rected at Belley in the Ain Department, where he was born, says a correspondent of the Manchester *Guardian*. The ceremony is to be made the occasion for a Brillat-Savarin week at Belley, where the most famous French chefs will serve throughout the celebrations only dishes especially praised by the "master."

Napoleon's Physicians at Saint Helena.—Despite numerous accounts by English writers in justification of the conduct of Napoleon's guardians and medical men toward the eminent exile, the French keep alive the old traditions of neglect and hardship. In an article by Masson which is reviewed in *Le Progrès Médical* for July 2, 1921, xlix, 27, it is asserted that the prisoner was not permitted to see the daily bulletins sent by the Surgeon O'Meara to Lowe, the governor. The reason for this attitude seems to have been that the medical man thought Napoleon was shamming sickness to obtain sympathy. Despite this behavior, Napoleon seems to have preferred the attentions of this surgeon to those of any other. Soon afterwards O'Meara resigned his post and demanded to be sent home. An English fleet surgeon named Verling was assigned by the governor as his successor, but Napoleon refused to see him or anyone excepting O'Meara. He went without counsel until an attack of vertigo, when he demanded the services of a fleet surgeon named Stoköe, who had once visited him with O'Meara. This man was asked by the exile to

become the latter's successor and accepted, but because he did not act under the authority of his chief Verling, was punished and reduced in rank. After another interregnum of some months one Antommarchi became the nominal medical adviser but he was not a graduate physician. He neglected the Emperor, either making very brief daily visits or none at all. As he was nothing more than an ex-prosector, his patient was doubtless better off for this want of attention. When death approached an effort was made to procure a reputable medical man agreeable to the patient. Death occurred while the well-known French physician Pelletan was *en route* for the island. The friendliest criticism must admit that the Emperor never received the services of any medical man of great prominence or repute for skill during his six years' imprisonment.

Latin in Education.—Callamand discusses this subject at length and questions the existence of a special Latin genius in stating that there are profound ethnic differences between the French and Spanish. Comparing the Latin and English cultures or genius he shows that for every eminent Frenchman there is an Englishman of the same type. The worship of Napoleon is nowhere greater than among Anglo-Saxons, and this is also true of Joan of Arc. In idolatry of Greco-Latin culture we have ignored the cultures of Arabia, India, China, and Japan. On the other hand, it has been claimed that the Jesuits carried to France a pedagogic culture which they borrowed from the Far East. Quite recently in England Crookes, Ramsay, and other great scientists advocated the abandonment of Greco-Roman culture, pointing out that the great general institutes of learning in England have no scientists among the directorates, not even of the military schools. The great French mathematical genius, Poincaré, believed, however, that every man of science must be trained in the "humanities." In the United States Carnegie and other money kings have been outspoken against the study of dead languages, pointing out that great financial magnates usually begin as ordinary bureau employees, or in other humble capacities. Three distinguished American writers without much schooling were Whitman, Mark Twain, and Jack London. Among the French George Sand had hardly any Latin, Alexander Dumas refused to study it and got his education from Shakespeare, Scott, and Schiller, while Zola funked Latin to read Montaigne, Rabelais, Shakespeare, and Hugo. The author advocates the study of English, Spanish, or even German in place of the dead classical tongues.—*Le Progrès Médical.*

Sneezing.—The anthropology of these acts is much less studied than the symptomatology, or, rather, has been less in evidence, but quite recently a French author, Saintyves, has published a monograph entitled in English translation "Sneezing and Yawning in Magic, Ethnography, and Medical Folklore." The sections devoted to sneezing are briefly reviewed in *Le Progrès Médical* for November 5, 1921, xlix, 45. Among many primitive peoples a sneeze signified the critical moment at which an apparition became visible or a danger had passed. It was the occasion for felicitations and good wishes, just as it still is among the "civilized" whites of today. When one barbaric monarch sneezed the word was quickly passed along by word of mouth until all of the subjects had been informed and the latter then made solemn wishes for His Majesty's health. At another African court the courtiers turned their backs and slapped themselves on the thigh at the royal sneeze. In a third country at the sneeze of any important personage those within earshot fell to their knees, kissed the ground and wished the sneezer all manner of good luck. The Roman emperor, Tiberius, made all hands salute him whenever he sneezed, but this seems to have been a personal matter, for Pliny had never heard the like. Among the ancient Greeks artificial sneezing, produced doubtless with a feather, was used for a variety of troubles—hiccough, crusts in the nasal passages, headache, and difficult labor. It was also used for migraine in the Middle Ages and, after the introduction of tobacco, snuff was used in a variety of disorders. Sneezing powders were also in common use, and attempts were made to break up epileptic seizures by their exhibition. Certain peoples believed that sneezing by a sick man was of bad prognostic significance, while others took the exactly opposed view that if a sneeze could not be provoked the patient could not recover. In 1817 Double, a writer on symptomatology, believed that both prognostics could hold good, according to the case.

The Nature of X-Rays.—Erculisse attempts to determine the nature of the *x*-ray by considering in succession the phenomena of Crooke's tube, the relation of *x*-rays to light rays, the polarization and diffraction of *x*-rays, the relation of the latter to the structure of the atom, and the relation of the rays to crystallography. He mentions the remarkable relationship between the *x*-ray spectrum of an element and the position of the latter in the classification of Mendelejeff. According to the Law of Bragg, every tube emits a continuous spectrum and another which is characteristic of that tube. The latter depends on the metal which enters into the formation of the anticathode. The continuous spectrum is always the same, despite the material composing the anticathode. When the young English physicist, Moseley, was killed in the Dardanelles campaign in 1915 it was said that he possessed a knowledge quite unique concerning the structure of the atom and that he was able to count the electrons in the latter. This knowledge came in part from his study of spectra obtained from anticathodes composed of different metals. As a class these spectra are very simple, consisting of few lines. A grouping of them according to wave lengths—expressed in millionths of a millimeter—shows the correspondence to Mendelejeff's law of atomic weights. The loss of Moseley while practically in the midst of this study was irreparable, but his discovery as it stands marks one of the greatest of achievements in physics. The two English physicists, Bragg, father and son, have used the diffraction of the *x*-rays to determine the crystallization of substances, the method being likewise founded on the wave length of the rays. The problem here is one of ions, as the other was one of electrons. The number of strictly amorphous substances has been greatly reduced by this discovery.—*Annales de la Société Royale de Bruxelles*, 4, 1921.

Cerebrospinal Meningitis in Portuguese India.—Prof. Froiland de Melo of the Medical School at Goa writes interestingly of this affection in the tropics. Apparently epidemics of the latter have hardly been known to occur in hot countries until recently. In 1908 Haan of Java announced its appearance in that island and about the same time it was heard of in the Gold Coast of Africa. In 1916 it cropped out in French Guinea and in 1918 in the Belgian Congo, and recently it has been recognized in several other tropical localities. However, the author is able to show that there were foci in Hindustan before 1908. It was certainly encountered in Portuguese India as early as 1904, having apparently been carried thither by Portuguese sailors. In various points in British India it was seen as far back as 1906, but the incidence was evidently slight and without significance. These early cases in Portuguese India were quickly recognized and isolated so that no epidemic resulted, and the subject was evidently quickly forgotten. Recently, as late as December, 1918, new cases appeared and were at first completely unrecognized. The condition suggested pernicious malaria with bulbar symptoms. Even by March, 1919, the true nature of the cases was unrecognized. The resemblance to cerebrospinal meningitis was noted, but that was all. Some of the cases were very mild, while there was much want of type. The blood tests, as a matter of fact, sometimes showed the plasmodium. Intestinal parasitism, also extremely common, seemed to explain some of the symptoms. Finally it occurred to one of the sanitary officials to look for the meningococcus, which was at once found in the spinal fluid. It now became possible to trace cases backward over the three months of the disease incidence, and it was evident that at least 500 of the 2500 families of the affected district had presented one or more cases. The mortality was but 18 per cent. practically untreated, which shows the relative benignity of the malady in the tropics.—*La Medicina Ibera.*

Monument to Lombroso at Verona.—On September 25, 1921, was started a project to erect a monument to the late Cesare Lombroso in the city of Verona, where he was born in 1835. The deceased, by the way, was opposed to all memorials as appealing too much to human vanity. The sculptor is Leonardo Bistolfi. The monument will bear the inscription, "Dedicated by his natal city, by all Italy, and twenty-three foreign nations." It will comprise a statue of the man in classic habiliments seated on a bench, and the figure will be of bronze. His prejudices against statuary and the like doubtless were limited to works instigated by the subjects themselves during life, or provided for by wills or by requests made to relatives. A spontaneous tribute of global origin, erected years after the death of the subject, is certainly exempt from the objection of motivation by individual vanity. Lombroso's reputation will rest rather on his humanitarian labors than his scientific attainments, great as were the latter. As a penologist and criminologist, as a reformer of penal codes and of the custodial care of the insane and delinquent, and as the founder of a school of alienists and penologists, he will be best remembered. In State Medicine and Sanitation he will be remembered for his pioneer and revolutionary work on pellagra, which, incidentally, is, of course, one of the causes of insanity.—*La Riforma Medica.*

The Franco-Polish Medical Congress.—The special correspondent of *La Presse Médicale* has been writing a series of letters to his paper on this topic. The Congress was held at Cracow, the ancient monuments of which city have evidently escaped defacement during the war. The medical school has a bacteriological institute, which includes experimental medicine, as part of its own equipment. Laboratory animals are cheap, a rabbit which would cost 18 francs in Paris bringing but 35 centimes in Cracow. An institute of this kind under faculty control is evidently a desideratum, as the French correspondent envies his Cracovian colleagues and hopes to see a corresponding institution as part of the Paris school, the Pasteur Institute in Paris being entirely independent of the medical faculty. Despite the postbellum stagnation supposed to prevail in Poland, the medical men appear to have enjoyed themselves as much as in the remote days when war had not been thought of. There were enough social functions to exhaust the delegates. One was a performance at the Municipal Theatre, where was produced a play by Fredo, who is termed the "Polish Molière." Doubtless few Americans have so much as heard of him. Restaurants and saloons were crowded, and the author found the wines of the Rhine and Moselle districts in abundance. Dancing seems to have been almost a craze. The gaiety is probably motivated in part by the uncertainty of the future — a defense reaction against the prospect of more war or national bankruptcy. The correspondent notes that war materials, such as arms, explosives, etc., are being manufactured and the Poles evidently do not propose to be caught napping.

Death of Eichhorst.—This celebrated German clinician was born at Königsberg in 1849, and in 1874 had the good fortune to be assistant to Frerichs in Berlin. After filling minor positions with credit, he was called to the chair of medicine at Zürich when but 34 years of age, and soon acquired the repute of one of the leading internists on the continent. His work on internal medicine, which went through many editions and translations, aided in making him famous. He refused offers from German clinics, but when the war broke out he returned to Prussia. His military experiences were too much for his health and vigor and on his return to Zürich he resumed his duties only to be forced to abandon them. His malady seems to have been angina pectoris. The necrologist does not portray the career of his subject so much as his character. Aside from his professional and family duties he had few activities. In this respect he differs strikingly from the familiar type of the successful medical man who travels widely and is interested in all that pertains to mankind. The devotion of Eichhorst to his daily duties suggested that of the pious man in his religious observances. He liked the maxim, "Hospital work is divine worship." The necrologist believes that Eichhorst's play during his long years at Zürich was limited to a single two-day excursion to the Rigi, which he had never before visited.—*Schweizerische medizinische Wochenschrift.*

INDEX TO PAGES

INDEX

M

N

OBITUARIES:

T

U